Long Island Rail Road Expansion Project

Floral Park to Hicksville

Final Environmental Impact Statement

Appendix 8-B

LIRR ROW and Grade Crossing Site Investigation Report

April 2017

SOIL INVESTIGATION REPORT
LIRR RIGHT OF WAY AND GRADE CROSSING LOCATIONS
MTA LONG ISLAND RAIL ROAD (LIRR)
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

MATRIXNEWORLD

Engineering Progress

Submitted to:
Gannett Fleming – AECOM Rail Road Expansion Partnership
A Joint Venture between Gannett Fleming Engineers and Architects, PC and AECOM USA, Inc.
Two Penn Plaza, Suite 552
New York, NY 10121-0101

Submitted by:
Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, New Jersey 07932

Matrix No. 16-144

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1.0 INTRODUCTION

Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C. (Matrix) has completed an environmental investigation to support the Metropolitan Transportation Authority (MTA) Long Island Rail Road (LIRR) Expansion Project (the "Proposed Project")

The Proposed Project involves:

- Installation of additional track to complete a continuous third Long Island Rail Road (LIRR) Main Line track along the 9.8-mile corridor from Floral Park Station to Hicksville
- Elimination of seven existing grade crossings within the project limits to provide grade-separated crossings or potentially, in one or two cases, full closures to vehicular traffic, with the nature of the modification to be based on New York State Department of Transportation (NYSDOT) design criteria, consideration of construction impacts and duration, traffic impacts, and input from the community
- Construction of retaining walls along portions of the corridor
- Installation of sound attenuation walls along portions of the corridor
- Modifications to passenger rail stations and parking (e.g., modified and improved platforms, passenger shelters, Americans with Disabilities Act (ADA) enhancements, and parking modifications including new parking facilities at the New Hyde Park, Mineola, Westbury, and Hicksville stations)
- Construction of new pedestrian overpasses with elevators
- Modifications to railroad infrastructure including overpasses, signal systems, substations, culverts, interlockings, crossovers, sidings, track bed, power systems, communications and signals
- Utility relocations, including electric, signal, communications, gas, water, sewer, and storm sewer systems.

Matrix provided environmental services as a sub-consultant to the Joint Venture (JV) team of Gannett Fleming Engineers and Architects, PC (GF) and AECOM USA, Inc. (AECOM). The project location is shown in the attached site location plan (Figure 1).

The purpose of the investigation is to characterize soils in the project area. The investigation is specifically focused on the LIRR right of way (ROW) at proposed locations of retaining walls and grade crossings that will be disturbed as part of the Proposed Project. A total of 39 soil borings were completed as shown on the attached Soil Boring Location Plans (Figures 3 through 24). One boring, SB-4, was not completed due to restricted access and safety concerns, although borings SB-3 and SB-5 are located relatively close by within the same proposed retaining wall (RW-2).

The investigation described in this report was conducted as per the Technical Scope of Work (TSOW) for CR#9 – Waste Characterization, prepared by the LIRR on September 15, 2016, for the collection of soil data within the project area. The TSOW was subsequently revised during a site walkthrough and other communication with LIRR and the final scope was summarized in Matrix's October 2016 Sampling and Analysis Plan (SAP). The purpose of the investigation was to both characterize soil in the project area to ensure proper handling and/or disposal of these materials during construction, as well as to inform the bidding contractor on potential needs for worker health and safety, as well as the safety of the general public within the study area.

2.0 BACKGROUND

Based on a prior review of environmental records for the project and surrounding area, there is a potential for risks of exposure associated with surface/subsurface construction activities proposed within the Project Area. Additionally, the historical and current use of the area as a railroad has resulted in the potential for encountering contamination during construction activities. This report describes the investigation at locations along the LIRR ROW that will likely have soil disturbed or removed during the expansion project.

2.1 Site Location and Description

The site is located in Nassau County, Long Island, New York. Thirty-nine soil borings were installed along the 9.8-mile corridor between the Floral Park and Hicksville Stations of the LIRR within and surrounding the ROW and at grade crossings.

2.2 Geology

According to the New York State Department of Transportation Geotechnical Design Manual, Chapter 3 – Geology of New York State, the Project Area is located in the Atlantic Coastal Plain Province. The province covers the southern portion of Staten Island, New York and all Long Island, New York and consists of the Harbor Hill-Ronkonkoma Moraines and the Long Island Outwash Plain.

According to the Surficial Geologic Map of New York State, Lower Hudson Sheet, the site is situated within an area identified as outwash sand and gravel, in which the subsurface conditions generally consist of variable amounts of clay, silt, sand, and gravel (6 to 60 feet thick). Per the Geologic Map, the bedrock appears to consist of Metamorphic Rock of uncertain origin. A summary of the lithology observed during the site investigation is provided in Section 3.2.

2.3 Topography

The Lynbrook, New York and Hicksville, New York USGS topographic quadrangle shows the elevation of the project area ranges from approximately 91 feet above mean sea level (msl) at Floral Park Station to 147 feet msl at Hicksville Station. A Regional Location Map showing the location and elevation of the Project Area is included as Figure 1.

3.0 TECHNICAL OVERVIEW

The following section discusses subsurface investigation activities performed by Matrix in the Project Area from October 31 to November 11, 2016. All subsurface investigation activities were completed in accordance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) document *Technical Guidance for Site Investigation and Remediation* (DER-10) and the SAP. Soil borings were completed under the full-time supervision of a Matrix representative.

A sample summary table is included as Table 1 and a table summarizing soil laboratory analytical results is presented on Table 2. Soil Boring Location Plans are presented on Figures 2 through 24. Soil boring logs are included in Appendix A, a photolog is included as Appendix B, and the laboratory analytical package is included as Appendix C.

3.1 Soil Investigation Methodology

The soil borings were located throughout the Proposed Project at proposed locations of retaining walls and grade crossings to provide a comprehensive understanding of the subsurface. Matrix oversaw the advancement of thirty-nine soil borings, SB-01 through SB-40, by Land, Air, Water Environmental Services, Inc. (LAWES) of Center Moriches, New York, utilizing hand tools and "Direct Push" drilling technology. Boring SB-04 was eliminated due to access restrictions and was not moved to an alternate location because of its proximity to borings SB-3 and SB-5, located within the same proposed retaining wall (RW-2) area. Matrix visually inspected, screened with a photo-ionization detector (PID) and continuously logged subsurface soils for lithology. The soil borings were advanced to depths varying from approximately 3 to 25 feet (ft) below grade surface (bgs), dependent upon anticipated construction depths and the limitations of drilling equipment. Multiple sample locations were not accessible by a drill rig and at those locations samples were advanced with hand tools to refusal, which generally was less than 10 ft bgs.

Composite soil samples were collected from 2 ft. intervals (surface, 2 ft., 4 ft., etc.) throughout the borings. The composite soil samples were analyzed for the following analyses: the full Toxicity Characteristics Leaching Procedure (TCLP) list; RCRA Characteristics, including ignitability and reactivity; USEPA Target Compound List (TCL) semi-volatile organic compounds (SVOCs); TCL polychlorinated biphenyls (PCBs); Target Analyte List (TAL) metals; TCL pesticides; TCL herbicides; and dioxin. One grab sample from each boring was analyzed for TCL volatile organic compounds (VOCs) and was taken from the discrete 6-inch interval with the greatest evidence of contamination determined visually or with readings from the PID. If there was no indication of contamination, the VOC grab sample was collected from the 0.5-2.0 ft. bgs interval. All soil samples were placed in laboratory-supplied bottleware on ice under proper chain-of-custody documentation and submitted to SGS Accutest Laboratories (NYSDEC Certification 10983) of Dayton, New Jersey.

3.2 Soil Lithology

Borings SB-05, SB-15, SB-17, SB-18, SB-29, SB-33, SB-34, SB-35, SB-37, SB-38, and SB-39 were advanced in the railroad ROW on LIRR property and had approximately 1 to 2 feet of ballast beginning at the ground surface. In the majority of borings outside of the ROW, but on LIRR property, fill material consisting of dark brown to light brown sandy silts and silty sands were present from the ground service to an approximate depth of 5 ft bgs. Below the fill material, native soils generally consisted of orange to

tan, fine sand mixed with some medium sand with trace silt. Borings were generally dry to the terminal depth of the boring. No groundwater was encountered throughout the site investigation; however, in boring SB-23, wet silt was encountered from 13.5 to 15.5 ft bgs. Small cobbles were observed throughout most borings from the surface until the terminal depth.

PID readings varied throughout the investigation area. PID readings were less than 7 parts per million (ppm) throughout borings SB-01 through SB-03, SB-05, SB-18 through SB-28, SB-32, SB-36 and SB-38 through SB-40. The four highest readings came from SB-31 (4,996 ppm) at a depth of 2.5 ft bgs; SB-35 (1,411 ppm) at a depth of 3 ft bgs; SB-30 (1,006) and a depth of 4.5 ft bgs; and SB-07 (957 ppm) at a depth of 6 ft bgs.

3.3 Sample Analytical Results

Matrix compared the soil analytical results to the 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs). The property that was investigated is located within railroad right-of-way and thus the applicable SCOs for this property use are the Industrial SCOs, or ISCOs. Any site cleanup in this area, to the extent required by law, would be subject to the ISCOs. For informational purposes, and to provide information on the nature of the soil present within the portions of the project area where there will be site disturbance, results are also compared to the unrestricted use SCOs (UUSCOs), which are the most stringent SCOs set forth under Part 375, and the restricted residential SCOs (RRSCOs) and commercial SCOs (CSCOs). Summary tables depicting the soil analytical data are included as Tables 2 and 3. The laboratory analytical data package is included as Appendix C. Exceedances of the UUSCOs and ISCOs are depicted on Figures 26 through 42.

VOCs

Other than acetone, a common laboratory contaminant, there were no detections of any VOCs in excess of any of the SCOs. Acetone was detected at 0.0805 mg/kg at boring SB-24, which is above the UUSCO of 0.05 mg/kg but well below all other Part 375 criteria.

SVOCs

Two semi-volatile organic compounds (SVOCs), benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene, were detected above the UUSCOs and RRSCOs but below the CSCOs and applicable ISCOs. One or both of these polycyclic aromatic hydrocarbon (PAH) compounds were found in borings SB-21, SB-22, SB-28 and SB-34. The highest concentration of PAHs was present in the sample from boring SB-21, where benzo(b)flouranthene was detected at 1.07 mg/kg, above the UUSCO and RRSCO of 1 mg/kg. These compounds are frequently found in urban fill materials and are common in railroad sites, where PAHs typically average between 1 and 2 mg/kg, but can be found at concentrations greater than 100 mg/kg. No SVOCs exceeded any CSCO or ISCO. A summary of exceedances is shown in the table below.

SVOC Exceedance Summary Table

Sample ID:	SB21	SB22	SB28	SB34	UUSCO	RRSCO	CSCO	ISCO
Date Sampled	11/9/2016	11/9/2016	11/4/2016	11/7/2016				
Benzo(b)fluoranthene	**1.07**	**1.02**	**1.01**	**1.03**	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.358	**0.604**	**0.508**	0.433	0.5	0.5	5.6	11

Concentrations shown are mg/kg
Bolded values indicate exceedance of the UUSCO and RSCO

PCBs

PCB compounds are analyzed as a series of Aroclor mixtures, which were the trade names used for the various PCB products. Two Aroclor mixtures were detected in samples at concentrations exceeding the UUSCOs of 0.1 mg/kg for each compound: Aroclor 1254 was detected at SB-05 (0.302 mg/kg), SB-19 (0.191 mg/kg), and SB-20 (0.251 mg/kg); and Aroclor 1260 was detected at SB-01 (0.200 mg/kg). The RRSCOs, CSCOs and ISCOs were not exceeded for any PCB compound. A summary of exceedances is shown in the table below.

PCB Exceedance Summary Table

Sample ID:	SB01	SB05	SB19	SB20	UUSCO	RRSCO	CSCO	ISCO
Date Sampled	11/11/2016	11/11/2016	11/9/2016	11/9/2016				
Aroclor 1254	<0.034	**0.302**	**0.191**	**0.251**	0.1	1	1	25
Aroclor 1260	**0.2**	0.08	<0.034	<0.035	0.1	1	1	25

Concentrations shown are mg/kg
Bolded values indicate exceedance of the UUSCO

Pesticides

Pesticides were detected at concentrations above the UUSCOs, but multiple orders of magnitude below RRSCOs, CSCOs and ISCOs, in 25 of the 39 samples throughout the corridor. In the remaining 14 samples, pesticides were either not detected or detected at concentrations below the UUSCOs. 4,4'-DDD exceeded the UUSCO at SB-12, SB-21 and SB-22 with a maximum concentration of 0.0109 mg/kg in sample SB-12. 4,4'-DDE exceeded the UUSCO at SB-05, SB-07, SB-11, SB-12, SB-13, SB-19, SB-20, SB-21, SB-22, SB-32, SB-38, SB-39 and SB-40, with the maximum concentration of 0.0486 mg/kg in sample SB-12. 4,4'-DDT was found exceeding the UUSCO at 24 borings across the corridor, with a maximum concentration of 0.0582 mg/kg in sample SB-07. Dieldrin was detected at SB-19, SB-23 and SB-34 at levels exceeding the UUSCO of 0.005 mg/kg, with a maximum concentration of 0.0402 mg/kg in the sample from SB-34. A summary of the sample results where the UUSCOs were exceeded is shown in the table below.

Pesticides Exceedance Summary Table

Sample ID:	SB01	SB02	SB03	SB05	SB07	UUSCO	RRSCO	CSCO	ISCO
Date Sampled	11/11/2016	11/11/2016	10/31/2016	11/11/2016	10/31/2016				
4,4'-DDD	<0.00065	<0.00066	<0.00070	<0.00067	0.0028	0.0033	13	92	180
4,4'-DDE	<0.00065	<0.00066	0.0026	**0.0159**	**0.0089**	0.0033	8.9	62	120
4,4'-DDT	**0.0279**	**0.0074**	**0.0181**	**0.015**	**0.0582**	0.0033	7.9	47	94
Dieldrin	<0.00065	<0.00066	<0.00070	<0.00067	<0.00068	0.005	0.2	1.4	2.8
Sample ID:	**SB11**	**SB12**	**SB13**	**SB17**	**SB19**	**UUSCO**	**RRSCO**	**CSCO**	**ISCO**
Date Sampled	**11/1/2016**	**11/2/2016**	**11/2/2016**	**11/3/2016**	**11/9/2016**				
4,4'-DDD	<0.00089	**0.0109**	<0.00073	<0.00069	<0.00068	0.0033	13	92	180
4,4'-DDE	**0.0047**	**0.0486**	**0.0284**	<0.00069	**0.0039**	0.0033	8.9	62	120
4,4'-DDT	**0.0082**	**0.0281**	**0.0313**	**0.007**	**0.0132**	0.0033	7.9	47	94
Dieldrin	<0.00089	<0.00071	<0.00073	<0.00069	**0.0094**	0.005	0.2	1.4	2.8
Sample ID:	**SB20**	**SB21**	**SB22**	**SB23**	**SB28**	**UUSCO**	**RRSCO**	**CSCO**	**ISCO**
Date Sampled	**11/9/2016**	**11/9/2016**	**11/9/2016**	**11/10/2016**	**11/4/2016**				
4,4'-DDD	<0.00071	**0.0076**	**0.004**	<0.00065	<0.00065	0.0033	13	92	180
4,4'-DDE	**0.0204**	**0.0235**	**0.0063**	<0.00065	0.0026	0.0033	8.9	62	120
4,4'-DDT	<0.00071	**0.0418**	**0.0475**	**0.0085**	**0.0133**	0.0033	7.9	47	94
Dieldrin	<0.00071	<0.00072	<0.00070	**0.007**	<0.00065	0.005	0.2	1.4	2.8
Sample ID:	**SB30**	**SB31**	**SB32**	**SB33**	**SB34**	**UUSCO**	**RRSCO**	**CSCO**	**ISCO**
Date Sampled	**11/7/2016**	**11/4/2016**	**11/7/2016**	**11/4/2016**	**11/7/2016**				
4,4'-DDD	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	0.0033	13	92	180
4,4'-DDE	<0.00068	0.00058 J	**0.0139**	0.0011	<0.00070	0.0033	8.9	62	120
4,4'-DDT	**0.0058**	**0.0036**	**0.0291**	**0.0109**	**0.0138**	0.0033	7.9	47	94
Dieldrin	<0.00068	0.0033	<0.00069	<0.00069	**0.0402**	0.005	0.2	1.4	2.8
Sample ID:	**SB35**	**SB36**	**SB38**	**SB39**	**SB40**	**UUSCO**	**RRSCO**	**CSCO**	**ISCO**
Date Sampled	**11/7/2016**	**11/8/2016**	**11/8/2016**	**11/8/2016**	**11/10/2016**				
4,4'-DDD	<0.00063	<0.00063	<0.00068	<0.00080	<0.00071	0.0033	13	92	180
4,4'-DDE	<0.00063	0.002	**0.007**	**0.0069**	**0.0035**	0.0033	8.9	62	120
4,4'-DDT	**0.0104**	**0.0035**	**0.0214**	**0.0138**	**0.0044**	0.0033	7.9	47	94
Dieldrin	<0.00063	<0.00063	<0.00068	<0.00080	<0.00071	0.005	0.2	1.4	2.8

Concentrations shown are mg/kg
Bolded values indicate exceedance of the UUSCO

Metals

A number of different metals were detected in 16 of the 39 soil samples at levels that were above the UUSCOs. Arsenic, copper, lead, mercury and zinc were all detected at levels exceeding the UUSCOs in multiple soil borings. All detections were below RRSCOs, CSCOs and ISCOs except arsenic, which was detected at a concentration of 23.8 mg/kg in sample SB-12, exceeding the RRSCO, CSCO and ISCO of 16 mg/kg. Elevated metals compounds are frequently encountered in urban fill materials. A summary of metals exceedances is shown in the table below.

Metals Exceedance Summary Table

Sample ID:	SB03	SB07	SB12	SB15	SB17	SB19	UUSCO	RRSCO	CSCO	ISCO
Date Sampled	10/31/2016	10/31/2016	11/2/2016	11/3/2016	11/3/2016	11/9/2016				
Arsenic	5.6	4.9	**23.8****	2.1	2.5	6.5	13	16	16	16
Copper	37	20.4	32.9	20	25	**83.1***	50	270	270	10000
Lead	**95.1***	**82.7***	56.1	**70.1***	**75***	53.5	63	400	1000	3900
Mercury	0.058	<0.035	0.044	<0.032	0.062	0.079	0.18	0.81	2.8	5.7
Zinc	81.5	69.6	37.2	79.8	63.4	32.5	109	10000	10000	10000

Sample ID:	SB21	SB22	SB27	SB28	SB30	UUSCO	RRSCO	CSCO	ISCO
Date Sampled	11/9/2016	11/9/2016	11/3/2016	11/4/2016	11/7/2016				
Arsenic	**13.9***	7.3	4.4	5.5	3.2	13	16	16	16
Copper	38.2	**66.3***	**52.7***	31.1	36	50	270	270	10000
Lead	**125***	**378***	42.9	**110***	**111***	63	400	1000	3900
Mercury	**0.21***	0.12	<0.034	0.099	0.046	0.18	0.81	2.8	5.7
Zinc	92.2	**223***	**205***	**149***	91.8	109	10000	10000	10000

Sample ID:	SB34	SB35	SB36	SB38	SB39	UUSCO	RRSCO	CSCO	ISCO
Date Sampled	11/7/2016	11/7/2016	11/8/2016	11/8/2016	11/8/2016				
Arsenic	3.9	4.2	<2.0	4.8	2.5	13	16	16	16
Copper	**72.7***	**70.6***	5.7	**70.5***	30.6	50	270	270	10000
Lead	55.7	**88***	10.3	**196***	31.3	63	400	1000	3900
Mercury	0.1	0.13	**0.75***	0.077	<0.033	0.18	0.81	2.8	5.7
Zinc	95.7	47.8	**955***	**330***	**224***	109	10000	10000	10000

Concentrations shown are mg/kg
Bolded values indicate exceedance of any SCO
* next to a value indicates exceedance of the UUSCO
** next to a value indicates exceedance of the UUSCO, RRSCO, CSCO and ISCO

Cyanide

Cyanide was not detected above SCOs in any of the 39 samples.

Herbicides

Two herbicide compounds, 2,4,5-TP (Silvex) and pentachlorophenol are regulated by NYSDEC and were not detected in any soil samples. Herbicides 2,4-D and dichloroprop were either not detected, or

detected at low concentrations at several sample locations; there are no SCOs for these compounds. The remaining herbicides analyzed were not detected in any of the soil samples. Herbicides 2,4-D and 2,4,5-T are the components that made up the mixture for Agent Orange. 2,4-D, a common herbicide, was detected at low concentrations in several locations and has low toxicity for humans, according to the National Pesticide Information Center[1] and USEPA[2]. 2,4,5-T, while known to be toxic, was not detected in any Site soil samples.

Dioxin

Dioxin, specifically 2,3,7,8-Tetrachlorodibenzodioxin (TCDD), is a by-product of the production of the herbicide 2,4,5-T, one of the components of Agent Orange. TCDD does not degrade readily in soil and is known to be toxic over a long period. Due to its persistence in soil, TCDD was analyzed in soil samples to evaluate whether any remnants of Agent Orange are present in soil within the Proposed Project. TCDD was detected at low concentrations at several sample locations. There are no SCOs for dioxin compounds, so results were compared to the US Environmental Protection Agency (EPA) regional screening levels (RSLs) for dioxin mixtures, which are 0.0001 mg/kg (100 picograms per gram [pg/g]) for residential soils and 0.00047 mg/kg (470 pg/g) for industrial soils. Dioxin (TCDD) concentrations ranged from non-detect to 4.18 pg/g in sample SB-02. The majority of detections were less than 2 pg/g, and all detections were far below the more stringent RSL of 100 pg/g.

RCRA Characteristics and TCLP Analyses

Sample results for RCRA characteristics and full TCLP analyses are presented in Tables 2 and 3, respectively. The results of these analyses were compared to the EPA's Maximum Concentration of Contaminants for Toxicity Characteristic (CFR 40, Part 261, Table 1) indicated that the soils sampled would not be considered as a hazardous material.

1 http://npic.orst.edu/factsheets/archive/2,4-DTech.html
2 https://www.epa.gov/ingredients-used-pesticide-products/24-d

4.0 CONCLUSIONS

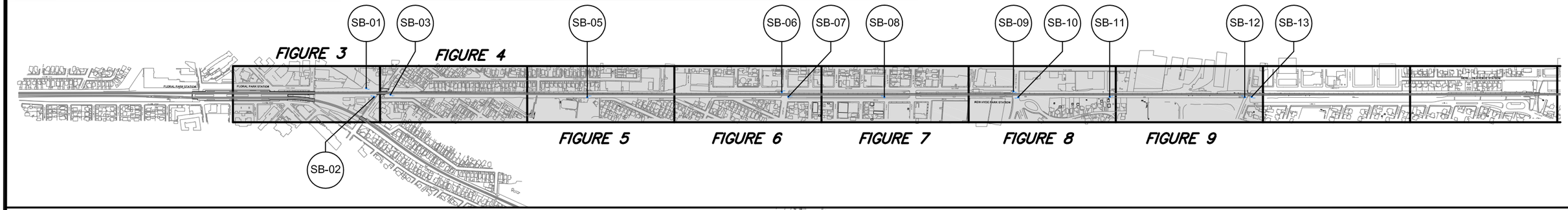
The results of soil sampling did not indicate evidence of a petroleum discharge or other potential chemical release along the proposed expansion corridor. Accordingly, the analytical results do not require any spill reporting to NYSDEC.

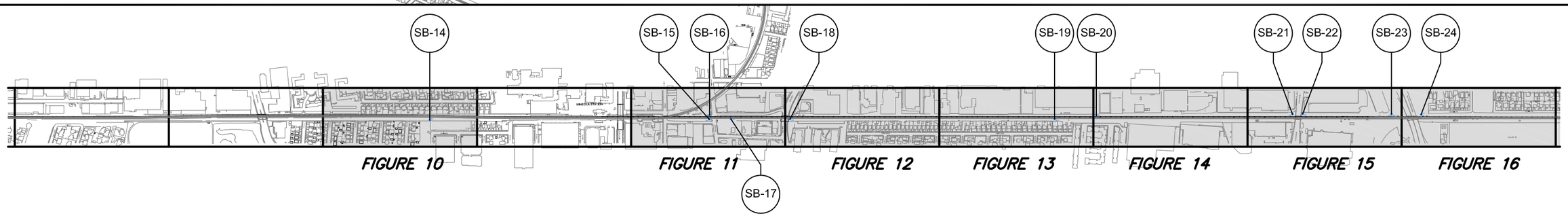
Fill material appears to have been used to raise and level the site when it was developed and that material contains levels of certain metals, pesticides, PCBs and PAHs that are in excess of NYSDEC's most stringent UUSCOs, indicating that this soil cannot be deemed "clean fill" or uncontaminated native soil. However, all analytical results were well below the applicable ISCOs and even the CSCOs except for one soil boring location that exceeded the ISCO for arsenic (23.8 mg/kg versus 16 mg/kg).

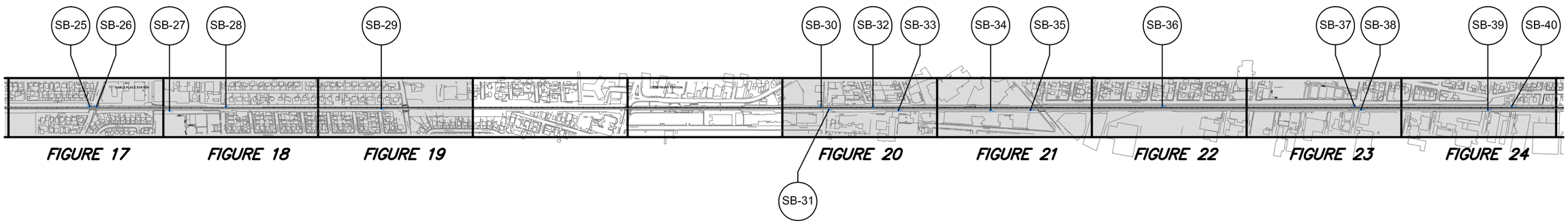
Matrix recommends that prior to disturbing soils at the project site a Construction Health and Safety Plan (CHASP) and Community Air Monitoring Plan (CAMP) be developed for implementation during construction activities. Such measures should ensure that soil is handled appropriately to minimize human contact, and to reduce airborne dust, in order to protect construction workers, site employees and neighborhood residents.

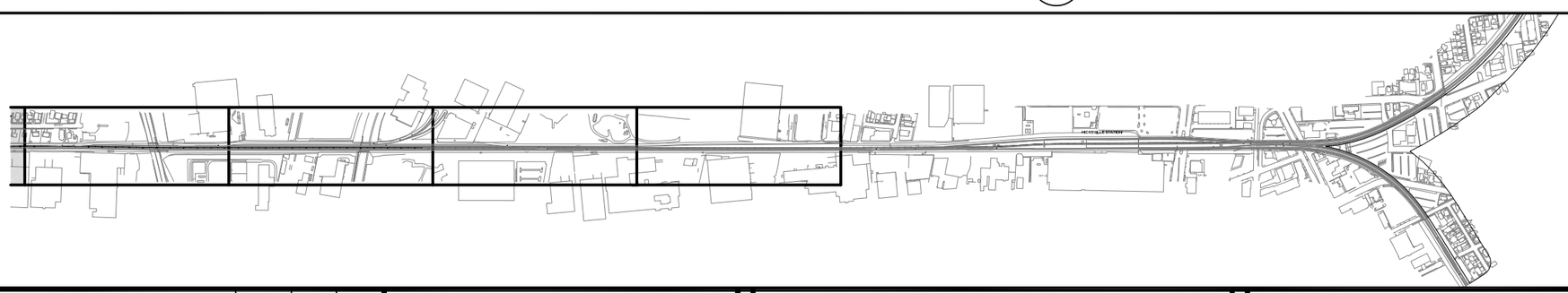
During construction, it is anticipated that excess soil will be exported from the site for disposal at a facility licensed to accept fill material under 6 NYCRR Part 360 Regulations. The data provided in this report may be provided to a disposal facility to facilitate ultimate disposal options and costs, although the accepting facility may require additional analytical data to represent the volume of soils to be disposed.

FIGURES









SCALE:

0 1000 2000

1" = 1000'

NO.	DESCRIPTION	DATE:	BY:	APR:

REVISIONS

MATRIXNEWORLD
Engineering Progress

Matrix New World Engineering, Land Surveying
and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
Tel: 973-240-1800
Fax: 973-240-1818
WBE / DBE / SBE
www.matrixneworld.com
STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

KEY PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:1000

FIGURE 2

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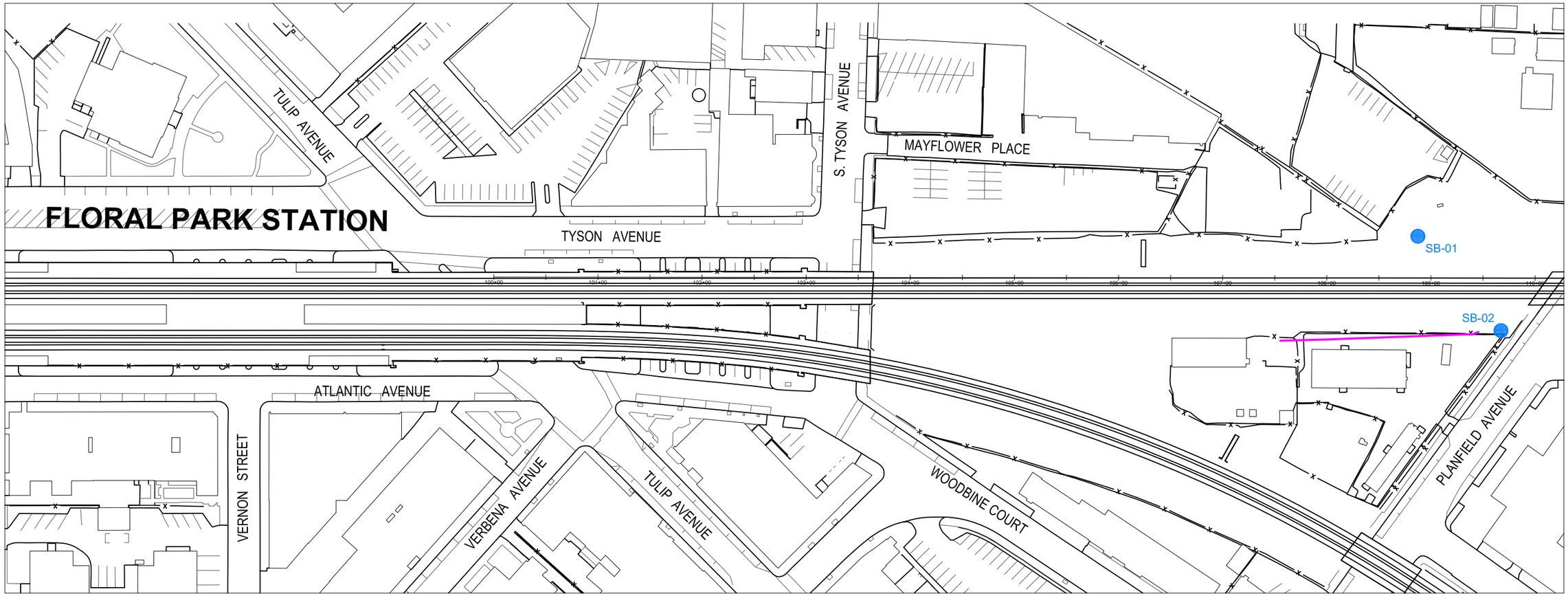

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

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Tel: 973-240-1800
Fax: 973-240-1818
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STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL BORING LOCATION PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 3

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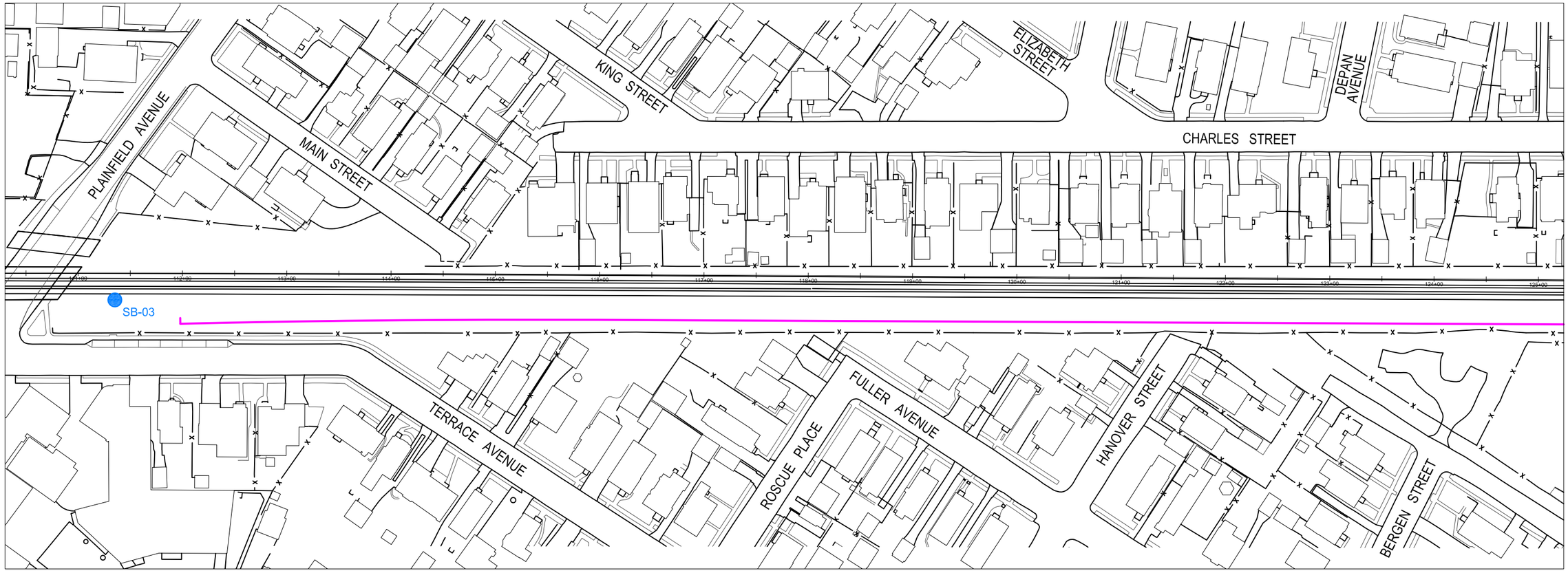

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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Fax: 973-240-1818
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SCALE: 1:100

FIGURE 4

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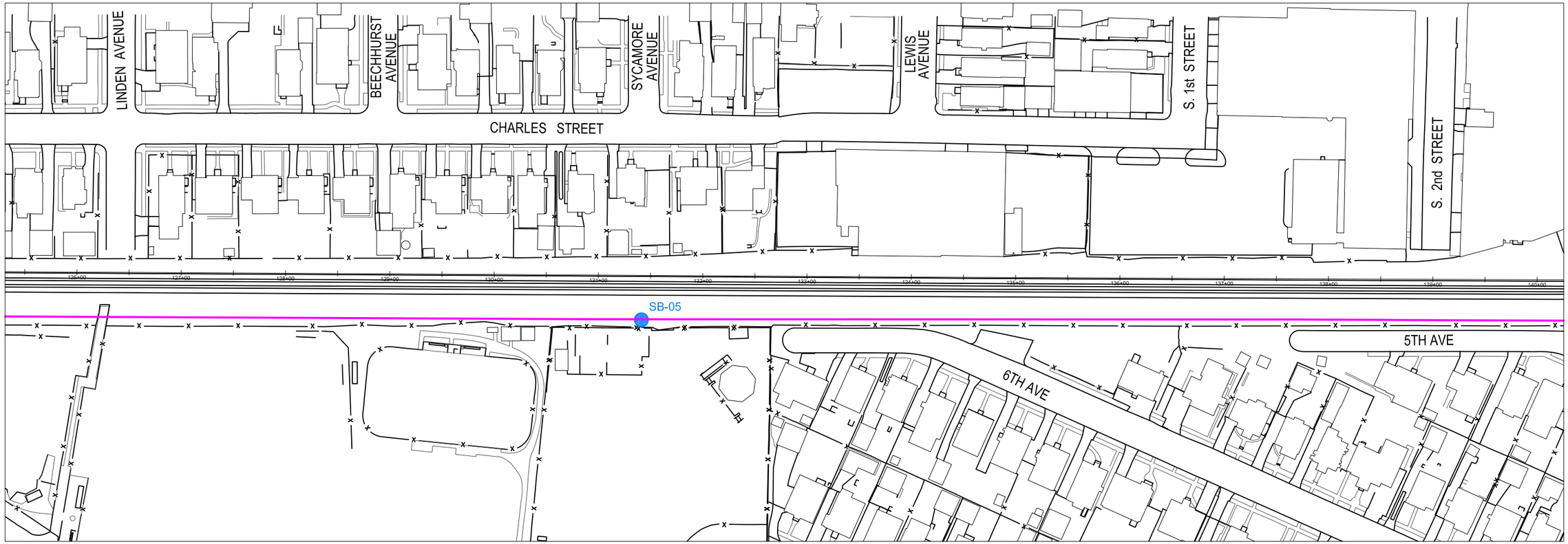

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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Florham Park, New Jersey 07932
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Tel: 973-240-1800
Fax: 973-240-1818
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SOIL BORING LOCATION PLAN

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FIGURE 5

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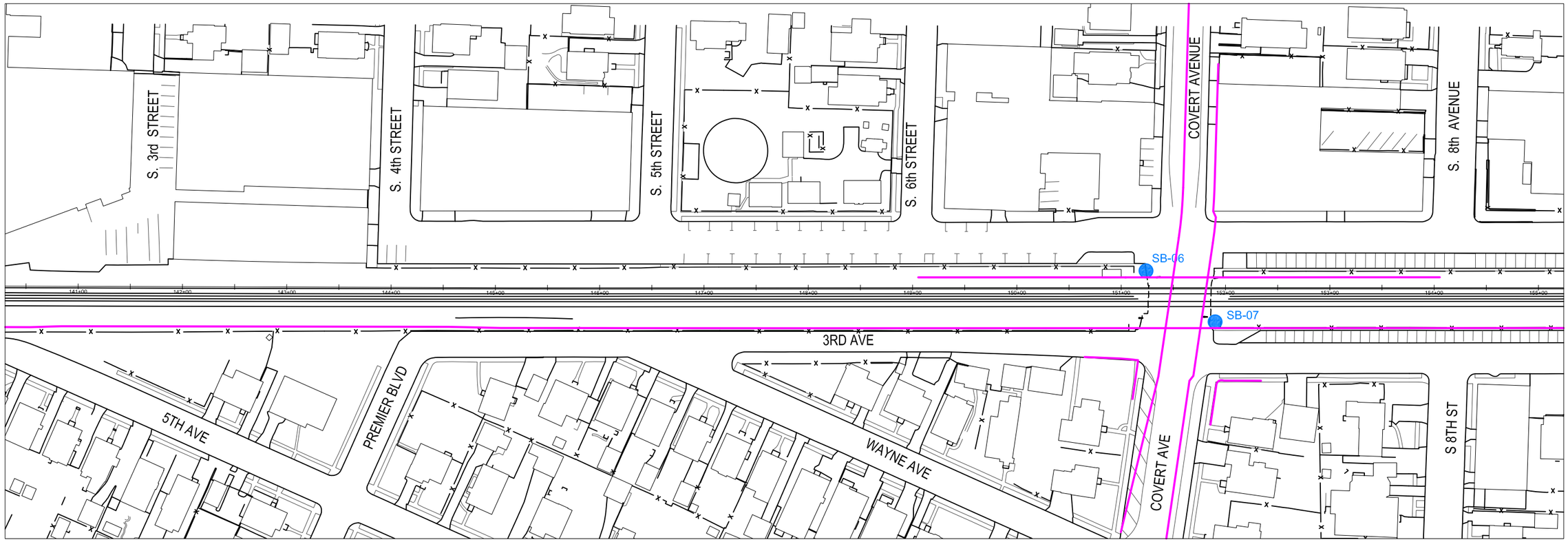

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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1"=100'

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Tel: 973-240-1800
Fax: 973-240-1818
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SOIL BORING LOCATION PLAN

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PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 6

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LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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Tel: 973-240-1800
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FIGURE 7

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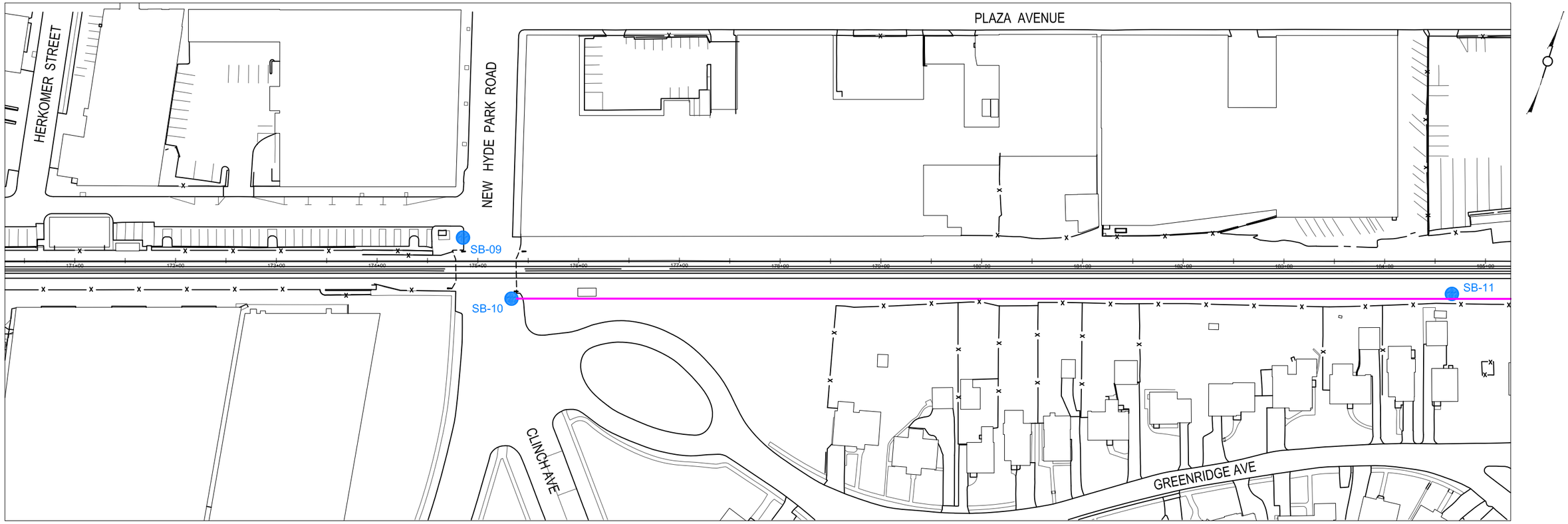

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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FIGURE 8

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LEGEND:

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PROPOSED RETAINING WALL

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SCALE

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WBE / DBE / SBE
Tel: 973-240-1800
Fax: 973-240-1818
www.matrixneworld.com
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FIGURE 9

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LEGEND:

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PROPOSED RETAINING WALL

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FIGURE 10

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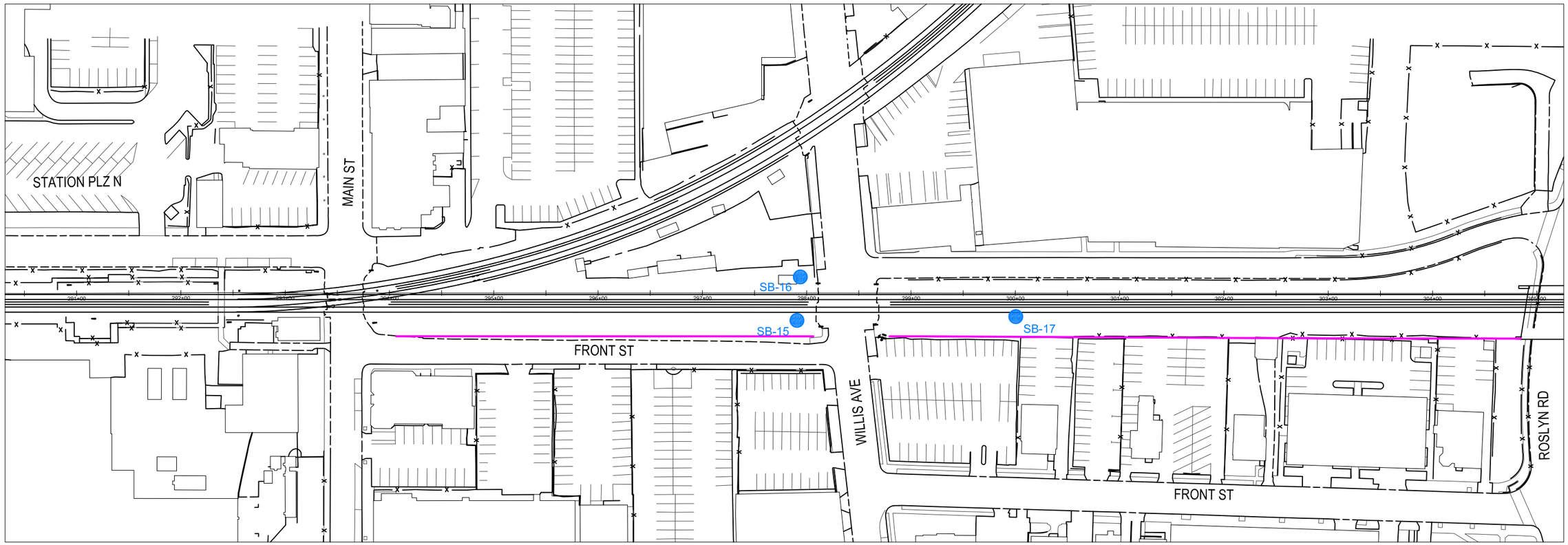

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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Fax: 973-240-1818
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FIGURE 11

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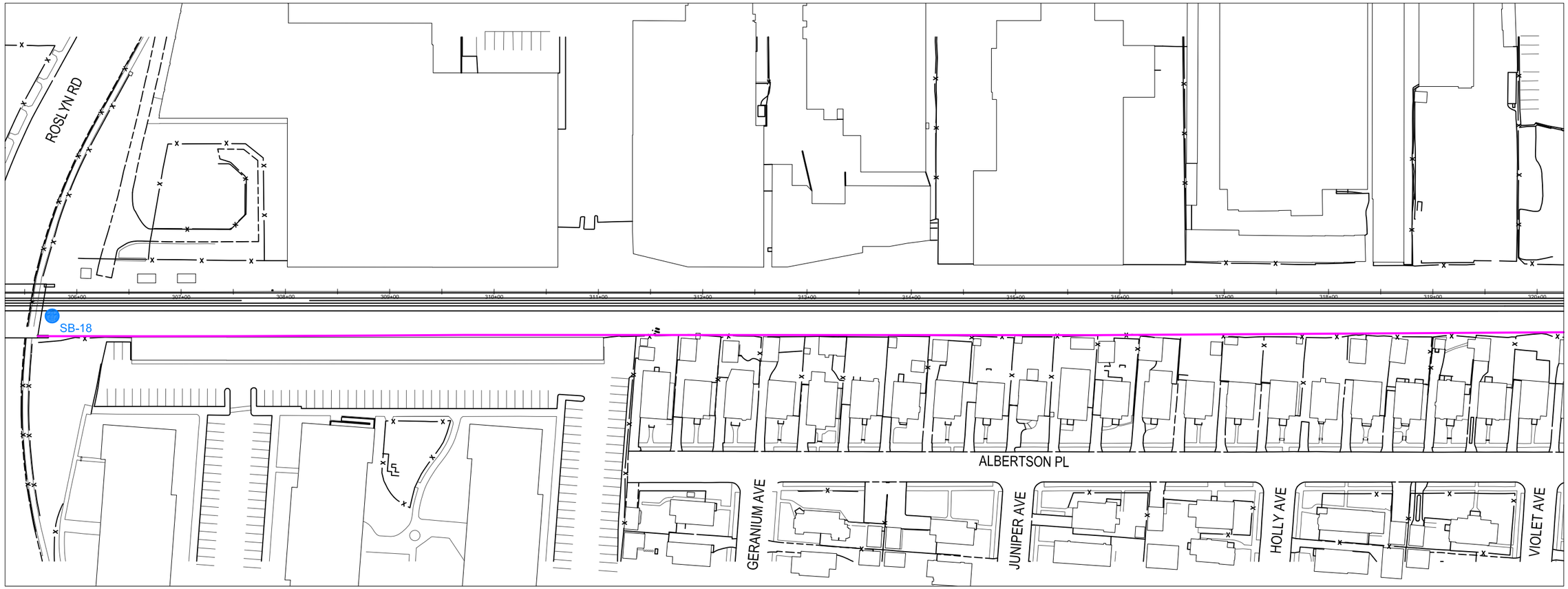

LEGEND:

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Tel: 973-240-1800
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FIGURE 12

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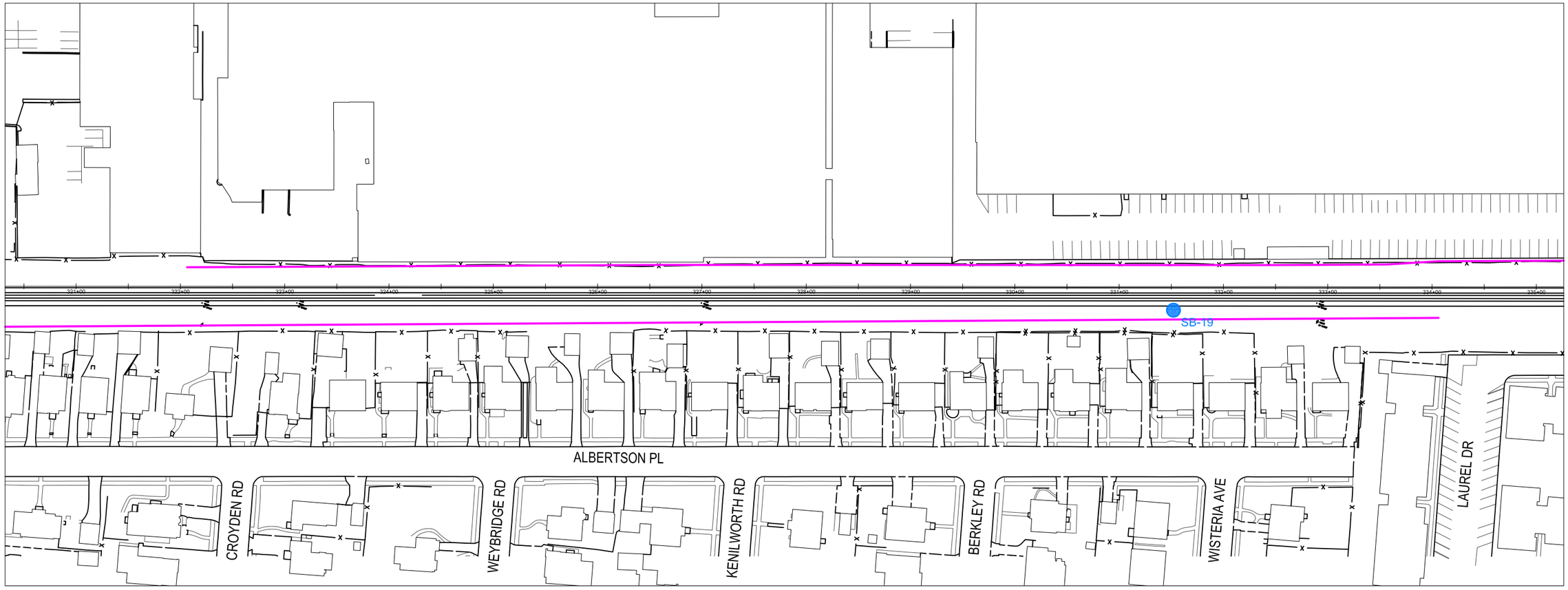

LEGEND:

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PROPOSED RETAINING WALL

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FIGURE 13

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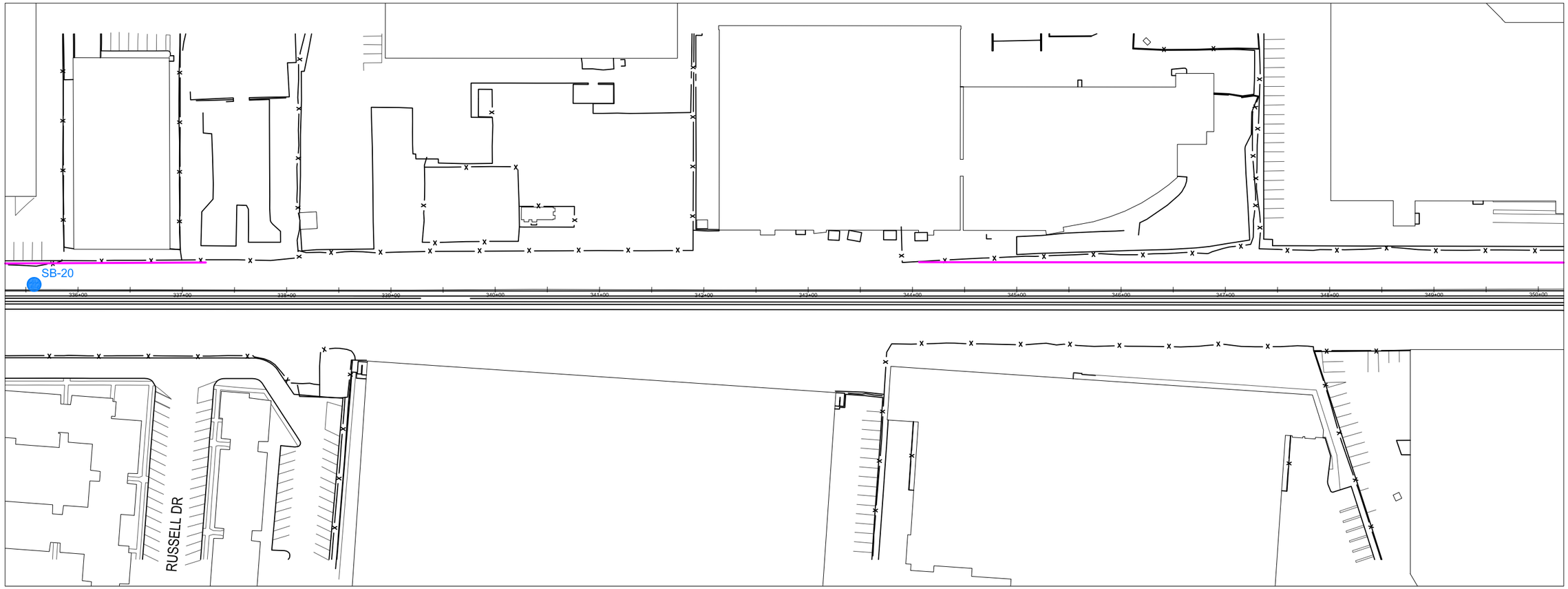

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SB-01 SOIL BORING LOCATION

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FIGURE 14

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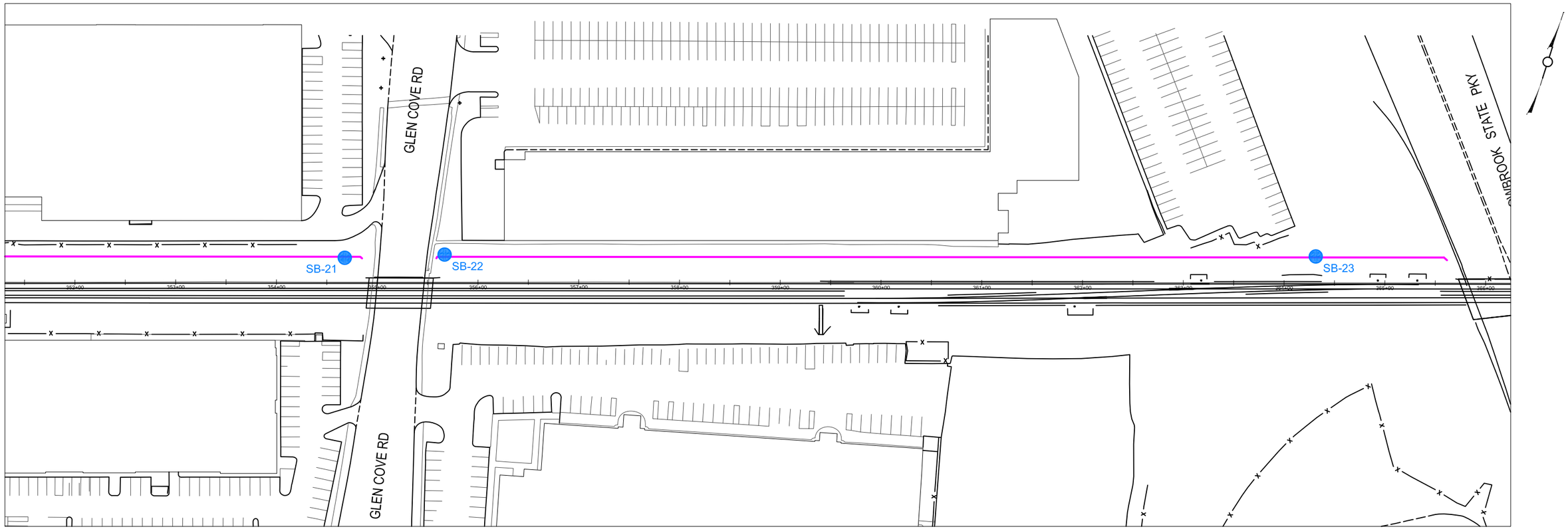

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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PROJECT NUMBER: 16-144

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FIGURE 15

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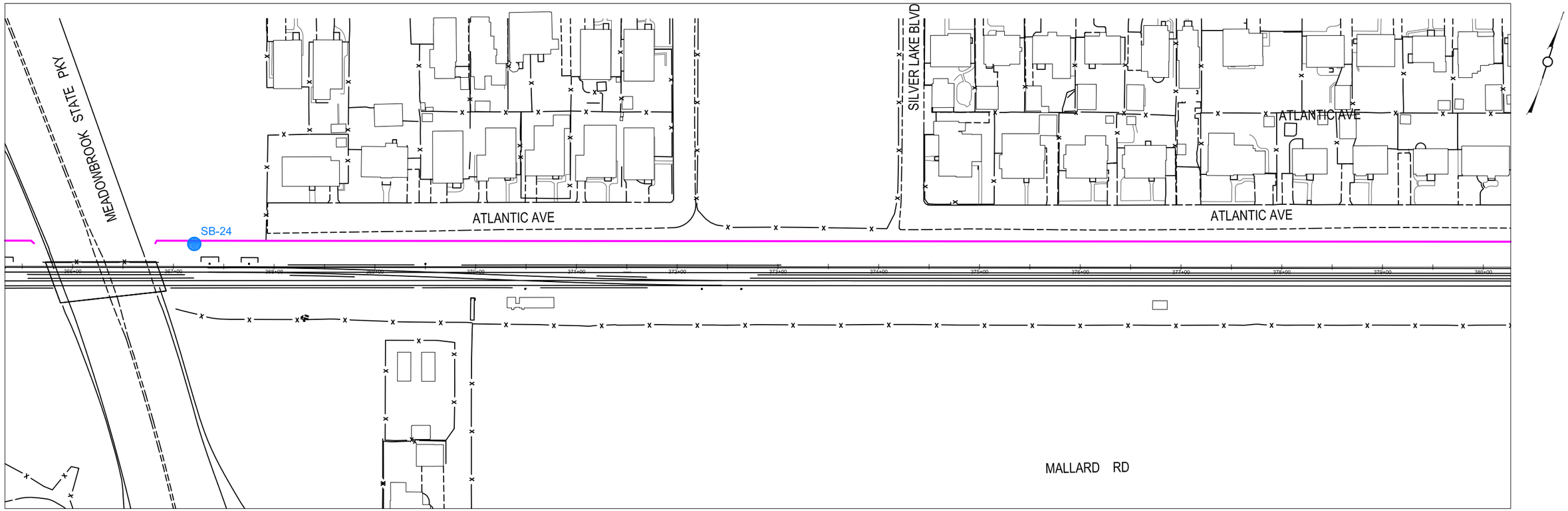

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 16

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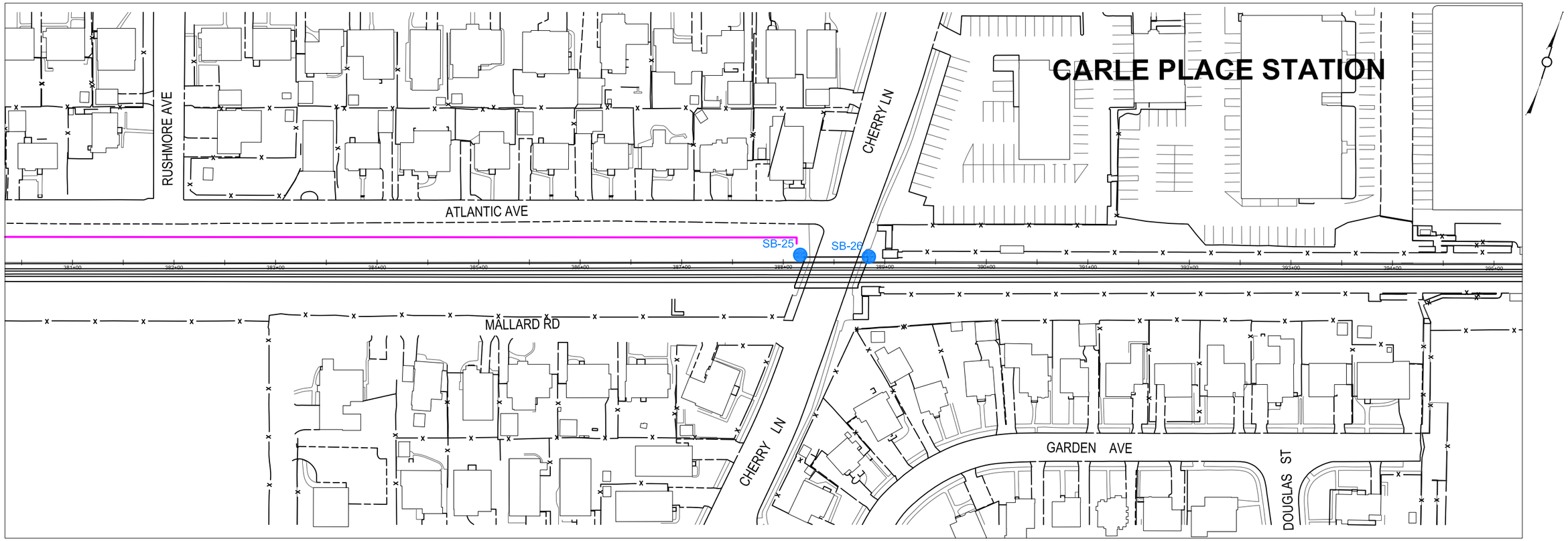

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FIGURE 17

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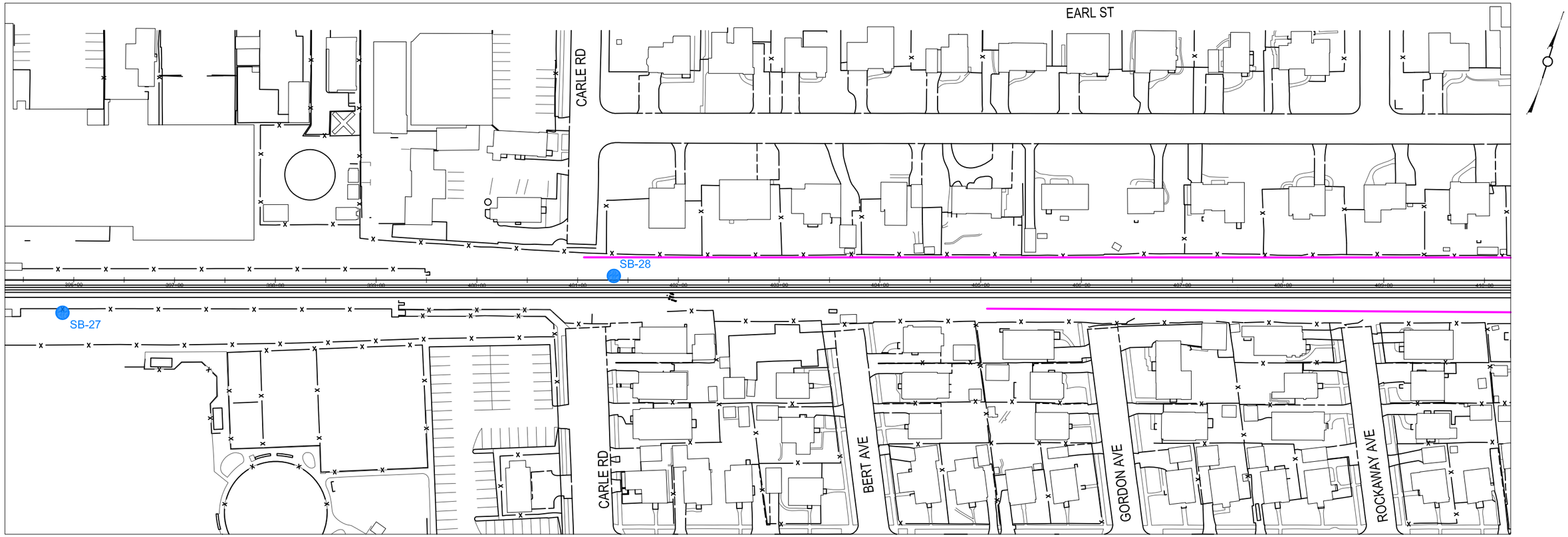

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FIGURE 18

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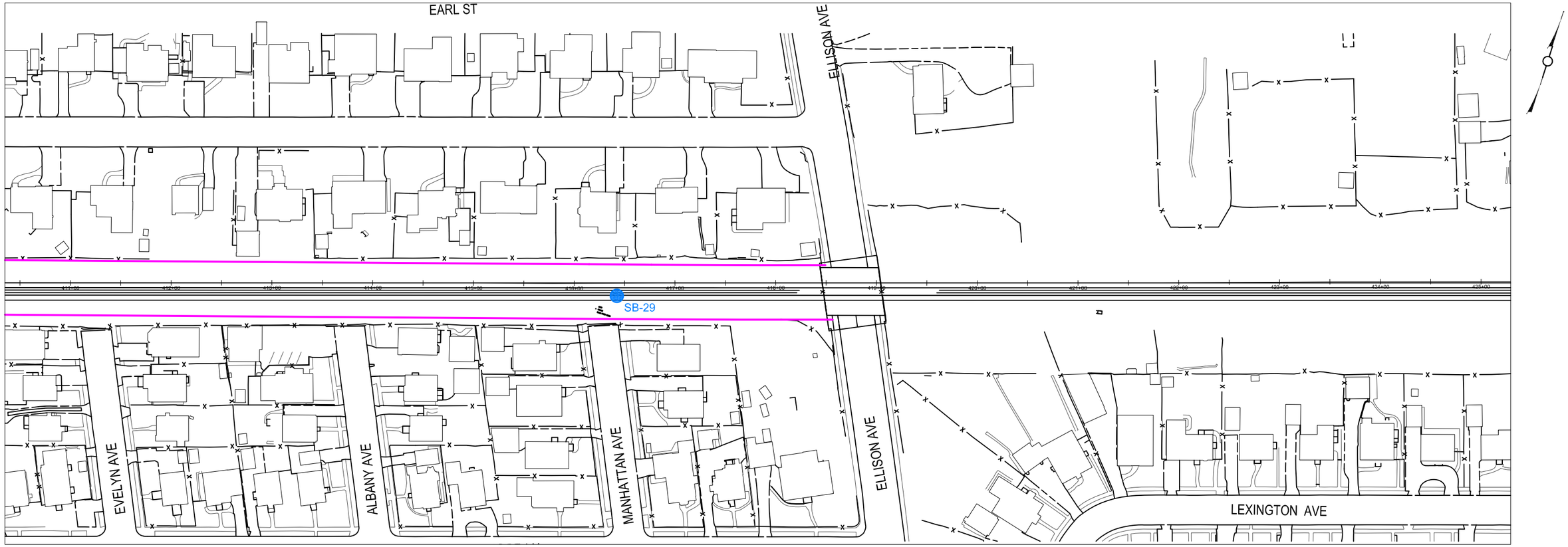

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

NO.	DESCRIPTION	DATE:	BY:	APR:

REVISIONS

MATRIXNEWORLD
Engineering Progress

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26 Columbia Turnpike
Florham Park, New Jersey 07932
Tel: 973-240-1800
Fax: 973-240-1818
WBE / DBE / SBE
www.matrixneworld.com
STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL BORING LOCATION PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 19

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LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

NO.	DESCRIPTION	DATE:	BY:	APR:

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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL BORING LOCATION PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 20

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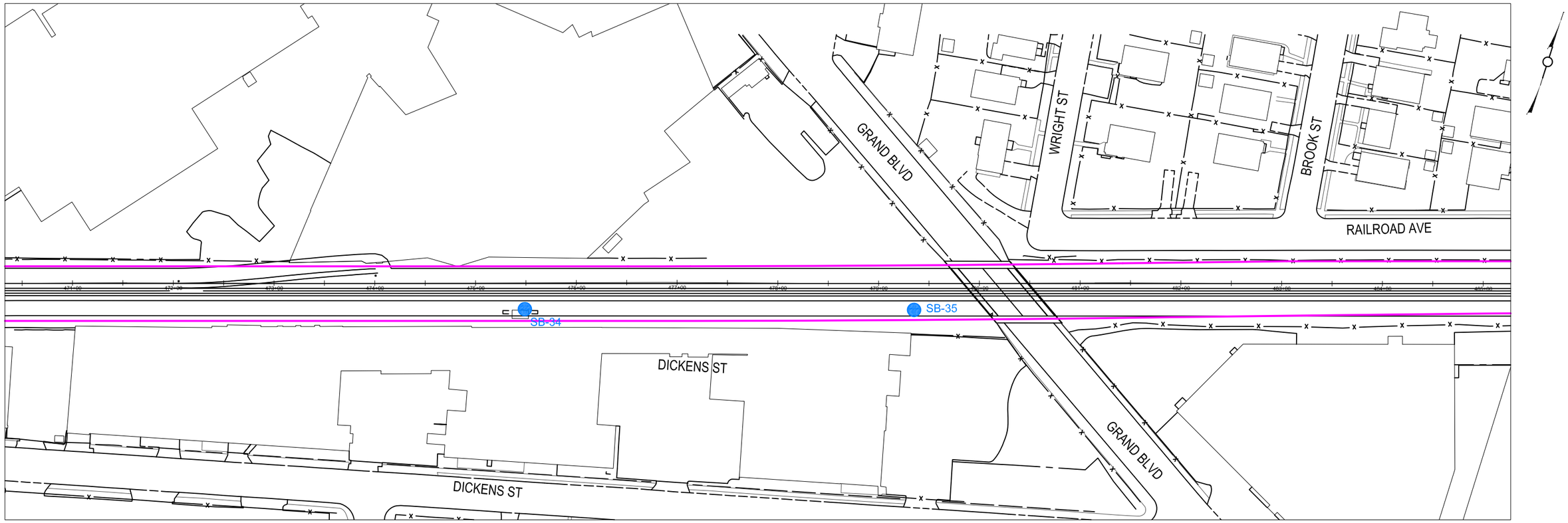

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

NO.	DESCRIPTION	DATE:	BY:	APR:

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LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL BORING LOCATION PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 21

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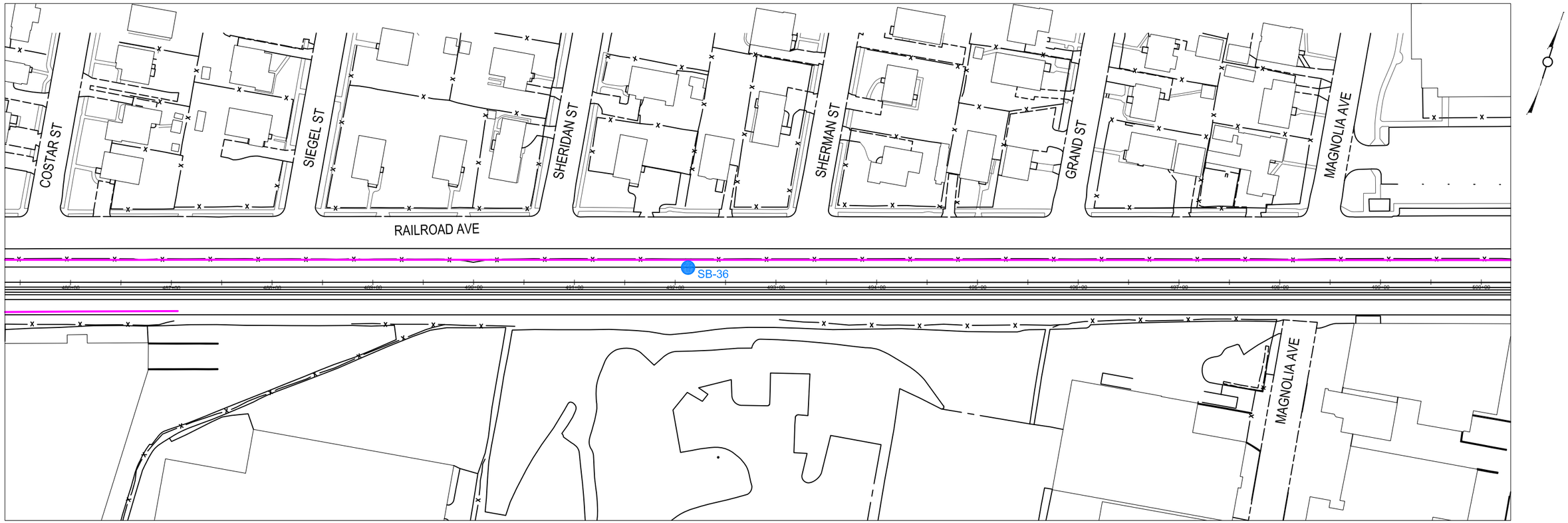

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

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26 Columbia Turnpike
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Tel: 973-240-1800
Fax: 973-240-1818
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LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL BORING LOCATION PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 22

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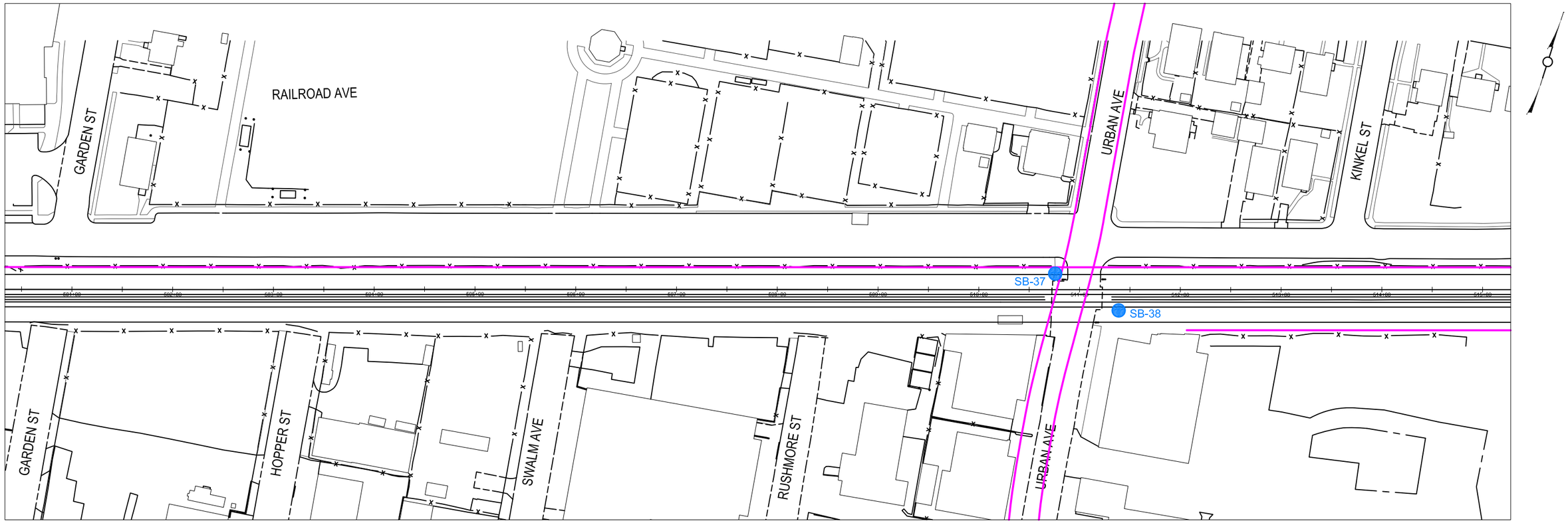

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

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26 Columbia Turnpike
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NASSAU COUNTY, NEW YORK

SOIL BORING LOCATION PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 23

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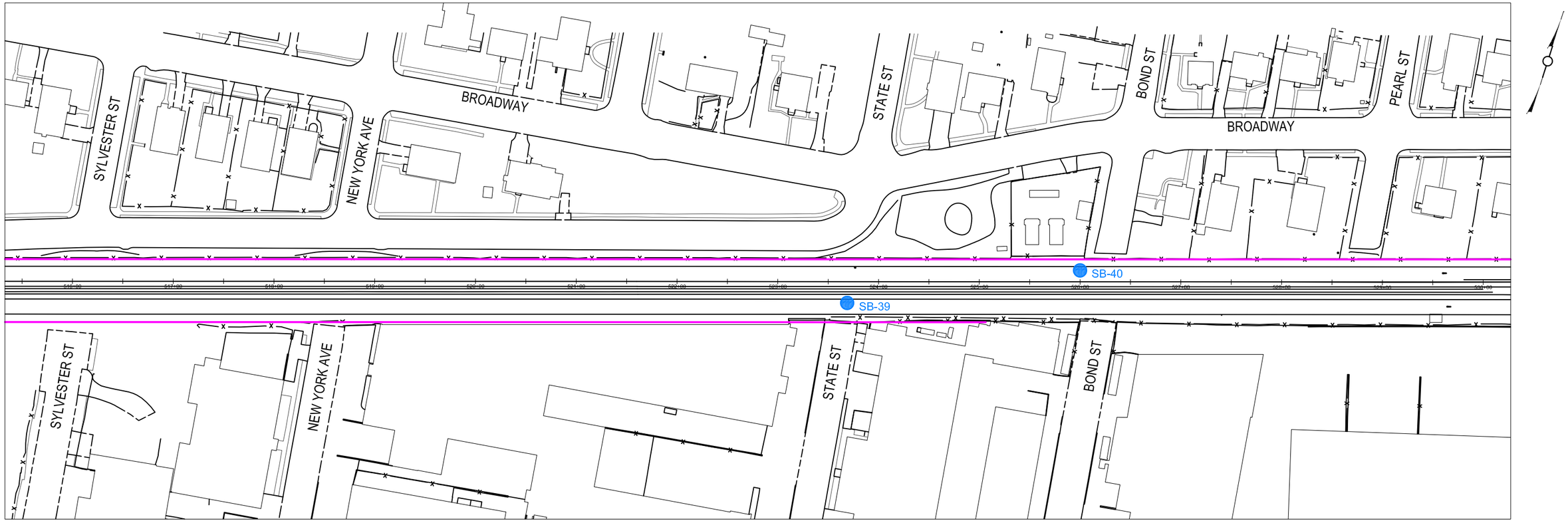

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

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26 Columbia Turnpike
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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL BORING LOCATION PLAN

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 24

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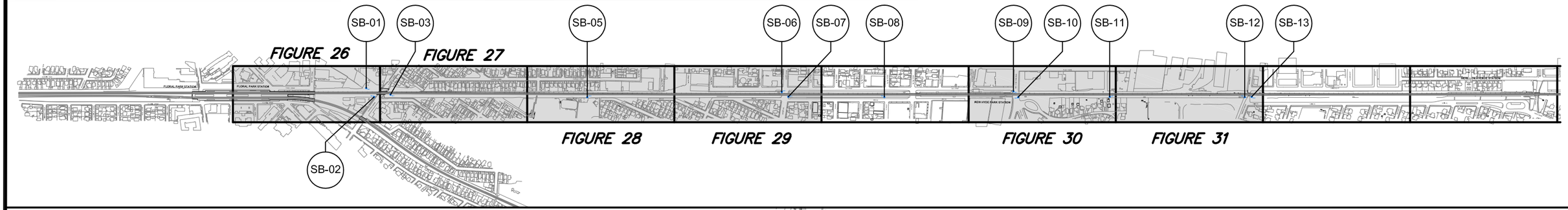

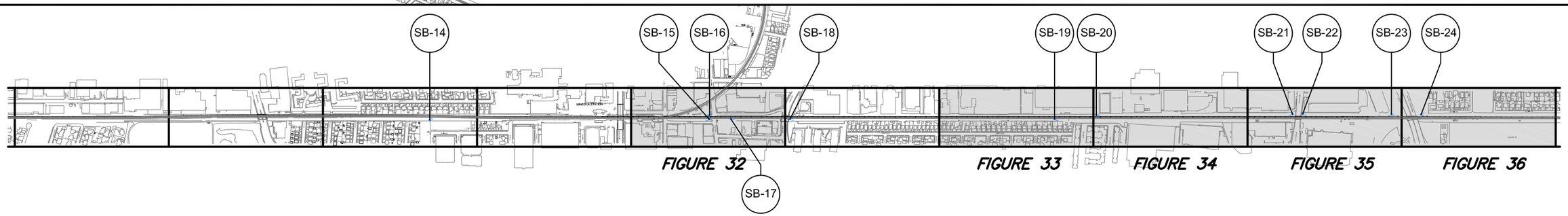

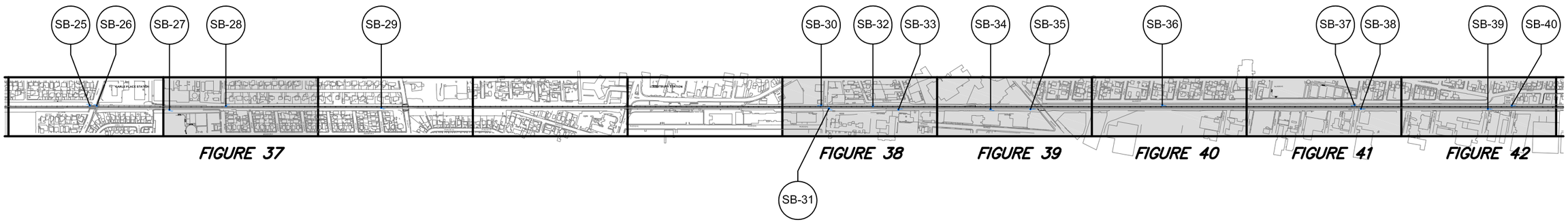

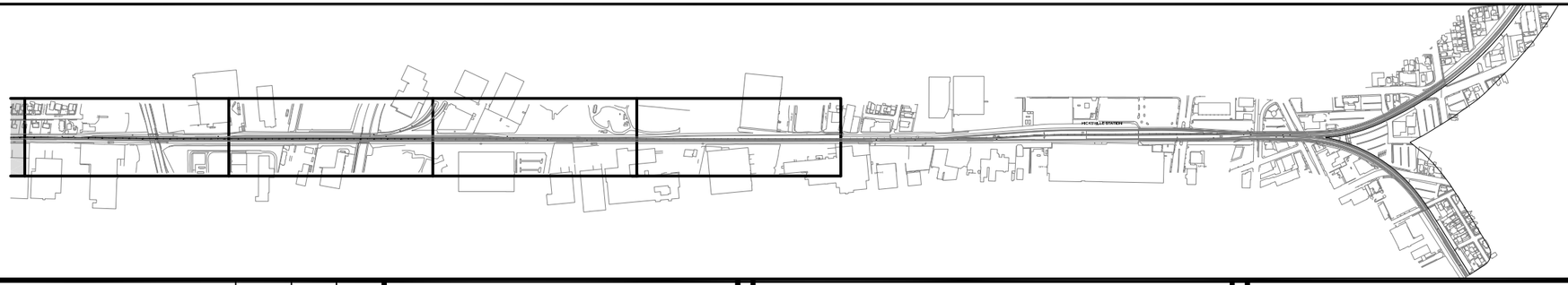

SCALE:

0 1000 2000

1" = 1000'

NOTES:

1. HIGHLIGHTED BOXES INDICATE FIGURES WITH SOIL ANALYTICAL RESULTS DEPICTED ON REFERENCED FIGURE NUMBER.

NO.	DESCRIPTION	DATE:	BY:	APR:

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26 Columbia Turnpike
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Tel: 973-240-1800
Fax: 973-240-1818
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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

KEY PLAN - SUMMARY OF SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

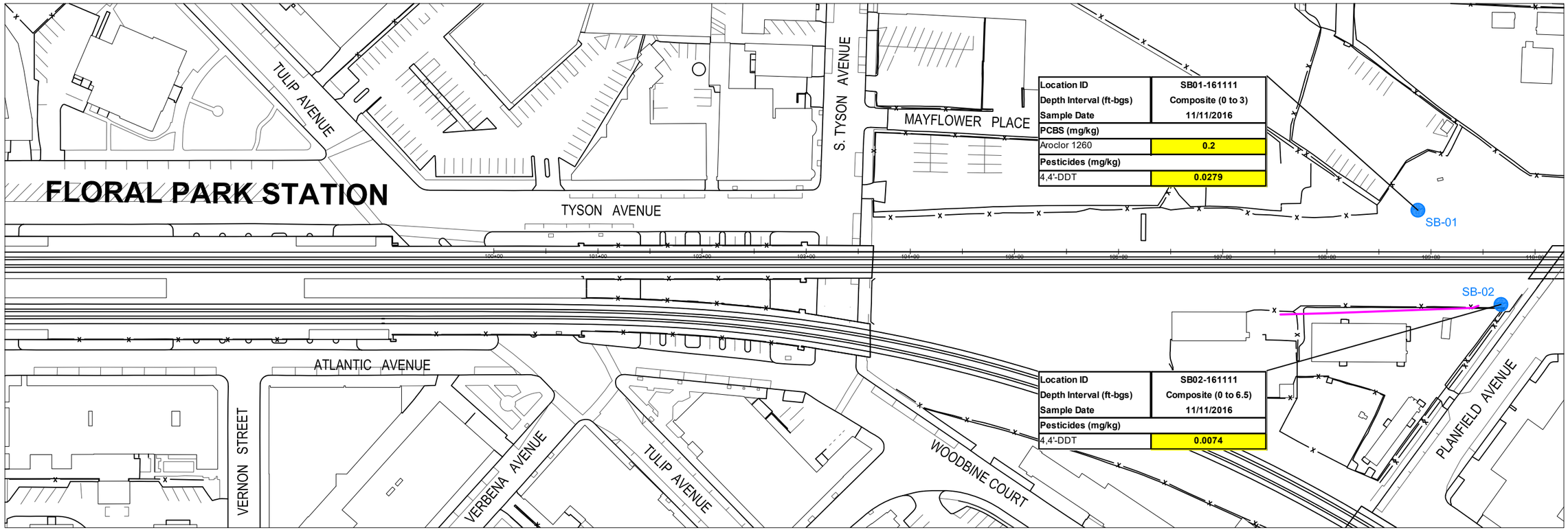
RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:1000

FIGURE 25

© MATRIXNEWORLD\F:\2016\16-144 LIRR Expansion Project\Dwg\Plot Sheets\16-144 LIRR Boring Analytical Key Map 2.dwg



LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
Tel: 973-240-1800
Fax: 973-240-1818
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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 26

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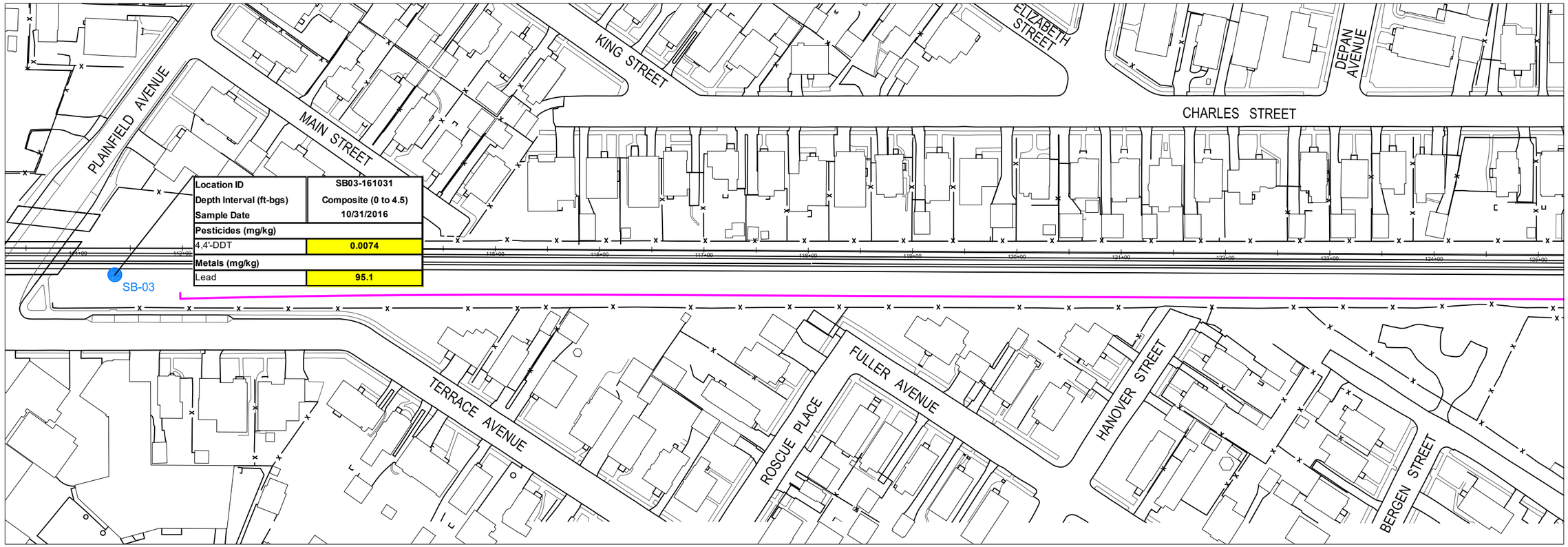

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
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6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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Tel: 973-240-1800
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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 27

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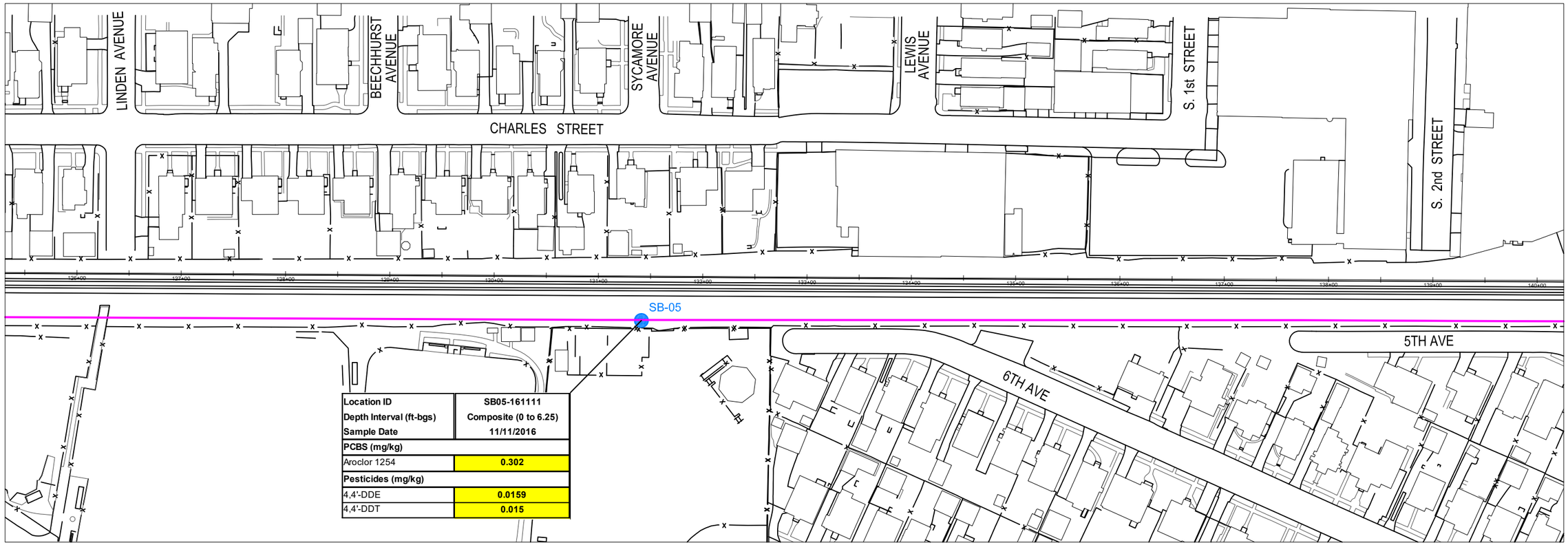

Location ID	SB05-161111
Depth Interval (ft-bgs)	Composite (0 to 6.25)
Sample Date	11/11/2016
PCBS (mg/kg)	
Aroclor 1254	**0.302**
Pesticides (mg/kg)	
4,4'-DDE	**0.0159**
4,4'-DDT	**0.015**

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 28

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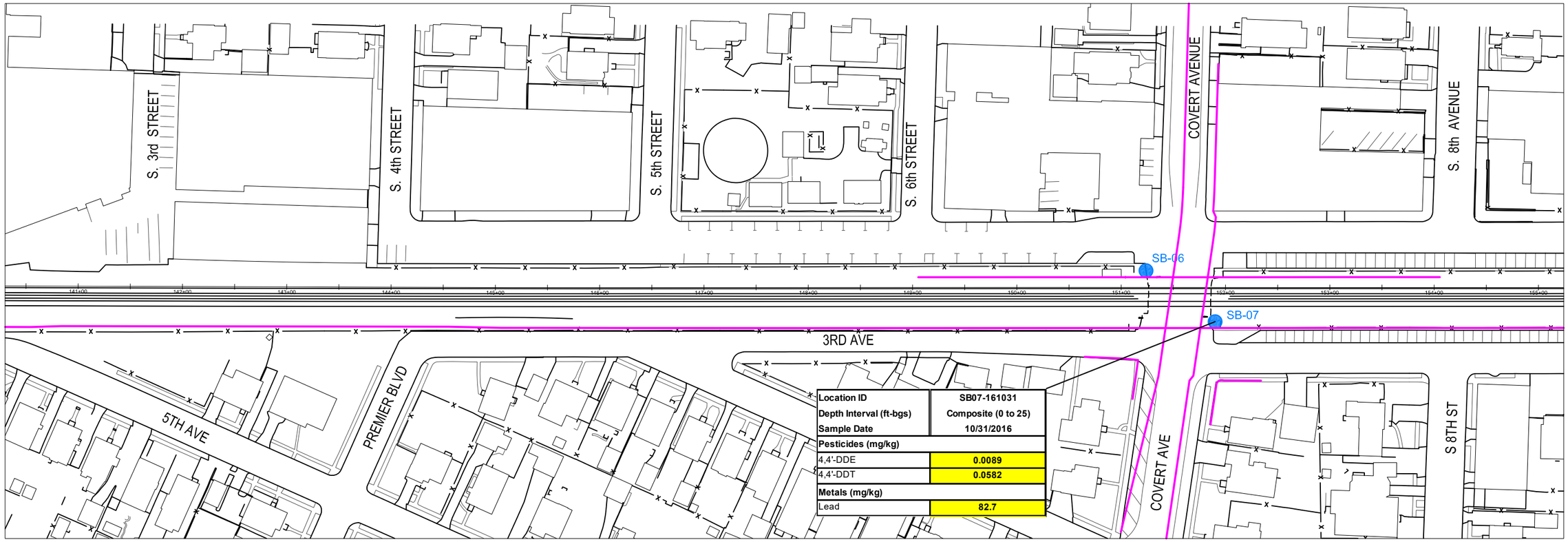

Location ID	SB07-161031
Depth Interval (ft-bgs)	Composite (0 to 25)
Sample Date	10/31/2016
Pesticides (mg/kg)	
4,4'-DDE	**0.0089**
4,4'-DDT	**0.0582**
Metals (mg/kg)	
Lead	**82.7**

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
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8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
Tel: 973-240-1800
Fax: 973-240-1818
WBE / DBE / SBE
www.matrixneworld.com
STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 29

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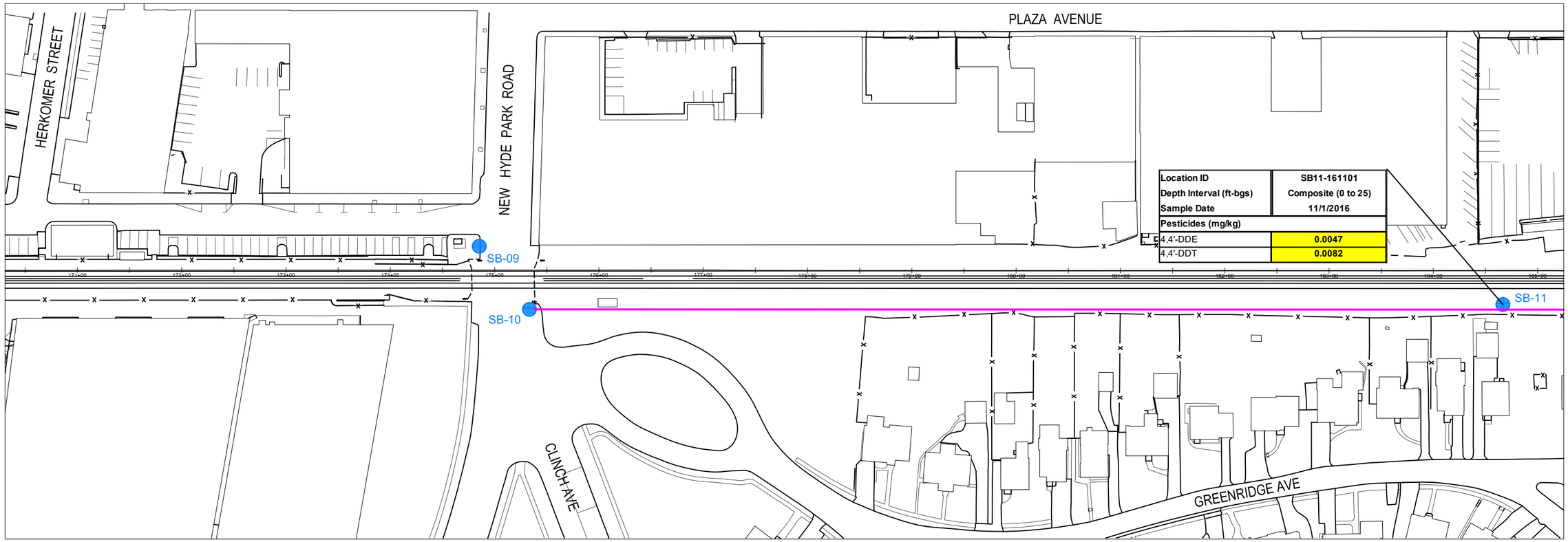

LEGEND:

SB-01 — SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
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4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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Tel: 973-240-1800
Fax: 973-240-1818
WBE / DBE / SBE
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LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 30

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LEGEND:

SB-01 — SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
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7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

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Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
Tel: 973-240-1800
Fax: 973-240-1818
WBE / DBE / SBE
www.matrixneworld.com
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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 31

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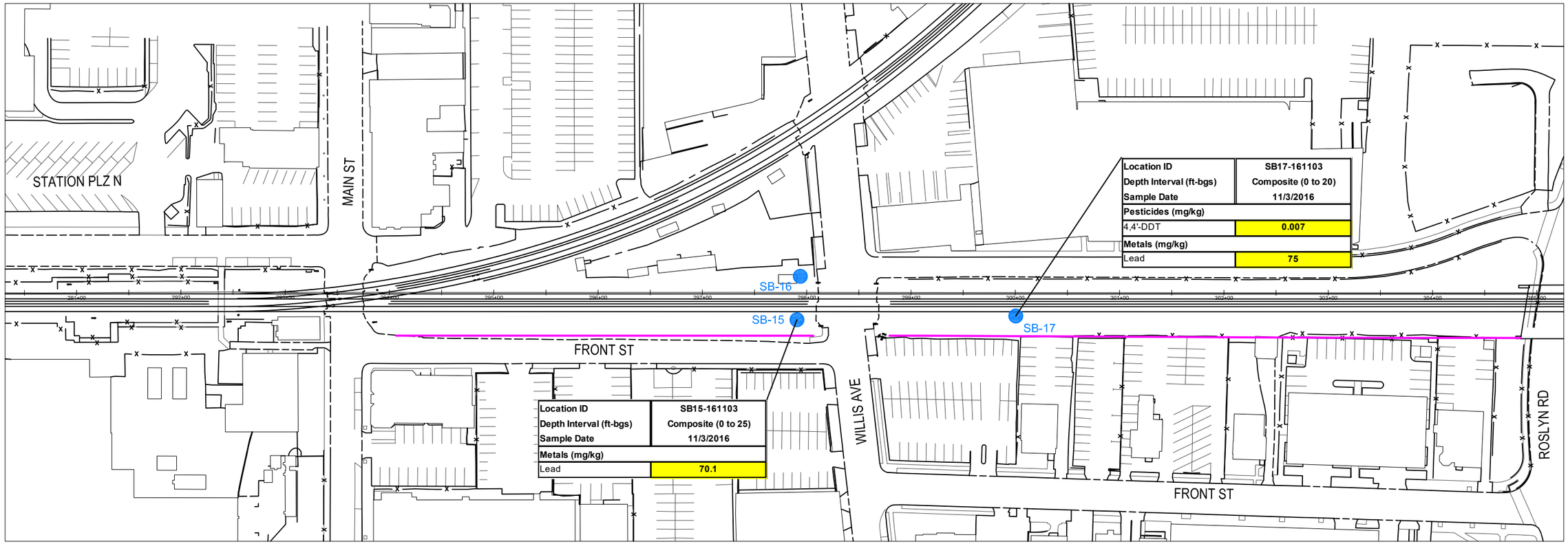

LEGEND:

SB-01 — SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

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10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
WBE / DBE / SBE
Tel: 973-240-1800
Fax: 973-240-1818
www.matrixneworld.com
NEW JERSEY CERTIFICATE OF AUTHORIZATION No. 24GA27962300

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 32

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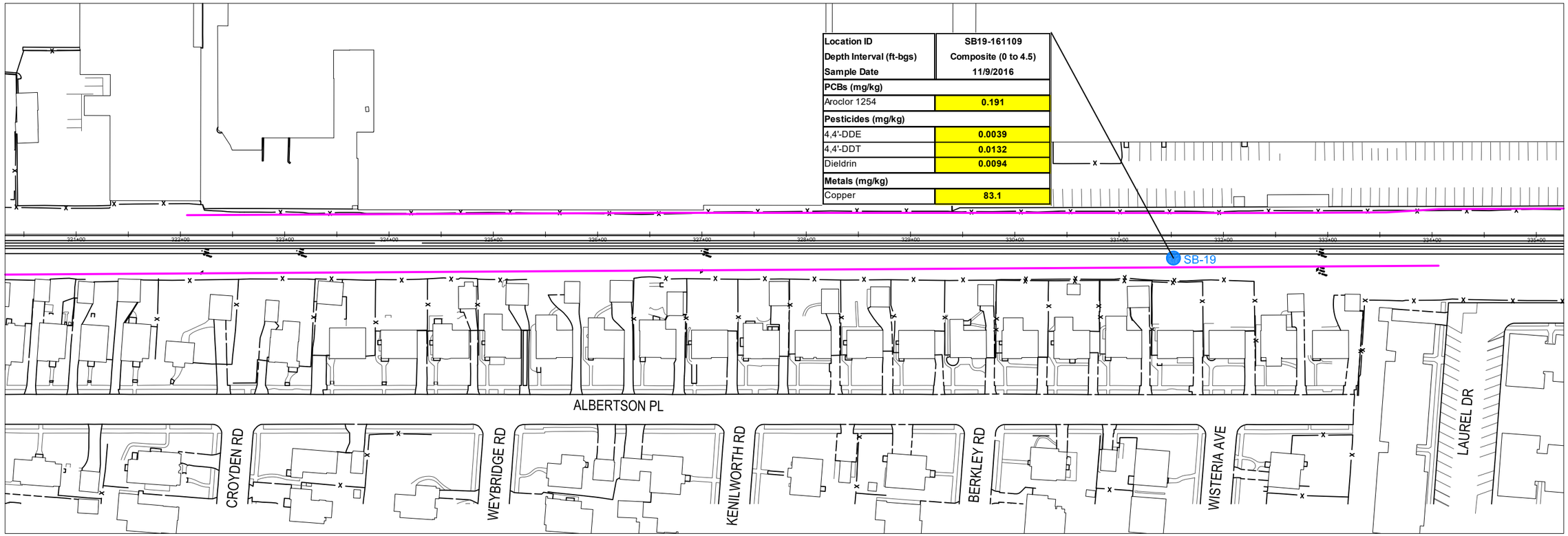

Location ID	SB19-161109
Depth Interval (ft-bgs)	Composite (0 to 4.5)
Sample Date	11/9/2016
PCBs (mg/kg)	
Aroclor 1254	**0.191**
Pesticides (mg/kg)	
4,4'-DDE	**0.0039**
4,4'-DDT	**0.0132**
Dieldrin	**0.0094**
Metals (mg/kg)	
Copper	**83.1**

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
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7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
WBE / DBE / SBE
Tel: 973-240-1800
Fax: 973-240-1818
www.matrixneworld.com
STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 33

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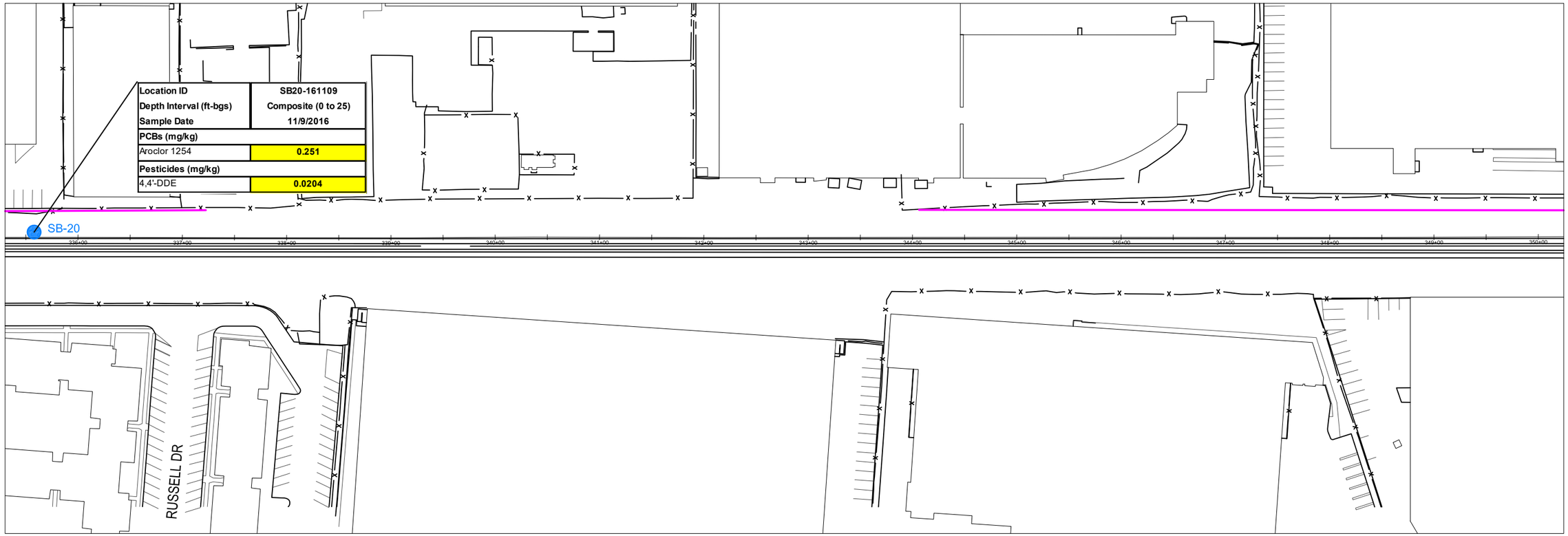

LEGEND:

SB-01 — SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
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3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
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8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 34

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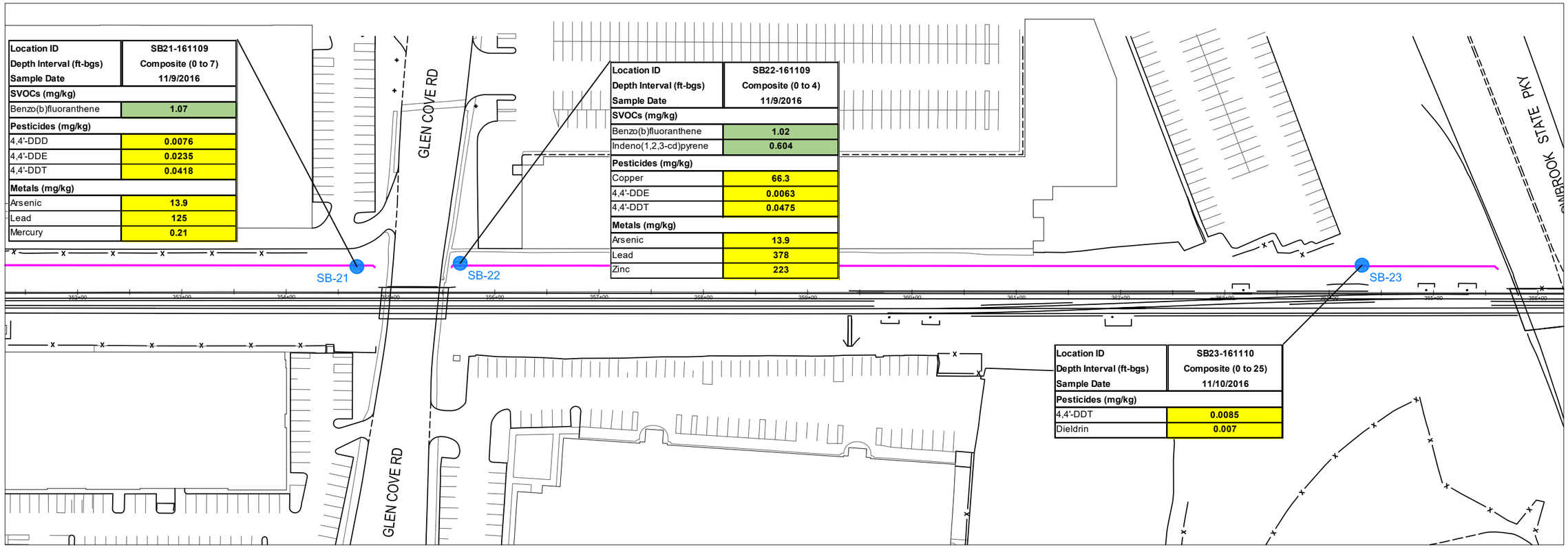

Location ID	SB21-161109
Depth Interval (ft-bgs)	Composite (0 to 7)
Sample Date	11/9/2016
SVOCs (mg/kg)	
Benzo(b)fluoranthene	1.07
Pesticides (mg/kg)	
4,4'-DDD	0.0076
4,4'-DDE	0.0235
4,4'-DDT	0.0418
Metals (mg/kg)	
Arsenic	13.9
Lead	125
Mercury	0.21

Location ID	SB22-161109
Depth Interval (ft-bgs)	Composite (0 to 4)
Sample Date	11/9/2016
SVOCs (mg/kg)	
Benzo(b)fluoranthene	1.02
Indeno(1,2,3-cd)pyrene	0.604
Pesticides (mg/kg)	
Copper	66.3
4,4'-DDE	0.0063
4,4'-DDT	0.0475
Metals (mg/kg)	
Arsenic	13.9
Lead	378
Zinc	223

Location ID	SB23-161110
Depth Interval (ft-bgs)	Composite (0 to 25)
Sample Date	11/10/2016
Pesticides (mg/kg)	
4,4'-DDT	0.0085
Dieldrin	0.007

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
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3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
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6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

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LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 35

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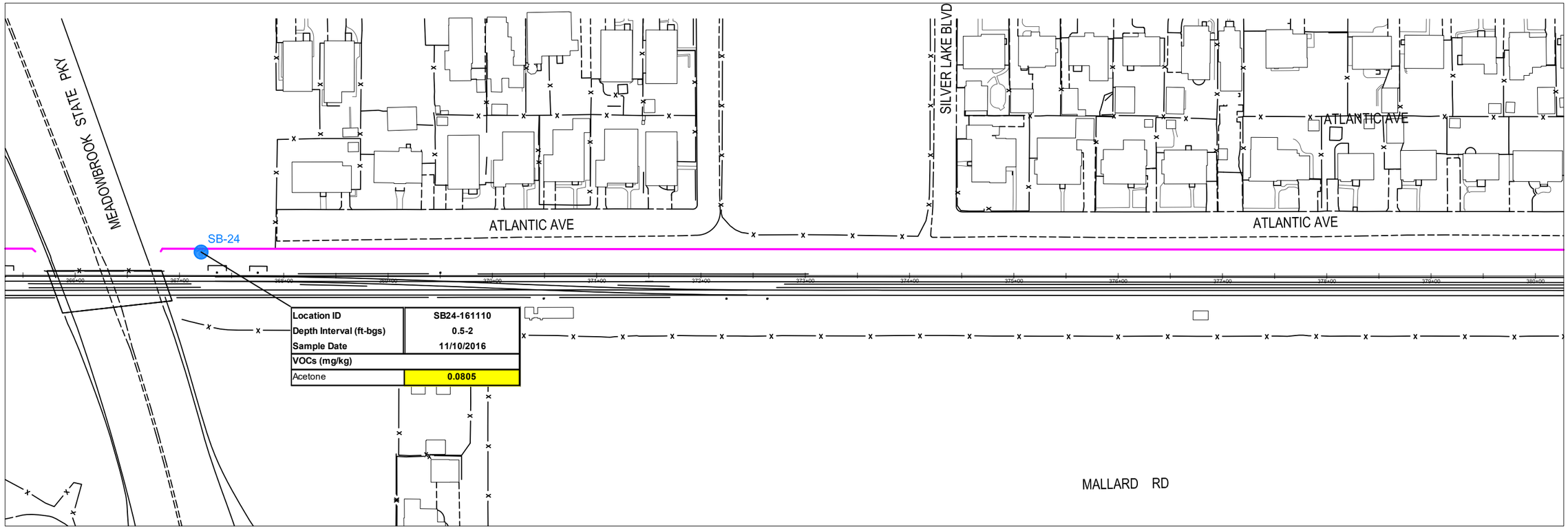

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

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1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
Tel: 973-240-1800
Fax: 973-240-1818
WBE / DBE / SBE
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STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 36

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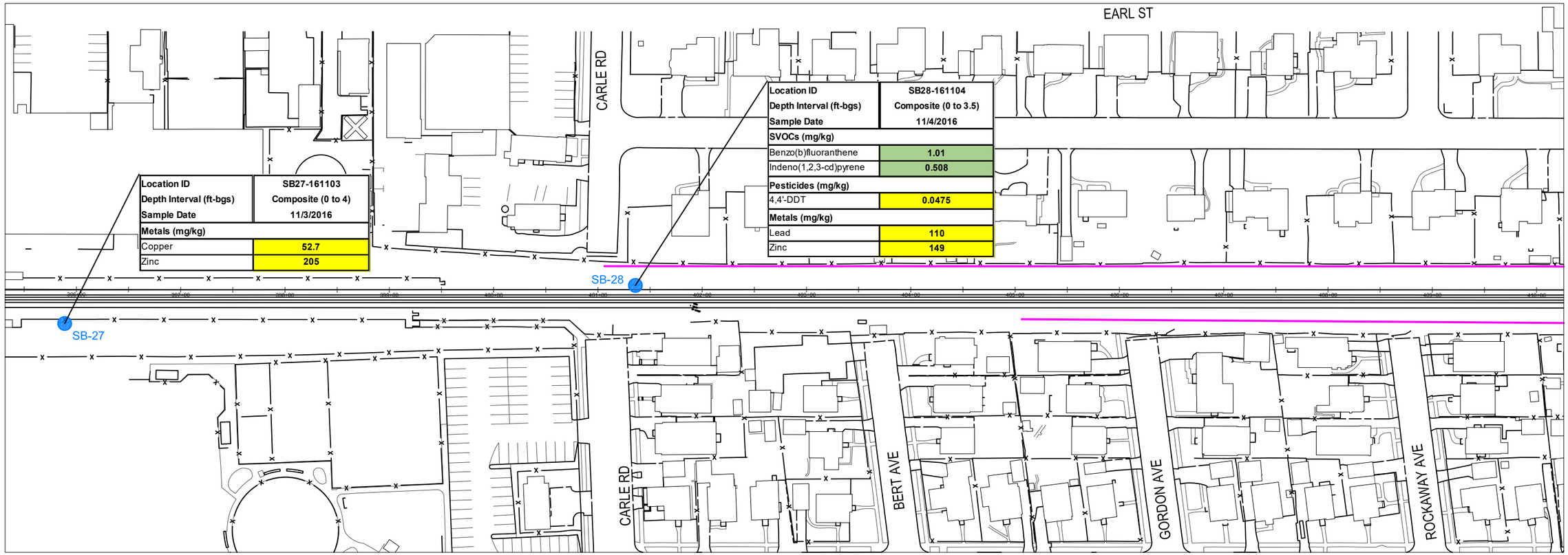

Location ID	SB27-161103
Depth Interval (ft-bgs)	Composite (0 to 4)
Sample Date	11/3/2016
Metals (mg/kg)	
Copper	52.7
Zinc	205

Location ID	SB28-161104
Depth Interval (ft-bgs)	Composite (0 to 3.5)
Sample Date	11/4/2016
SVOCs (mg/kg)	
Benzo(b)fluoranthene	1.01
Indeno(1,2,3-cd)pyrene	0.508
Pesticides (mg/kg)	
4,4'-DDT	0.0475
Metals (mg/kg)	
Lead	110
Zinc	149

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. FIGURES SHOW THE FULL EXTENT OF THE INVESTIGATION AREA AND EACH FIGURE DOES NOT NECESSARILY CONTAIN A BORING LOCATION.
2. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

NO.	DESCRIPTION	DATE:	BY:	APR:

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26 Columbia Turnpike
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LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 37

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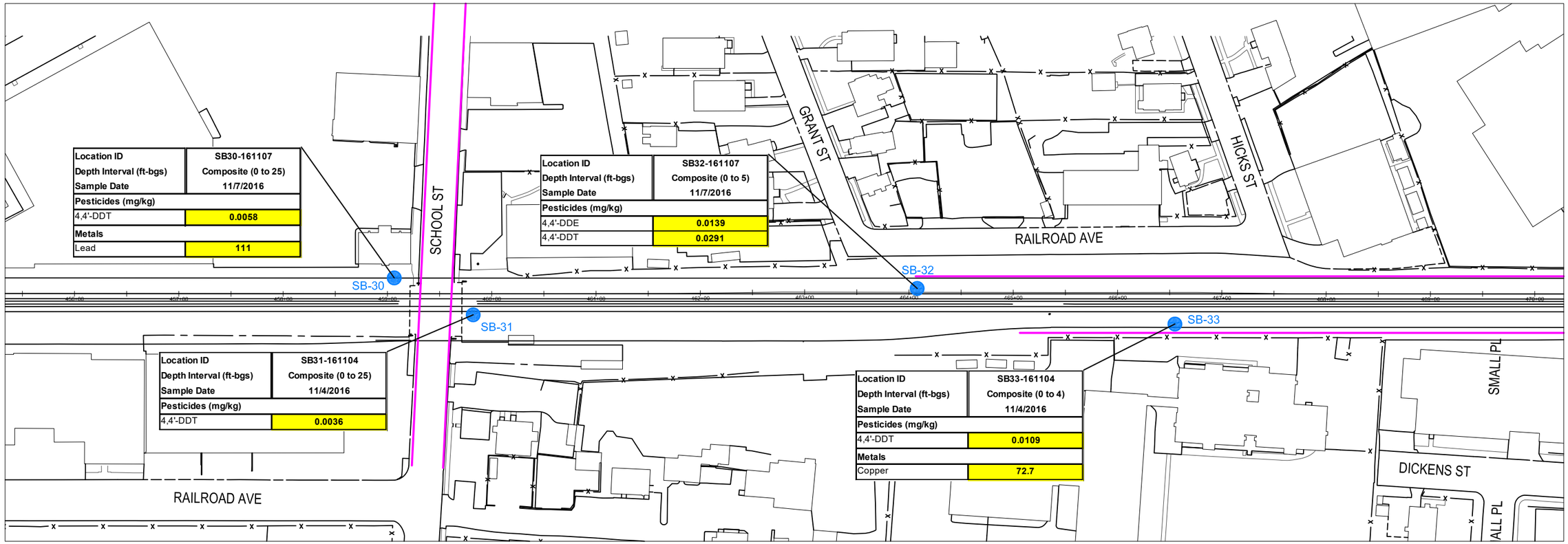

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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Fax: 973-240-1818
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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 38

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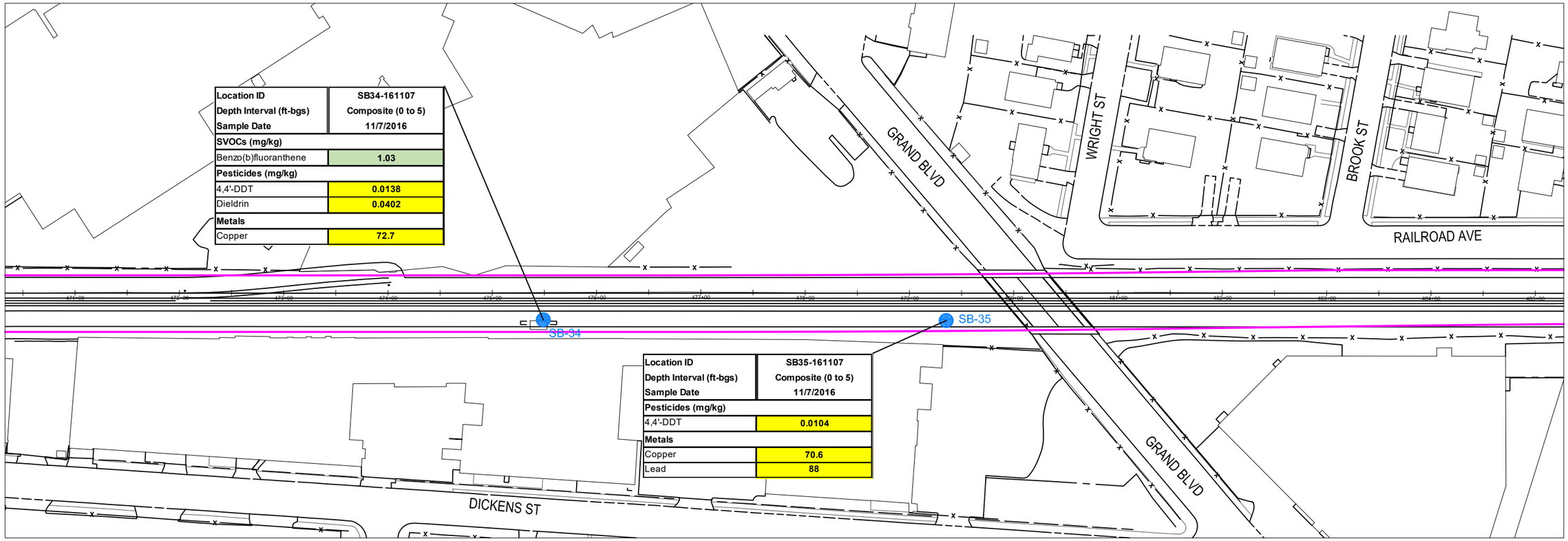

Location ID	SB34-161107
Depth Interval (ft-bgs)	Composite (0 to 5)
Sample Date	11/7/2016
SVOCs (mg/kg)	
Benzo(b)fluoranthene	**1.03**
Pesticides (mg/kg)	
4,4'-DDT	**0.0138**
Dieldrin	**0.0402**
Metals	
Copper	**72.7**

Location ID	SB35-161107
Depth Interval (ft-bgs)	Composite (0 to 5)
Sample Date	11/7/2016
Pesticides (mg/kg)	
4,4'-DDT	**0.0104**
Metals	
Copper	**70.6**
Lead	**88**

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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MATRIXNEWORLD
Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
26 Columbia Turnpike
Florham Park, New Jersey 07932
WBE / DBE / SBE
Tel: 973-240-1800
Fax: 973-240-1818
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STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 39

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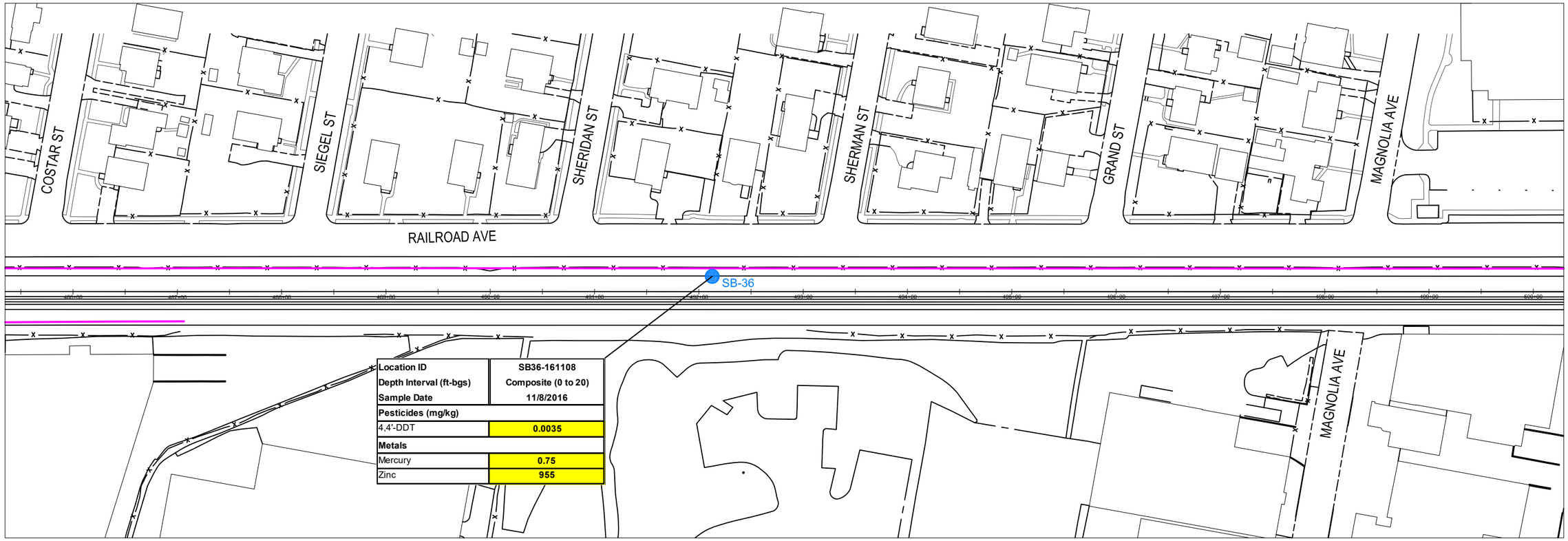

Location ID	SB36-161108
Depth Interval (ft-bgs)	Composite (0 to 20)
Sample Date	11/8/2016
Pesticides (mg/kg)	
4,4'-DDT	**0.0035**
Metals	
Mercury	**0.75**
Zinc	**955**

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

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Tel: 973-240-1800
Fax: 973-240-1818
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STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-082661

MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 40

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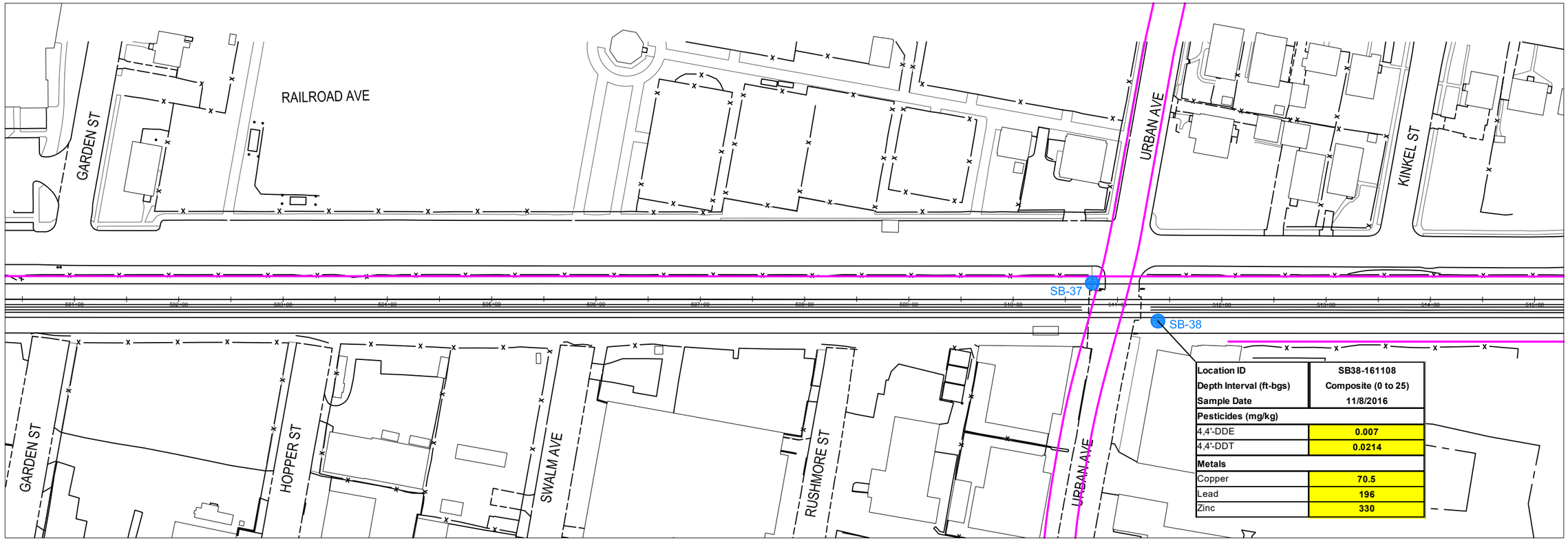

Location ID	SB38-161108
Depth Interval (ft-bgs)	Composite (0 to 25)
Sample Date	11/8/2016
Pesticides (mg/kg)	
4,4'-DDE	**0.007**
4,4'-DDT	**0.0214**
Metals	
Copper	**70.5**
Lead	**196**
Zinc	**330**

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
5. BOLD + GREEN HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE & RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES.
6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 41

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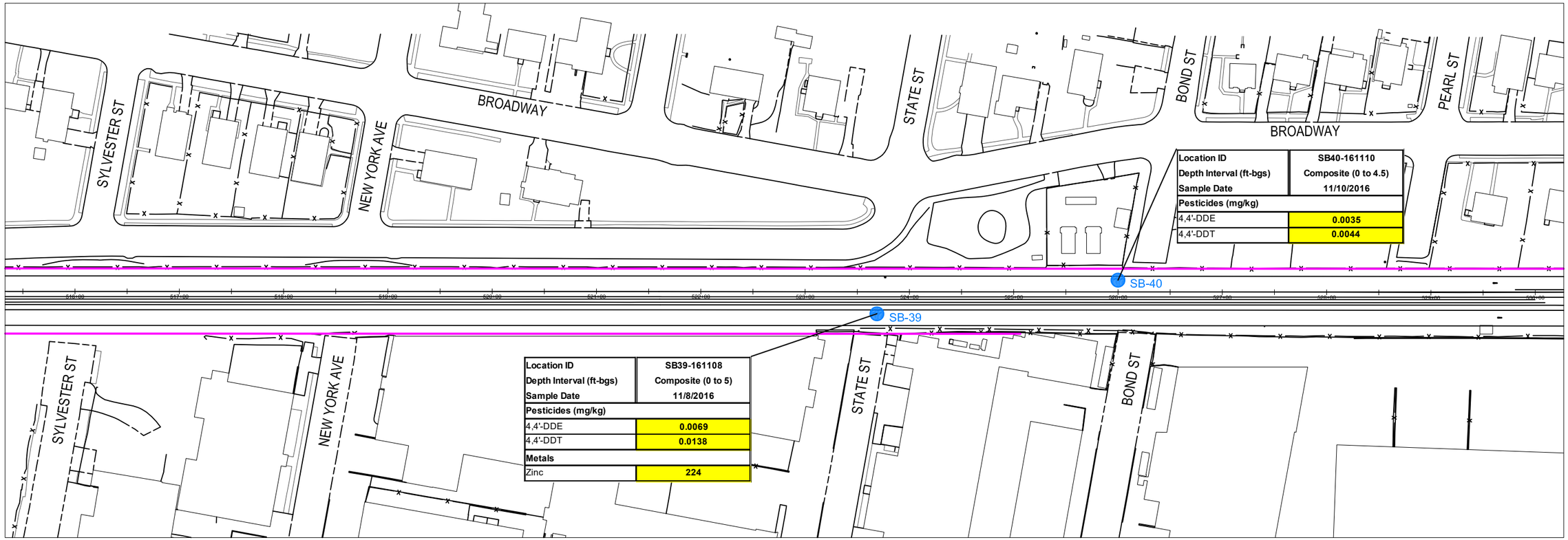

Location ID	SB40-161110
Depth Interval (ft-bgs)	Composite (0 to 4.5)
Sample Date	11/10/2016
Pesticides (mg/kg)	
4,4'-DDE	**0.0035**
4,4'-DDT	**0.0044**

Location ID	SB39-161108
Depth Interval (ft-bgs)	Composite (0 to 5)
Sample Date	11/8/2016
Pesticides (mg/kg)	
4,4'-DDE	**0.0069**
4,4'-DDT	**0.0138**
Metals	
Zinc	**224**

LEGEND:

SB-01 SOIL BORING LOCATION

PROPOSED RETAINING WALL

NOTES:

1. ALL ANALYTICAL RESULTS ARE MEASURED IN MILLIGRAMS PER KILOGRAM (mg/kg).
2. SAMPLE DEPTHS ARE PRESENTED IN FEET BELOW GROUND SURFACE (ft. bgs).
3. BOLD = COMPOUND OR ANALYTE DETECTED ABOVE THE LABORATORY REPORTING LIMIT (RL).
4. BOLD + YELLOW HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE SOIL CLEANUP OBJECTIVE.
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6. BOLD + RED HIGHLIGHT = COMPOUND OR ANALYTE DETECTED ABOVE THE UNRESTRICTED USE, RESTRICTED RESIDENTIAL, COMMERCIAL & INDUSTRIAL SOIL CLEANUP OBJECTIVES.
7. VOCs = VOLATILE ORGANIC COMPOUNDS.
8. SVOCs = VOLATILE ORGANIC COMPOUNDS.
9. PCBs = POLYCHLORINATED BIPHENYLS.
10. SB-04 WAS NOT INSTALLED DUE TO ACCESS RESTRICTIONS.

SCALE

0 100 200

1"=100'

Parameter	NY SCO - Unrestricted Use (6NYCRR 375-6 12/06)	NY SCO Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	NY SCO Commerical w/CP-51 (NYCRR 375-6 12/06)	NY SCO Industrial w/CP-51 (NYCRR 375-6 12/06)
VOCs				
Acetone	0.05	100	500	1000
SVOCs				
Benzo(b)fluoranthene	1	1	5.6	11
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11
PCBS				
Aroclor 1254	0.1	1	1	25
Aroclor 1260	0.1	1	1	25
Pesticides				
4,4'-DDD	0.0033	13	92	180
4,4'-DDE	0.0033	8.9	62	120
4,4'-DDT	0.0033	7.9	47	94
Dieldrin	0.005	0.2	1.4	2.8
Metals				
Arsenic	13	16	16	16
Copper	50	270	270	10000
Lead	63	400	1000	3900
Mercury	0.18	0.81	2.8	5.7
Zinc	109	10000	10000	10000

NO.	DESCRIPTION	DATE:	BY:	APR:

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Engineering Progress
Matrix New World Engineering, Land Surveying and Landscape Architecture, P.C.
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Florham Park, New Jersey 07932
WBE / DBE / SBE
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MTA LONG ISLAND RAIL ROAD
LIRR EXPANSION PROJECT
NASSAU COUNTY, NEW YORK

SOIL ANALYTICAL RESULTS

DESIGNED BY: SH

CHECKED BY: MC

RELEASED BY: BC

PROJECT NUMBER: 16-144

SCALE: 1:100

FIGURE 42

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TABLES

Table 1
Summary of Soil Sample Depths and Methodology
LIRR Expansion Project
Nassau County, Long Island, New York

LOCATION	Sample Location	DATE	BORING TOTAL DEPTH	SAMPLE DEPTH
SB-01	Creedmore spur	11/11/2016	3 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-02	RW-1	11/11/2016	6.5 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-03	RW-2	10/31/2016	4.5 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-05	RW-2	11/11/2016	6.25 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-06	Covert Ave	10/31/2016	25 ft-bgs	14.5-15 ft-bgs (VOCs) & composite from 2 ft intervals
SB-07	Covert Ave/RW-2	10/31/2016	25 ft-bgs	6-6.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-08	RW-2	11/1/2016	10 ft-bgs	1-1.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-09	New Hyde Park Road	11/1/2016	25 ft-bgs	12-12.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-10	New Hyde Park Road/RW-3	11/1/2016	25 ft-bgs	10-10.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-11	New Hyde Park Road	11/1/2016	25 ft-bgs	16-16.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-12	Denton Ave/Tanners Pond/RW-3	11/2/2016	7 ft-bgs	6.5-7 ft-bgs (VOCs) & composite from 2 ft intervals
SB-13	Denton Ave/Tanners Pond	11/2/2016	7 ft-bgs	2.5-3 ft-bgs (VOCs) & composite from 2 ft intervals
SB-14	RW-4	11/2/2016	15 ft-bgs	4.5-5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-15	Willis Ave/RW-5	11/3/2016	25 ft-bgs	17.5-18 ft-bgs (VOCs) & composite from 2 ft intervals
SB-16	Willis Ave	11/2/2016	25 ft-bgs	0-0.5 ft-bgs (VOCs) & composite form 2 ft intervals
SB-17	RW-6A (west of Roslyn)	11/3/2016	20 ft-bgs	9.5-10 ft-bgs (VOCs) & composite from 2 ft intervals
SB-18	RW-6B (east of Roslyn)	11/9/2016	10 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-19	RW-6B (east of Roslyn)	11/9/2016	4.5 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-20	RW-7	11/9/2016	3 ft-bgs	0.5-2 ft-bgs (VOCs) & composite form 2 ft intervals
SB-21	RW-8/Glen Cove Rd	11/9/2016	7 ft-bgs	5.5-6 ft-bgs (VOCs) & composite from 2 ft intervals
SB-22	RW-9/Glen Cove Rd	11/9/2016	4 ft-bgs	2.5-3 ft-bgs (VOCs) & composite from 2 ft intervals
SB-23	RW-9/Meadowbrook	11/10/2016	25 ft-bgs	14.5-15 ft-bgs (VOCs) & composite from 2 ft intervals
SB-24	RW-10/Meadowbrook	11/10/2016	5 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-25	RW-10/Cherry Lane	11/3/2016	4 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-26	Cherry Lane	11/3/2016	10 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-27	Carle Pl Park	11/3/2016	4 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-28	RW-12	11/4/2016	3.5 ft-bgs	3-3.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-29	RW-11	11/4/2016	9 ft-bgs	5.5-6 ft-bgs (VOCs) & composite from 2 ft intervals
SB-30	School St-North	11/7/2016	25 ft-bgs	4.5-5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-31	School St-South	11/4/2016	25 ft-bgs	2.5-3 ft-bgs (VOCs) & composite from 2 ft intervals
SB-32	RW-15	11/7/2016	5 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-33	RW-16	11/4/2016	4 ft-bgs	3-3.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-34	RW-15	11/7/2016	5 ft-bgs	0.5-1 ft-bgs (VOCs) & composite from 2 ft intervals
SB-35	RW-16	11/7/2016	5 ft-bgs	3.0-3.5 ft-bgs (VOCs) & composite from 2 ft intervals
SB-36	RW-15	11/8/2016	20 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-37	Urban Ave/RW-15	11/8/2016	20 ft-bgs	14.5-15 ft-bgs (VOCs) & composite from 2 ft intervals
SB-38	Urban Ave/RW-17	11/8/2016	25 ft-bgs	14.5-15 ft-bgs (VOCs) & composite from 2 ft intervals
SB-39	RW-17	11/8/2016	5 ft-bgs	0.5-2 ft-bgs (VOCs) & composite from 2 ft intervals
SB-40	RW-15	11/10/2016	4.5 ft-bgs	2.5-3 ft-bgs (VOCs) & composite from 2 ft intervals

Notes:

ft-bgs = Feet below ground surface

VOCs = Volatile Organic Compounds

TCL = Target Compound List

TAL = Target Analyte List

TCLP = Toxicity Characteristics Leaching Procedure

RCRA = Resource Conservation and Recovery Act

Sample SB-04 eliminated from scope due to access issues.

All samples analyzed for full TCL/TAL, Full TCLP, RCRA Characteristics, Dioxin

VOC samples collected via Encore samplers

Remainder of samples were composite samples collected from entire boring length

TABLE 2
SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB01-161111	SB02-161111	SB03-161031	SB05-161111	SB06-161031	SB07-161031	SB08-161101	SB09-161101	SB10-161101	SB11-161101	SB12-161102	SB13-161102	SB14-161102	UUSCO - Unrestricted Use (6NYCRR 375-6 12/06)	RRSCO - Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	CSCO - Commercial w/CP-51 (NYCRR 375-6 12/06)	ISCO - Industrial w/CP-51 (NYCRR 375-6 12/06)
Lab Sample ID	JC31595-5	JC31595-4	JC30810-1	JC31595-6	JC30810-2	JC30810-3	JC30944-1	JC30944-4	JC30944-2	JC30944-3	JC30944-5	JC30944-6	JC30944-7				
Date Sampled	11/11/2016	11/11/2016	10/31/2016	11/11/2016	10/31/2016	10/31/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/2/2016	11/2/2016	11/2/2016				
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
VOCs																	
1,1,1-Trichloroethane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	0.68	100	500	1000
1,1,2,2-Tetrachloroethane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
1,1,2-Trichloroethane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
1,1-Dichloroethane	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.27	26	240	480
1,1-Dichloroethene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.33	100	500	1000
1,2,3-Trichlorobenzene	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
1,2,4-Trichlorobenzene	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
1,2-Dibromo-3-chloropropane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
1,2-Dibromoethane	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	NC	NC	NC	NC
1,2-Dichlorobenzene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	1.1	100	500	1000
1,2-Dichloroethane	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.02	3.1	30	60
1,2-Dichloropropane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
1,3-Dichlorobenzene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	2.4	49	280	560
1,4-Dichlorobenzene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	1.8	13	130	250
2-Butanone (MEK)	<0.0092	<0.010	<0.010	<0.011	<0.011	<0.010	<0.0091	<0.010	<0.013	<0.014	<0.0099	<0.0096	<0.0093	0.12	100	500	1000
2-Hexanone	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
4-Methyl-2-pentanone(MIBK)	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Acetone	**0.0346**	**0.0248**	**0.0377**	**0.0275**	<0.011	<0.010	<0.0091	<0.010	**0.0069 J**	<0.014	<0.0099	**0.0132**	<0.0093	0.05	100	500	1000
Benzene	<0.00046	<0.00050	<0.00052	<0.00054	<0.00055	<0.00052	<0.00045	<0.00052	<0.00063	<0.00069	<0.00050	<0.00048	<0.00047	0.06	4.8	44	89
Bromochloromethane	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Bromodichloromethane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Bromoform	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Bromomethane	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Carbon disulfide	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Carbon tetrachloride	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	0.76	2.4	22	44
Chlorobenzene	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	1.1	100	500	1000
Chloroethane	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Chloroform	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	0.37	49	350	700
Chloromethane	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
cis-1,2-Dichloroethene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.25	100	500	1000
cis-1,3-Dichloropropene	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Cyclohexane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Dibromochloromethane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Dichlorodifluoromethane	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Ethylbenzene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	1	41	390	780
Freon 113	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Isopropylbenzene	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
m,p-Xylene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	**0.00031 J**	<0.00099	<0.00096	**0.00022 J**	0.26	100	500	1000
Methyl Acetate	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Methyl Tert Butyl Ether	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.93	100	500	1000
Methylcyclohexane	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Methylene chloride	<0.0046	**0.0011 J**	**0.0017 J**	<0.0054	**0.0028 J**	**0.0022 J**	**0.0019 J**	**0.0024 J**	**0.0021 J**	**0.0037 J**	**0.0013 J**	**0.0012 J**	**0.0020 J**	0.05	100	500	1000
o-Xylene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.26	100	500	1000
Styrene	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Tert Butyl Alcohol	<0.023	<0.025	<0.026	<0.027	<0.028	<0.026	<0.023	<0.026	<0.031	<0.035	<0.025	<0.024	<0.023	NC	NC	NC	NC
Tetrachloroethene	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	1.3	19	150	300
Toluene	<0.00092	<0.0010	<0.0010	<0.0011	**0.00024 J**	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.7	100	500	1000
trans-1,2-Dichloroethene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.19	100	500	1000
trans-1,3-Dichloropropene	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	NC	NC	NC	NC
Trichloroethene	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	<0.0014	<0.00099	<0.00096	<0.00093	0.47	21	200	400
Trichlorofluoromethane	<0.0046	<0.0050	<0.0052	<0.0054	<0.0055	<0.0052	<0.0045	<0.0052	<0.0063	<0.0069	<0.0050	<0.0048	<0.0047	NC	NC	NC	NC
Vinyl chloride	<0.0018	<0.0020	<0.0021	<0.0022	<0.0022	<0.0021	<0.0018	<0.0021	<0.0025	<0.0028	<0.0020	<0.0019	<0.0019	0.02	0.9	13	27
Xylene (total)	<0.00092	<0.0010	<0.0010	<0.0011	<0.0011	<0.0010	<0.00091	<0.0010	<0.0013	**0.00031 J**	<0.00099	<0.00096	**0.00022 J**	0.26	100	500	1000
SVOCs																	
1,1'-Biphenyl	<0.069	<0.070	**0.0480 J**	**0.0147 J**	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	**0.108**	**0.0611 J**	<0.065	NC	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
1,4-Dioxane	<0.034	<0.035	<0.035	<0.036	<0.035	<0.035	<0.035	<0.034	<0.039	<0.044	<0.034	<0.036	<0.033	0.1	13	130	250
2,3,4,6-Tetrachlorophenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
2,4,5-Trichlorophenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
2,4,6-Trichlorophenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
2,4-Dichlorophenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
2,4-Dimethylphenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
2,4-Dinitrophenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
2,4-Dinitrotoluene	<0.034	<0.035	<0.035	<0.036	<0.035	<0.035	<0.035	<0.034	<0.039	<0.044	<0.034	<0.036	<0.033	NC	NC	NC	NC
2,6-Dinitrotoluene	<0.034	<0.035	<0.035	<0.036	<0.035	<0.035	<0.035	<0.034	<0.039	<0.044	<0.034	<0.036	<0.033	NC	NC	NC	NC
2-Chloronaphthalene	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	**0.0986**	<0.073	<0.065	NC	NC	NC	NC
2-Chlorophenol	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
2-Methylnaphthalene	<0.069	**0.0314 J**	**0.234**	**0.0656 J**	<0.070	**0.0230 J**	<0.071	<0.068	<0.078	**0.0531 J**	**0.382**	**0.241**	<0.065	NC	NC	NC	NC
2-Methylphenol	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	**0.0462 J**	<0.073	<0.065	0.33	100	500	1000
2-Nitroaniline	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
2-Nitrophenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
3&4-Methylphenol	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	**0.101**	<0.073	<0.065	NC	NC	NC	NC
3,3'-Dichlorobenzidine	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
3-Nitroaniline	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
4,6-Dinitro-o-cresol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
4-Bromophenyl phenyl ether	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
4-Chloro-3-methyl phenol	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
4-Chloroaniline	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
4-Chlorophenyl phenyl ether	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
4-Nitroaniline	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
4-Nitrophenol	<0.34	<0.35	<0.35	<0.36	<0.35	<0.35	<0.35	<0.34	<0.39	<0.44	<0.34	<0.36	<0.33	NC	NC	NC	NC
Acenaphthene	<0.034	<0.035	**0.0237 J**	**0.0269 J**	<0.035	<0.035	<0.035	<0.034	<0.039	<0.044	**0.0218 J**	**0.0235 J**	<0.033	20	100	500	1000
Acenaphthylene	<0.034	**0.0951**	**0.125**	**0.0871**	<0.035	**0.0425**	<0.035	<0.034	<0.039	**0.0798**	**0.166**	**0.127**	**0.0221 J**	100	100	500	1000
Acetophenone	<0.17	<0.17	**0.0321 J**	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
Anthracene	<0.034	**0.152**	**0.168**	**0.148**	<0.035	**0.058**	<0.035	**0.0376**	<0.039	**0.128**	**0.112**	**0.147**	**0.0427**	100	100	500	1000
Atrazine	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Benzaldehyde	<0.17	<0.17	**0.135 J**	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	**0.0366 J**	**0.135 J**	**0.176 J**	<0.16	NC	NC	NC	NC
Benzo(a)anthracene	**0.0602**	**0.343**	**0.37**	**0.211**	**0.0165 J**	**0.0845**	**0.0775**	**0.0775**	**0.0179 J**	**0.215**	**0.112**	**0.175**	**0.0417**	1	1	5.6	11
Benzo(a)pyrene	**0.0625**	**0.334**	**0.327**	**0.206**	**0.0177 J**	**0.102**	**0.0911**	**0.102**	**0.0213 J**	**0.23**	**0.0732**	**0.137**	**0.0463**	1	1	1	1.1
Benzo(b)fluoranthene	**0.103**	**0.562**	**0.66**	**0.354**	**0.0201 J**	**0.203**	**0.122**	**0.118**	**0.0322 J**	**0.546**	**0.23**	**0.361**	**0.119**	1	1	5.6	11
Benzo(g,h,i)perylene	**0.0464**	**0.267**	**0.231**	**0.174**	<0.035	**0.109**	**0.0732**	**0.0732**	**0.0223 J**	**0.172**	**0.0602**	**0.129**	**0.0398**	100	100	500	1000
Benzo(k)fluoranthene	**0.038**	**0.195**	**0.226**	**0.095**	<0.035	**0.0633**	**0.0464**	**0.0433**	<0.039	**0.192**	**0.0649**	**0.122**	**0.0429**	0.8	3.9	56	110
bis(2-Chloroethoxy)methane	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
bis(2-Chloroethyl)ether	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
bis(2-Chloroisopropyl)ether	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
bis(2-Ethylhexyl)phthalate	<0.069	<0.070	**0.0422 J**	<0.072	<0.070	<0.069	<0.071	**0.0359 J**	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Butyl benzyl phthalate	<0.069	<0.070	**0.0724**	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Caprolactam	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Carbazole	<0.069	**0.0475 J**	**0.0621 J**	**0.0499 J**	<0.070	**0.0319 J**	<0.071	<0.068	<0.078	**0.0544 J**	**0.0315 J**	**0.0565 J**	**0.0148 J**	NC	NC	NC	NC
Chrysene	**0.0752**	**0.417**	**0.595**	**0.288**	<0.035	**0.153**	**0.0944**	**0.0911**	**0.0223 J**	**0.376**	**0.322**	**0.376**	**0.0591**	1	3.9	56	110
Dibenzo(a,h)anthracene	<0.034	**0.0772**	**0.0861**	**0.0454**	<0.035	**0.0287 J**	**0.0170 J**	**0.0204 J**	<0.039	**0.0525**	**0.0342**	**0.038**	**0.0143 J**	0.33	0.33	0.56	1.1
Dibenzofuran	<0.069	**0.0223 J**	**0.1**	**0.0412 J**	<0.070	<0.069	<0.071	<0.068	<0.078	**0.0299 J**	**0.138**	**0.12**	<0.065	7	59	350	1000
Diethyl phthalate	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Dimethyl phthalate	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Di-n-butyl phthalate	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Di-n-octyl phthalate	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Fluoranthene	**0.102**	**0.487**	**0.858**	**0.334**	<0.035	**0.241**	**0.171**	**0.126**	**0.0247 J**	**0.36**	**0.332**	**0.454**	**0.0563**	100	100	500	1000
Fluorene	<0.034	**0.0192 J**	**0.0371**	**0.0273 J**	<0.035	<0.035	<0.035	<0.034	<0.039	<0.044	**0.0541**	**0.0310 J**	<0.033	30	100	500	1000
Hexachlorobenzene	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	0.33	1.2	6	12
Hexachlorobutadiene	<0.034	<0.035	<0.035	<0.036	<0.035	<0.035	<0.035	<0.034	<0.039	<0.044	<0.034	<0.036	<0.033	NC	NC	NC	NC
Hexachlorocyclopentadiene	<0.34	<0.35	<0.35	<0.36	<0.35	<0.35	<0.35	<0.34	<0.39	<0.44	<0.34	<0.36	<0.33	NC	NC	NC	NC
Hexachloroethane	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
Indeno(1,2,3-cd)pyrene	**0.0522**	**0.294**	**0.298**	**0.182**	**0.0197 J**	**0.117**	**0.0724**	**0.0671**	**0.0204 J**	**0.208**	**0.0522**	**0.12**	**0.0483**	0.5	0.5	5.6	11
Isophorone	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
Naphthalene	<0.034	**0.0332 J**	**0.185**	**0.0494**	<0.035	0.0163 J	<0.035	<0.034	<0.039	**0.0381 J**	**0.726**	**0.324**	<0.033	12	100	500	1000
Nitrobenzene	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	15	69	140
N-Nitroso-di-n-propylamine	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	<0.068	<0.073	<0.065	NC	NC	NC	NC
N-Nitrosodiphenylamine	<0.17	<0.17	<0.17	<0.18	<0.18	<0.17	<0.18	<0.17	<0.19	<0.22	<0.17	<0.18	<0.16	NC	NC	NC	NC
Pentachlorophenol	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.16	<0.18	<0.14	<0.15	<0.13	0.8	6.7	6.7	55
Phenanthrene	**0.0486**	**0.25**	**0.537**	**0.276**	<0.035	**0.0783**	**0.0785**	**0.102**	<0.039	**0.166**	**0.611**	**0.51**	**0.0263 J**	100	100	500	1000
Phenol	<0.069	<0.070	<0.070	<0.072	<0.070	<0.069	<0.071	<0.068	<0.078	<0.088	**0.151**	<0.073	<0.065	0.33	100	500	1000
Pyrene	**0.108**	**0.623**	**0.713**	**0.464**	**0.0170 J**	**0.252**	**0.151**	**0.129**	**0.0268 J**	**0.334**	**0.298**	**0.394**	**0.062**	100	100	500	1000

Notes:

All analytical results except for pH and dioxin for soil are measured in miligrams per kilogram (mg/kg).

pH is measured in Standard Units (SU)

Dioxin is measure in picograms/gram (pg/g)

J = estimated value

All sample depths are presented in ft bgs (feet below ground surface)

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

NC = No criteria established for this contaminant

NR = Not run. Samples from October 31, 2016 were not run for herbicides.

Bold = Compound or analyte detected above the laboratory reporting limit (RL)

Bold + Yellow Highlight = Compound or analyte detected above the Unrestricted Use Soil Cleanup Objective

Bold + Green Highlight = Compound or analyte detected above the Unrestricted Use & Restricted Residential Use Soil Cleanup Objectives

Bold + Red Highlight = Compound or analyte detected above the Unrestricted Use, Restricted Residential, Commercial & Industrial Soil Cleanup Objectives

VOCs = Volatile Organic Compounds

SVOCs = Volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

EMPC = Esitmated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified-ion abundance ratio

UUSCO = Unrestricted Use Soil Cleanup Objectives (6NYCRR 375-6 12/06)

RRSCO = Restricted Residential Soil Cleanup Objectives (NYCRR 375-6 12/06)

CSCO = Commercial Soil Cleanup Objectives (NYCRR 375-6 12/06)

ISCO = Industrial Soil Cleanup Objectives (NYCRR 375-6 12/06)

* = Results were compared to the most stringent USEPA Regional Screening Levels and none exceeded.

TABLE 2
SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB01-161111	SB02-161111	SB03-161031	SB05-161111	SB06-161031	SB07-161031	SB08-161101	SB09-161101	SB10-161101	SB11-161101	SB12-161102	SB13-161102	SB14-161102	UUSCO - Unrestricted Use (6NYCRR 375-6 12/06)	RRSCO - Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	CSCO - Commercial w/CP-51 (NYCRR 375-6 12/06)	ISCO - Industrial w/CP-51 (NYCRR 375-6 12/06)
Lab Sample ID	JC31595-5	JC31595-4	JC30810-1	JC31595-6	JC30810-2	JC30810-3	JC30944-1	JC30944-4	JC30944-2	JC30944-3	JC30944-5	JC30944-6	JC30944-7				
Date Sampled	11/11/2016	11/11/2016	10/31/2016	11/11/2016	10/31/2016	10/31/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/2/2016	11/2/2016	11/2/2016				
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
PCBs																	
Aroclor 1016	<0.034	<0.033	<0.035	<0.035	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1221	<0.034	<0.033	<0.035	<0.035	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1232	<0.034	<0.033	<0.035	<0.035	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1242	<0.034	<0.033	<0.035	<0.035	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1248	<0.034	<0.033	<0.035	**0.0843**	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1254	<0.034	<0.033	<0.035	**0.302**	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1260	**0.2**	**0.0619**	<0.035	0.08	<0.035	**0.0512**	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1268	<0.034	<0.033	<0.035	<0.035	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Aroclor 1262	<0.034	<0.033	<0.035	<0.035	<0.035	<0.034	<0.036	<0.033	<0.040	<0.045	<0.036	<0.036	<0.035	0.1	1	1	25
Pesticides																	
4,4'-DDD	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	**0.0028**	<0.00072	<0.00066	<0.00081	<0.00089	**0.0109**	<0.00073	<0.00069	0.0033	13	92	180
4,4'-DDE	<0.00065	<0.00066	**0.0026**	**0.0159**	<0.00069	**0.0089**	<0.00072	<0.00066	<0.00081	**0.0047**	**0.0486**	**0.0284**	<0.00069	0.0033	8.9	62	120
4,4'-DDT	**0.0279**	**0.0074**	**0.0181**	**0.015**	<0.00069	**0.0582**	<0.00072	<0.00066	<0.00081	**0.0082**	**0.0281**	**0.0313**	<0.00069	0.0033	7.9	47	94
Aldrin	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.005	0.097	0.68	1.4
alpha-BHC	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.02	0.48	3.4	6.8
alpha-Chlordane	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	**0.0069**	**0.0012**	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.094	4.2	24	47
beta-BHC	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.036	0.36	3	14
delta-BHC	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.04	100	500	1000
Dieldrin	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.005	0.2	1.4	2.8
Endosulfan sulfate	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	2.4	24	200	920
Endosulfan-I	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	2.4	24	200	920
Endosulfan-II	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	2.4	24	200	920
Endrin	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.014	11	89	410
Endrin aldehyde	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	NC	NC	NC	NC
Endrin ketone	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	NC	NC	NC	NC
gamma-BHC (Lindane)	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.1	1.3	9.2	23
gamma-Chlordane	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	**0.0039**	0.00099	**0.00029 J**	<0.00081	**0.0011**	<0.00071	<0.00073	<0.00069	NC	NC	NC	NC
Heptachlor	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	<0.00068	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	0.042	2.1	15	29
Heptachlor epoxide	<0.00065	<0.00066	<0.00070	<0.00067	<0.00069	0.00081	<0.00072	<0.00066	<0.00081	<0.00089	<0.00071	<0.00073	<0.00069	NC	NC	NC	NC
Methoxychlor	<0.0013	<0.0013	<0.0014	<0.0013	<0.0014	<0.0014	<0.0014	<0.0013	<0.0016	<0.0018	<0.0014	<0.0015	<0.0014	NC	NC	NC	NC
Toxaphene	<0.016	<0.016	<0.017	<0.017	<0.017	<0.017	<0.018	<0.017	<0.020	<0.022	<0.018	<0.018	<0.017	NC	NC	NC	NC
Herbicides																	
2,4,5-T	<0.0069	<0.0065	NR	<0.0067	NR	NR	<0.0071	<0.0066	<0.0079	<0.0090	<0.0069	<0.0070	<0.0066	NC	NC	NC	NC
2,4,5-TP (Silvex)	<0.0069	<0.0065	NR	<0.0067	NR	NR	<0.0071	<0.0066	<0.0079	<0.0090	<0.0069	<0.0070	<0.0066	3.8	100	500	1000
2,4-D	<0.035	**0.0375**	NR	<0.034	NR	NR	<0.036	<0.033	<0.039	<0.045	<0.034	<0.035	<0.033	NC	NC	NC	NC
2,4-DB	<0.035	<0.033	NR	<0.034	NR	NR	<0.036	<0.033	<0.039	<0.045	<0.034	<0.035	<0.033	NC	NC	NC	NC
Dalapon	<0.0069	<0.0065	NR	<0.0067	NR	NR	<0.0071	<0.0066	<0.0079	<0.0090	<0.0069	<0.0070	<0.0066	NC	NC	NC	NC
Dicamba	<0.0069	<0.0065	NR	<0.0067	NR	NR	<0.0071	<0.0066	<0.0079	<0.0090	<0.0069	<0.0070	<0.0066	NC	NC	NC	NC
Dichloroprop	<0.035	<0.033	NR	<0.034	NR	NR	<0.036	<0.033	<0.039	<0.045	**0.122**	<0.035	<0.033	NC	NC	NC	NC
Dinoseb	<0.035	<0.033	NR	<0.034	NR	NR	<0.036	<0.033	<0.039	<0.045	<0.034	<0.035	<0.033	NC	NC	NC	NC
MCPA	<3.5	<3.3	NR	<3.4	NR	NR	<3.6	<3.3	<3.9	<4.5	<3.4	<3.5	<3.3	NC	NC	NC	NC
MCPP	<3.5	<3.3	NR	<3.4	NR	NR	<3.6	<3.3	<3.9	<4.5	<3.4	<3.5	<3.3	NC	NC	NC	NC
Pentachlorophenol	<0.0035	<0.0033	NR	<0.0034	NR	NR	<0.0036	<0.0033	<0.0039	<0.0045	<0.0034	<0.0035	<0.0033	0.8	6.7	6.7	55
Metals																	
Aluminum	**5510**	**5600**	**3930**	**6740**	**1950**	**2390**	**4050**	**1890**	**1410**	**1910**	**4850**	**7020**	**1680**	NC	NC	NC	NC
Antimony	<2.1	<2.1	<2.0	<2.3	<2.1	<2.1	<2.1	<2.0	<2.5	<2.7	<2.2	<2.1	<2.1	NC	NC	NC	NC
Arsenic	**2.9**	**2.5**	**5.6**	**4.3**	<2.1	**4.9**	**2.4**	**3**	<2.5	<2.7	**23.8**	**3.9**	<2.1	13	16	16	16
Barium	**26**	**30.4**	**35.4**	**23.7**	<21	<21	<21	<20	<25	<27	**56.3**	**27.9**	<21	350	400	400	10000
Beryllium	**0.23**	**0.3**	**0.25**	**0.28**	<0.21	<0.21	**0.21**	<0.20	<0.25	<0.27	**0.26**	**0.31**	<0.21	7.2	72	590	2700
Cadmium	**0.77**	<0.53	<0.50	<0.58	<0.52	<0.53	<0.53	<0.50	<0.61	<0.68	<0.55	<0.53	<0.53	2.5	4.3	9.3	60
Calcium	**1650**	**581**	**787**	**627**	<520	**2610**	**1660**	**3110**	<610	<680	<550	<530	<530	NC	NC	NC	NC
Chromium	**12.5**	**12**	**12.9**	**13.6**	**4.8**	**7.5**	**9**	**9.3**	**4.8**	**5.4**	**9.9**	**12.2**	**5.3**	NC	NC	NC	NC
Cobalt	<5.3	<5.3	<5.0	<5.8	<5.2	<5.3	<5.3	<5.0	<6.1	<6.8	<5.5	<5.3	<5.3	NC	NC	NC	NC
Copper	**33.4**	**11.6**	**37**	**33.7**	**5.6**	**20.4**	**8.5**	**10.4**	**6.3**	**13.4**	**32.9**	**33**	**10.8**	50	270	270	10000
Iron	**9900**	**12000**	**9290**	**12700**	**4390**	**9430**	**7500**	**6400**	**4960**	**5440**	**12800**	**11700**	**5260**	NC	NC	NC	NC
Lead	**46.3**	**35.1**	**95.1**	**30.8**	**4.6**	**82.7**	**8**	**13.8**	**4.4**	**17.7**	**56.1**	**47**	**4.2**	63	400	1000	3900
Magnesium	**1230**	**1230**	**850**	**1010**	**631**	**1850**	**904**	**1470**	<610	<680	**578**	**1180**	<530	NC	NC	NC	NC
Manganese	**155**	**203**	**128**	**142**	**59.6**	**102**	**112**	**143**	81.2	**90**	**101**	**172**	**171**	1600	2000	10000	10000
Mercury	**0.17**	**0.052**	**0.058**	**0.044**	<0.035	<0.035	<0.035	<0.034	<0.038	**0.047**	**0.044**	**0.057**	<0.034	0.18	0.81	2.8	5.7
Nickel	**10.9**	**12.2**	**12.1**	**9.2**	**7.2**	**8.7**	**7.3**	**8**	**5**	<5.4	**9.9**	**11.3**	**5.2**	30	310	310	10000
Potassium	<1100	<1100	<990	<1200	<1000	<1100	<1100	<1000	<1200	<1400	<1100	<1100	<1100	NC	NC	NC	NC
Selenium	<2.1	<2.1	<2.0	<2.3	<2.1	<2.1	<2.1	<2.0	<2.5	<2.7	<2.2	<2.1	<2.1	3.9	180	1500	6800
Silver	<0.53	<0.53	**1**	<0.58	**0.57**	**0.84**	<0.53	<0.50	<0.61	<0.68	<0.55	<0.53	<0.53	2	180	1500	6800
Sodium	<1100	<1100	<990	<1200	<1000	<1100	<1100	<1000	<1200	<1400	<1100	<1100	<1100	NC	NC	NC	NC
Thallium	<1.1	<1.1	<0.99	<1.2	<1.0	<1.1	<1.1	<1.0	<1.2	<1.4	<1.1	<1.1	<1.1	NC	NC	NC	NC
Vanadium	**13.3**	**15.9**	**11.6**	**14.7**	**5.4**	**9.7**	**9.7**	**8.5**	<6.1	<6.8	**13.5**	**15.8**	**5.5**	NC	NC	NC	NC
Zinc	**96.2**	**44**	**81.5**	**33.2**	**16.1**	**69.6**	**23.2**	**31.7**	**8.9**	**27.2**	**37.2**	**35.6**	**11.1**	109	10000	10000	10000
Dioxin																	
2,3,7,8-Tetrachlorodibenzodioxin (TCDD)	**0.398J**	**4.18**	<1.73	**0.179J**	<0.207	**0.303 J**	<0.0744	<0.212	<0.0894	**0.461 EMPC**	**1.24 EMPC**	<0.653	<0.132	*	*	*	*
General Chemistry																	
Corrosivity as pH (su)	7.07	6.29	6.09	6.15	8.13	8.03	7.32	8.81	7.78	5.73	4.43	4.69	6.98	NC	NC	NC	NC
Cyanide (mg/kg)	<0.25	<0.25	<0.22	<0.26	<0.23	<0.22	<0.22	<0.22	<0.26	<0.29	<0.22	<0.24	<0.21	27	27	27	10000
Cyanide Reactivity (mg/kg)	<11	<10	<10	<11	<11	<10	<11	<10	<12	<14	<11	<11	<10	NC	NC	NC	NC
Ignitability (Flashpoint) (Deg. F)	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	NC	NC	NC	NC
Solids, Percent (%)	93.6	95.6	95.8	90.5	94.2	94.4	92	95.5	81.6	73.7	91.7	91	95.7	NC	NC	NC	NC
Sulfide Reactivity (mg/kg)	<110	<100	<100	<110	<110	<100	<110	<100	<120	<140	<110	<110	<100	NC	NC	NC	NC

Notes:

All analytical results except for pH and dioxin for soil are measured in miligrams per kilogram (mg/kg).

pH is measured in Standard Units (SU)

Dioxin is measure in picograms/gram (pg/g)

J = estimated value

All sample depths are presented in ft bgs (feet below ground surface)

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

NC = No criteria established for this contaminant

NR = Not run. Samples from October 31, 2016 were not run for herbicides.

Bold = Compound or analyte detected above the laboratory reporting limit (RL)

Bold + Yellow Highlight = Compound or analyte detected above the Unrestricted Use Soil Cleanup Objective

Bold + Green Highlight = Compound or analyte detected above the Unrestricted Use & Restricted Residential Use Soil Cleanup Objectives

Bold + Red Highlight = Compound or analyte detected above the Unrestricted Use, Restricted Residential, Commercial & Industrial Soil Cleanup Objectives

VOCs = Volatile Organic Compounds

SVOCs = Volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

EMPC = Esitmated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified-ion abundance ratio

UUSCO = Unrestricted Use Soil Cleanup Objectives (6NYCRR 375-6 12/06)

RRSCO = Restricted Residential Soil Cleanup Objectives (NYCRR 375-6 12/06)

CSCO = Commercial Soil Cleanup Objectives (NYCRR 375-6 12/06)

ISCO = Industrial Soil Cleanup Objectives (NYCRR 375-6 12/06)

* = Results were compared to the most stringent USEPA Regional Screening Levels and none exceeded.

TABLE 2
SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB15-161103	SB16-161102	SB17-161103	SB18-161109	SB19-161109	SB20-161109	SB21-161109	SB22-161109	SB23-161110	SB24-161110	SB25-161103	SB26-161103	SB27-161103	UUSCO - Unrestricted Use (6NYCRR 375-6 12/06)	RRSCO - Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	CSCO - Commercial w/CP-51 (NYCRR 375-6 12/06)	ISCO - Industrial w/CP-51 (NYCRR 375-6 12/06)
Lab Sample ID	JC31165-2	JC30944-8	JC31165-1	JC31431-5	JC31431-6	JC31431-7	JC31431-9	JC31431-8	JC31595-2	JC31595-3	JC31165-5	JC31165-4	JC31165-3				
Date Sampled	11/3/2016	11/2/2016	11/3/2016	11/9/2016	11/9/2016	11/9/2016	11/9/2016	11/9/2016	11/10/2016	11/10/2016	11/3/2016	11/3/2016	11/3/2016				
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
VOCs																	
1,1,1-Trichloroethane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	0.68	100	500	1000
1,1,2,2-Tetrachloroethane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
1,1,2-Trichloroethane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
1,1-Dichloroethane	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.27	26	240	480
1,1-Dichloroethene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.33	100	500	1000
1,2,3-Trichlorobenzene	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
1,2,4-Trichlorobenzene	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
1,2-Dibromo-3-chloropropane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
1,2-Dibromoethane	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	NC	NC	NC	NC
1,2-Dichlorobenzene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	1.1	100	500	1000
1,2-Dichloroethane	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.02	3.1	30	60
1,2-Dichloropropane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
1,3-Dichlorobenzene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	2.4	49	280	560
1,4-Dichlorobenzene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	1.8	13	130	250
2-Butanone (MEK)	<0.010	<0.0095	<0.0097	<0.0092	<0.010	<0.013	<0.011	<0.011	<0.0083	<0.011	<0.0092	<0.0096	<0.010	0.12	100	500	1000
2-Hexanone	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
4-Methyl-2-pentanone(MIBK)	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Acetone	<0.010	**0.0103**	<0.0097	**0.0057 J**	<0.010	<0.013	<0.011	<0.011	<0.0083	**0.0805**	<0.0092	<0.0096	<0.010	0.05	100	500	1000
Benzene	<0.00051	<0.00048	<0.00049	<0.00046	<0.00052	<0.00066	<0.00057	<0.00053	<0.00042	<0.00057	<0.00046	<0.00048	<0.00052	0.06	4.8	44	89
Bromochloromethane	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Bromodichloromethane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Bromoform	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Bromomethane	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Carbon disulfide	<0.0021	**0.00080 J**	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Carbon tetrachloride	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	0.76	2.4	22	44
Chlorobenzene	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	1.1	100	500	1000
Chloroethane	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Chloroform	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	0.37	49	350	700
Chloromethane	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
cis-1,2-Dichloroethene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.25	100	500	1000
cis-1,3-Dichloropropene	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Cyclohexane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Dibromochloromethane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Dichlorodifluoromethane	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Ethylbenzene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	1	41	390	780
Freon 113	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Isopropylbenzene	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
m,p-Xylene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.26	100	500	1000
Methyl Acetate	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Methyl Tert Butyl Ether	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.93	100	500	1000
Methylcyclohexane	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Methylene chloride	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	**0.00097 J**	<0.0057	<0.0046	<0.0048	<0.0052	0.05	100	500	1000
o-Xylene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.26	100	500	1000
Styrene	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Tert Butyl Alcohol	<0.026	<0.024	<0.024	<0.023	<0.026	<0.033	<0.028	<0.027	<0.021	<0.028	<0.023	<0.024	<0.026	NC	NC	NC	NC
Tetrachloroethene	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	1.3	19	150	300
Toluene	<0.0010	<0.00095	**0.00019 J**	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.7	100	500	1000
trans-1,2-Dichloroethene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.19	100	500	1000
trans-1,3-Dichloropropene	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	NC	NC	NC	NC
Trichloroethene	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.47	21	200	400
Trichlorofluoromethane	<0.0051	<0.0048	<0.0049	<0.0046	<0.0052	<0.0066	<0.0057	<0.0053	<0.0042	<0.0057	<0.0046	<0.0048	<0.0052	NC	NC	NC	NC
Vinyl chloride	<0.0021	<0.0019	<0.0019	<0.0018	<0.0021	<0.0026	<0.0023	<0.0021	<0.0017	<0.0023	<0.0018	<0.0019	<0.0021	0.02	0.9	13	27
Xylene (total)	<0.0010	<0.00095	<0.00097	<0.00092	<0.0010	<0.0013	<0.0011	<0.0011	<0.00083	<0.0011	<0.00092	<0.00096	<0.0010	0.26	100	500	1000
SVOCs																	
1,1'-Biphenyl	<0.069	<0.066	<0.068	**0.0142 J**	**0.0203 J**	**0.0515 J**	<0.073	**0.0172 J**	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
1,4-Dioxane	<0.034	<0.033	<0.034	<0.034	<0.036	<0.036	<0.036	<0.034	<0.033	<0.033	<0.033	<0.035	<0.035	0.1	13	130	250
2,3,4,6-Tetrachlorophenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
2,4,5-Trichlorophenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
2,4,6-Trichlorophenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
2,4-Dichlorophenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
2,4-Dimethylphenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
2,4-Dinitrophenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
2,4-Dinitrotoluene	<0.034	<0.033	<0.034	<0.034	<0.036	<0.036	<0.036	<0.034	<0.033	<0.033	<0.033	<0.035	<0.035	NC	NC	NC	NC
2,6-Dinitrotoluene	<0.034	<0.033	<0.034	<0.034	<0.036	<0.036	<0.036	<0.034	<0.033	<0.033	<0.033	<0.035	<0.035	NC	NC	NC	NC
2-Chloronaphthalene	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
2-Chlorophenol	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
2-Methylnaphthalene	<0.069	**0.0255 J**	**0.0625 J**	**0.0399 J**	**0.0976**	**0.302**	**0.0386 J**	**0.0681**	<0.067	**0.0369 J**	**0.0455 J**	**0.0365 J**	**0.0521 J**	NC	NC	NC	NC
2-Methylphenol	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	0.33	100	500	1000
2-Nitroaniline	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
2-Nitrophenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
3&4-Methylphenol	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
3,3'-Dichlorobenzidine	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
3-Nitroaniline	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
4,6-Dinitro-o-cresol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
4-Bromophenyl phenyl ether	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
4-Chloro-3-methyl phenol	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
4-Chloroaniline	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
4-Chlorophenyl phenyl ether	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
4-Nitroaniline	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
4-Nitrophenol	<0.34	<0.33	<0.34	<0.34	<0.36	<0.36	<0.36	<0.34	<0.33	<0.33	<0.33	<0.35	<0.35	NC	NC	NC	NC
Acenaphthene	<0.034	<0.033	**0.0164 J**	**0.142**	<0.036	<0.036	<0.036	**0.0459**	<0.033	<0.033	<0.033	<0.035	<0.035	20	100	500	1000
Acenaphthylene	<0.034	**0.0305 J**	**0.0401**	**0.0527**	**0.0776**	**0.0832**	**0.127**	**0.0531**	<0.033	**0.0253 J**	**0.0679**	**0.0518**	**0.0336 J**	100	100	500	1000
Acetophenone	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	0.0362 J	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
Anthracene	<0.034	**0.0583**	**0.106**	**0.464**	**0.124**	**0.0924**	**0.236**	**0.143**	**0.035**	**0.0293 J**	**0.102**	**0.0671**	**0.0408**	100	100	500	1000
Atrazine	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Benzaldehyde	<0.17	<0.17	**0.0213 J**	<0.17	**0.0327 J**	**0.0819 J**	**0.0391 J**	**0.0300 J**	<0.17	<0.17	**0.0454 J**	<0.18	<0.18	NC	NC	NC	NC
Benzo(a)anthracene	**0.0402**	**0.126**	**0.347**	**0.671**	**0.206**	**0.165**	**0.495**	**0.568**	**0.143**	**0.076**	**0.102**	**0.0938**	**0.0631**	1	1	5.6	11
Benzo(a)pyrene	**0.0422**	**0.174**	**0.355**	**0.582**	**0.201**	**0.15**	**0.475**	**0.665**	**0.182**	**0.0702**	**0.13**	**0.101**	**0.07**	1	1	1	1.1
Benzo(b)fluoranthene	**0.0628**	**0.2**	**0.45**	**0.669**	**0.467**	**0.358**	**1.07**	**1.02**	**0.257**	**0.228**	**0.22**	**0.143**	**0.116**	1	1	5.6	11
Benzo(g,h,i)perylene	**0.0397**	**0.179**	**0.279**	**0.311**	**0.174**	**0.136**	**0.3**	**0.543**	**0.152**	**0.0608**	**0.13**	**0.0843**	**0.0757**	100	100	500	1000
Benzo(k)fluoranthene	**0.0253 J**	**0.0682**	**0.165**	**0.282**	**0.14**	**0.0989**	**0.374**	**0.364**	**0.0879**	**0.0619**	**0.0679**	**0.0485**	**0.0332 J**	0.8	3.9	56	110
bis(2-Chloroethoxy)methane	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
bis(2-Chloroethyl)ether	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
bis(2-Chloroisopropyl)ether	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
bis(2-Ethylhexyl)phthalate	<0.069	<0.066	<0.068	<0.068	0.0979	0.0863	<0.073	**0.185**	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Butyl benzyl phthalate	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	**0.778**	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Caprolactam	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Carbazole	<0.069	**0.0177 J**	**0.0414 J**	**0.203**	**0.0540 J**	**0.0470 J**	**0.0688 J**	**0.0802**	**0.0287 J**	**0.0239 J**	**0.0283 J**	<0.070	<0.071	NC	NC	NC	NC
Chrysene	**0.0497**	**0.167**	**0.426**	**0.567**	**0.324**	**0.339**	**0.681**	**0.711**	**0.2**	**0.186**	**0.136**	**0.109**	**0.0995**	1	3.9	56	110
Dibenzo(a,h)anthracene	<0.034	**0.0287 J**	**0.0673**	**0.0929**	**0.0565**	**0.0409**	**0.103**	**0.133**	**0.044**	**0.0199 J**	**0.0401**	**0.0214 J**	**0.0193 J**	0.33	0.33	0.56	1.1
Dibenzofuran	<0.069	<0.066	**0.0304 J**	**0.107**	**0.0422 J**	**0.101**	**0.0177 J**	**0.0333 J**	<0.067	**0.0166 J**	**0.0184 J**	<0.070	**0.0219 J**	7	59	350	1000
Diethyl phthalate	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Dimethyl phthalate	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Di-n-butyl phthalate	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	**0.407**	**0.0469 J**	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Di-n-octyl phthalate	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Fluoranthene	**0.0708**	**0.225**	**0.64**	**1.43**	**0.353**	**0.368**	**0.54**	**1.3**	**0.294**	**0.14**	**0.177**	**0.146**	**0.0947**	100	100	500	1000
Fluorene	<0.034	<0.033	<0.034	0.186	0.0179 J	<0.036	**0.0284 J**	**0.0502**	<0.033	<0.033	0.0153 J	<0.035	<0.035	30	100	500	1000
Hexachlorobenzene	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	0.33	1.2	6	12
Hexachlorobutadiene	<0.034	<0.033	<0.034	<0.034	<0.036	<0.036	<0.036	<0.034	<0.033	<0.033	<0.033	<0.035	<0.035	NC	NC	NC	NC
Hexachlorocyclopentadiene	<0.34	<0.33	<0.34	<0.34	<0.36	<0.36	<0.36	<0.34	<0.33	<0.33	<0.33	<0.35	<0.35	NC	NC	NC	NC
Hexachloroethane	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
Indeno(1,2,3-cd)pyrene	**0.0381**	**0.114**	**0.279**	**0.357**	**0.188**	**0.122**	**0.358**	**0.604**	**0.165**	**0.0745**	**0.119**	**0.0762**	**0.052**	0.5	0.5	5.6	11
Isophorone	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
Naphthalene	<0.034	**0.0171 J**	**0.0495**	**0.11**	**0.0815**	**0.269**	**0.0293 J**	**0.0487**	<0.033	**0.045**	**0.0373**	**0.04**	**0.0327 J**	12	100	500	1000
Nitrobenzene	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	15	69	140
N-Nitroso-di-n-propylamine	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	NC	NC	NC	NC
N-Nitrosodiphenylamine	<0.17	<0.17	<0.17	<0.17	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.16	<0.18	<0.18	NC	NC	NC	NC
Pentachlorophenol	<0.14	<0.13	<0.14	<0.14	<0.14	<0.14	<0.15	<0.14	<0.13	<0.13	<0.13	<0.14	<0.14	0.8	6.7	6.7	55
Phenanthrene	**0.035**	**0.132**	**0.402**	**1.38**	**0.197**	**0.387**	**0.173**	**0.617**	**0.187**	**0.0879**	**0.108**	**0.0905**	**0.0982**	100	100	500	1000
Phenol	<0.069	<0.066	<0.068	<0.068	<0.071	<0.072	<0.073	<0.068	<0.067	<0.067	<0.066	<0.070	<0.071	0.33	100	500	1000
Pyrene	**0.067**	**0.232**	**0.689**	**1.18**	**0.335**	**0.325**	**0.809**	**1.11**	**0.328**	**0.146**	**0.189**	**0.155**	**0.112**	100	100	500	1000

Notes:

All analytical results except for pH and dioxin for soil are measured in miligrams per kilogram (mg/kg).

pH is measured in Standard Units (SU)

Dioxin is measure in picograms/gram (pg/g)

J = estimated value

All sample depths are presented in ft bgs (feet below ground surface)

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

NC = No criteria established for this contaminant

NR = Not run. Samples from October 31, 2016 were not run for herbicides.

Bold = Compound or analyte detected above the laboratory reporting limit (RL)

Bold + Yellow Highlight = Compound or analyte detected above the Unrestricted Use Soil Cleanup Objective

Bold + Green Highlight = Compound or analyte detected above the Unrestricted Use & Restricted Residential Use Soil Cleanup Objectives

Bold + Red Highlight = Compound or analyte detected above the Unrestricted Use, Restricted Residential, Commercial & Industrial Soil Cleanup Objectives

VOCs = Volatile Organic Compounds

SVOCs = Volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

EMPC = Esitmated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified-ion abundance ratio

UUSCO = Unrestricted Use Soil Cleanup Objectives (6NYCRR 375-6 12/06)

RRSCO = Restricted Residential Soil Cleanup Objectives (NYCRR 375-6 12/06)

CSCO = Commercial Soil Cleanup Objectives (NYCRR 375-6 12/06)

ISCO = Industrial Soil Cleanup Objectives (NYCRR 375-6 12/06)

* = Results were compared to the most stringent USEPA Regional Screening Levels and none exceeded.

TABLE 2
SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB15-161103	SB16-161102	SB17-161103	SB18-161109	SB19-161109	SB20-161109	SB21-161109	SB22-161109	SB23-161110	SB24-161110	SB25-161103	SB26-161103	SB27-161103	UUSCO - Unrestricted Use (6NYCRR 375-6 12/06)	RRSCO - Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	CSCO - Commercial w/CP-51 (NYCRR 375-6 12/06)	ISCO - Industrial w/CP-51 (NYCRR 375-6 12/06)
Lab Sample ID	JC31165-2	JC30944-8	JC31165-1	JC31431-5	JC31431-6	JC31431-7	JC31431-9	JC31431-8	JC31595-2	JC31595-3	JC31165-5	JC31165-4	JC31165-3				
Date Sampled	11/3/2016	11/2/2016	11/3/2016	11/9/2016	11/9/2016	11/9/2016	11/9/2016	11/9/2016	11/10/2016	11/10/2016	11/3/2016	11/3/2016	11/3/2016				
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
PCBs																	
Aroclor 1016	<0.031	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1221	<0.031	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1232	<0.031	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1242	<0.031	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1248	<0.031	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1254	<0.031	<0.033	<0.035	<0.032	**0.191**	**0.251**	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1260	**0.0186 J**	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1268	<0.031	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Aroclor 1262	<0.031	<0.033	<0.035	<0.032	<0.034	<0.035	<0.036	<0.035	<0.034	<0.036	<0.032	<0.036	<0.036	0.1	1	1	25
Pesticides																	
4,4'-DDD	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	**0.0076**	**0.004**	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	0.0033	13	92	180
4,4'-DDE	<0.00062	<0.00067	<0.00069	<0.00065	**0.0039**	**0.0204**	**0.0235**	**0.0063**	<0.00065	<0.00065	<0.00064	<0.00071	**0.0013**	0.0033	8.9	62	120
4,4'-DDT	**0.0018**	<0.00067	**0.007**	<0.00065	**0.0132**	<0.00071	**0.0418**	**0.0475**	**0.0085**	**0.0013**	<0.00064	<0.00071	**0.0021**	0.0033	7.9	47	94
Aldrin	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	**0.00089**	<0.00065	<0.00064	<0.00071	<0.00071	0.005	0.097	0.68	1.4
alpha-BHC	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	0.02	0.48	3.4	6.8
alpha-Chlordane	0.00081	<0.00067	**0.0012**	**0.0012**	**0.0082**	<0.00071	**0.0153**	**0.0054**	**0.0099**	<0.00065	<0.00064	<0.00071	<0.00071	0.094	4.2	24	47
beta-BHC	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	0.036	0.36	3	14
delta-BHC	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	0.04	100	500	1000
Dieldrin	<0.00062	<0.00067	<0.00069	0.00075	**0.0094**	<0.00071	<0.00072	<0.00070	**0.007**	<0.00065	<0.00064	<0.00071	<0.00071	0.005	0.2	1.4	2.8
Endosulfan sulfate	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	2.4	24	200	920
Endosulfan-I	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	2.4	24	200	920
Endosulfan-II	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	2.4	24	200	920
Endrin	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	0.014	11	89	410
Endrin aldehyde	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	NC	NC	NC	NC
Endrin ketone	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	NC	NC	NC	NC
gamma-BHC (Lindane)	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	<0.00065	<0.00065	<0.00064	<0.00071	<0.00071	0.1	1.3	9.2	23
gamma-Chlordane	**0.00083**	<0.00067	**0.001**	<0.00065	**0.0023**	<0.00071	**0.0059**	**0.0014**	**0.0087**	<0.00065	<0.00064	<0.00071	<0.00071	NC	NC	NC	NC
Heptachlor	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	<0.00072	<0.00070	**0.0014**	<0.00065	<0.00064	<0.00071	<0.00071	0.042	2.1	15	29
Heptachlor epoxide	<0.00062	<0.00067	<0.00069	<0.00065	<0.00068	<0.00071	**0.0071**	**0.00087**	**0.0007**	<0.00065	<0.00064	<0.00071	<0.00071	NC	NC	NC	NC
Methoxychlor	<0.0012	<0.0013	<0.0014	<0.0013	<0.0014	<0.0014	<0.0014	<0.0014	<0.0013	<0.0013	<0.0013	<0.0014	<0.0014	NC	NC	NC	NC
Toxaphene	<0.015	<0.017	<0.017	<0.016	<0.017	<0.018	<0.018	<0.017	<0.016	<0.016	<0.016	<0.018	<0.018	NC	NC	NC	NC
Herbicides																	
2,4,5-T	<0.0064	<0.0069	<0.0067	<0.0064	<0.0067	<0.0072	<0.0074	<0.0069	<0.0067	<0.0070	<0.0069	<0.0066	<0.0069	NC	NC	NC	NC
2,4,5-TP (Silvex)	<0.0064	<0.0069	<0.0067	<0.0064	<0.0067	<0.0072	<0.0074	<0.0069	<0.0067	<0.0070	<0.0069	<0.0066	<0.0069	3.8	100	500	1000
2,4-D	<0.032	<0.035	<0.034	<0.032	<0.034	<0.036	<0.037	<0.034	<0.033	<0.035	<0.035	<0.033	<0.035	NC	NC	NC	NC
2,4-DB	<0.032	<0.035	<0.034	<0.032	<0.034	<0.036	<0.037	<0.034	<0.033	<0.035	<0.035	<0.033	<0.035	NC	NC	NC	NC
Dalapon	<0.0064	<0.0069	<0.0067	<0.0064	<0.0067	<0.0072	<0.0074	<0.0069	<0.0067	<0.0070	<0.0069	<0.0066	<0.0069	NC	NC	NC	NC
Dicamba	<0.0064	<0.0069	<0.0067	<0.0064	<0.0067	<0.0072	<0.0074	<0.0069	<0.0067	<0.0070	<0.0069	<0.0066	<0.0069	NC	NC	NC	NC
Dichloroprop	<0.032	<0.035	<0.034	<0.032	<0.034	<0.036	<0.037	<0.034	<0.033	<0.035	<0.035	<0.033	<0.035	NC	NC	NC	NC
Dinoseb	<0.032	<0.035	<0.034	<0.032	<0.034	<0.036	<0.037	<0.034	<0.033	<0.035	<0.035	<0.033	<0.035	NC	NC	NC	NC
MCPA	<3.2	<3.5	<3.4	<3.2	<3.4	<3.6	<3.7	<3.4	<3.3	<3.5	<3.5	<3.3	<3.5	NC	NC	NC	NC
MCPP	<3.2	<3.5	<3.4	<3.2	<3.4	<3.6	<3.7	<3.4	<3.3	<3.5	<3.5	<3.3	<3.5	NC	NC	NC	NC
Pentachlorophenol	<0.0032	<0.0035	<0.0034	<0.0032	<0.0034	<0.0036	<0.0037	<0.0034	<0.0033	<0.0035	<0.0035	<0.0033	<0.0035	0.8	6.7	6.7	55
Metals																	
Aluminum	**2110**	**1780**	**3110**	**2510**	**5170**	**4260**	**14900**	**5620**	**6190**	**11100**	**5270**	**6480**	**4220**	NC	NC	NC	NC
Antimony	<2.1	<2.0	<2.1	<2.1	<2.1	<2.2	<2.3	<2.0	<2.1	<2.1	<2.1	<2.1	<2.2	NC	NC	NC	NC
Arsenic	**2.1**	**2.5**	**4**	**2.1**	**6.5**	**6.9**	**13.9**	**7.3**	**3.3**	**4.7**	**4.5**	**6.1**	**4.4**	13	16	16	16
Barium	**22.4**	**29.6**	**30.9**	<21	**25.6**	**37.1**	**63.3**	**73.4**	**33.6**	**27.1**	**26.2**	**23.2**	**26.4**	350	400	400	10000
Beryllium	<0.21	<0.20	**0.28**	<0.21	**0.24**	**0.26**	**0.42**	**0.29**	**0.27**	**0.34**	**0.31**	**0.31**	**0.33**	7.2	72	590	2700
Cadmium	<0.51	<0.50	<0.52	<0.53	**0.54**	<0.55	<0.58	**1.5**	<0.52	<0.52	<0.52	<1.0	<0.54	2.5	4.3	9.3	60
Calcium	<510	**13000**	<520	**1440**	**695**	**928**	**1200**	**4450**	**3300**	<520	**1350**	**881**	**856**	NC	NC	NC	NC
Chromium	**7.8**	**5.1**	**22.3**	**7**	**17.8**	**17.1**	**25.5**	**26.6**	**10.8**	**14.1**	**12.2**	**12.3**	**14.5**	NC	NC	NC	NC
Cobalt	<5.1	<5.0	<5.2	<5.3	<5.1	<5.5	<5.8	<5.0	<5.2	<5.2	<5.2	<5.2	<5.4	NC	NC	NC	NC
Copper	**20**	**21.3**	**25**	**9.8**	**83.1**	**45.2**	**38.2**	**66.3**	**9.9**	**17.3**	**18.3**	**13.3**	**52.7**	50	270	270	10000
Iron	**7010**	**6110**	**7740**	**7200**	**13900**	**13800**	**16000**	**15400**	**8790**	**13200**	**11300**	**39600**	**9620**	NC	NC	NC	NC
Lead	**70.1**	**23.1**	**75**	**16.4**	**53.5**	**43.6**	**125**	**378**	**26.3**	**41.6**	**27.6**	**19.6**	**42.9**	63	400	1000	3900
Magnesium	**582**	**6880**	**689**	**821**	**888**	**805**	**1680**	**2190**	**1310**	**1280**	**1200**	**1320**	**856**	NC	NC	NC	NC
Manganese	**256**	**275**	**138**	**131**	**124**	**151**	**237**	**197**	**142**	**204**	**139**	**248**	**128**	1600	2000	10000	10000
Mercury	<0.032	**0.036**	**0.062**	**0.039**	**0.079**	**0.033**	**0.21**	**0.12**	**0.061**	**0.065**	<0.034	<0.033	<0.034	0.18	0.81	2.8	5.7
Nickel	**9.6**	**5.3**	**6.9**	**6**	**15.5**	**16.3**	**13.2**	**23.2**	**7**	**8.6**	**8.3**	**10.9**	**10.8**	30	310	310	10000
Potassium	<1000	<1000	<1000	<1100	<1000	<1100	<1200	<990	<1000	<1000	<1000	<1000	<1100	NC	NC	NC	NC
Selenium	<2.1	<2.0	<2.1	<2.1	<2.1	<2.2	<2.3	<2.0	<2.1	<2.1	<2.1	<4.2	<2.2	3.9	180	1500	6800
Silver	<0.51	<0.50	<0.52	<0.53	<0.51	<0.55	<0.58	<0.50	<0.52	<0.52	<0.52	**1.4**	<0.54	2	180	1500	6800
Sodium	<1000	<1000	<1000	<1100	<1000	<1100	<1200	<990	<1000	<1000	<1000	<1000	<1100	NC	NC	NC	NC
Thallium	<1.0	<1.0	<1.0	<1.1	<1.0	<1.1	<1.2	<0.99	<1.0	<1.0	<1.0	<2.1	<1.1	NC	NC	NC	NC
Vanadium	**7.7**	**7.5**	**10.7**	**7.9**	**17.3**	**15.7**	**32.1**	**27.2**	**13.8**	**21.1**	**12.5**	**12.8**	**10.3**	NC	NC	NC	NC
Zinc	**79.8**	**26**	**63.4**	**41**	**32.5**	**33.5**	**92.2**	**223**	**35.7**	**37.9**	**29.4**	**42.1**	**205**	109	10000	10000	10000
Dioxin																	
2,3,7,8-Tetrachlorodibenzodioxin (TCDD)	**0.113J**	<0.111	**0.385J**	<0.0856	**1.21**	**0.621**	**0.378J**	**0.773**	<0.319	<0.295	**0.241J**	<0.0995	<0.109	*	*	*	*
General Chemistry																	
Corrosivity as pH (su)	7.45	7.69	6.63	8.09	5.36	5.38	5.35	7.01	7.4	5.03	7.42	7.6	7.07	NC	NC	NC	NC
Cyanide (mg/kg)	<0.23	<0.22	<0.25	<0.26	<0.25	<0.25	<0.27	0.31	<0.25	<0.26	<0.24	<0.25	<0.25	27	27	27	10000
Cyanide Reactivity (mg/kg)	<10	<11	<11	<10	<11	<11	<11	<10	<11	<11	<10	<11	<11	NC	NC	NC	NC
Ignitability (Flashpoint) (Deg. F)	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	NC	NC	NC	NC
Solids, Percent (%)	95.3	95.4	95.2	95	92.9	92.6	88.2	95.9	95.1	91.4	95.3	92.9	92.1	NC	NC	NC	NC
Sulfide Reactivity (mg/kg)	<100	<110	<110	<100	<110	<110	<110	<100	<110	<110	<100	<100	<100	NC	NC	NC	NC

Notes:

All analytical results except for pH and dioxin for soil are measured in miligrams per kilogram (mg/kg).

pH is measured in Standard Units (SU)

Dioxin is measure in picograms/gram (pg/g)

J = estimated value

All sample depths are presented in ft bgs (feet below ground surface)

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

NC = No criteria established for this contaminant

NR = Not run. Samples from October 31, 2016 were not run for herbicides.

Bold = Compound or analyte detected above the laboratory reporting limit (RL)

Bold + Yellow Highlight = Compound or analyte detected above the Unrestricted Use Soil Cleanup Objective

Bold + Green Highlight = Compound or analyte detected above the Unrestricted Use & Restricted Residential Use Soil Cleanup Objectives

Bold + Red Highlight = Compound or analyte detected above the Unrestricted Use, Restricted Residential, Commercial & Industrial Soil Cleanup Objectives

VOCs = Volatile Organic Compounds

SVOCs = Volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

EMPC = Esitmated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified-ion abundance ratio

UUSCO = Unrestricted Use Soil Cleanup Objectives (6NYCRR 375-6 12/06)

RRSCO = Restricted Residential Soil Cleanup Objectives (NYCRR 375-6 12/06)

CSCO = Commercial Soil Cleanup Objectives (NYCRR 375-6 12/06)

ISCO = Industrial Soil Cleanup Objectives (NYCRR 375-6 12/06)

* = Results were compared to the most stringent USEPA Regional Screening Levels and none exceeded.

TABLE 2
SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB28-161104	SB29-161104	SB30-161107	SB31-161104	SB32-161107	SB33-161104	SB34-161107	SB35-161107	SB36-161108	SB37-161108	SB38-161108	SB39-161108	SB40-161110	UUSCO - Unrestricted Use (6NYCRR 375-6 12/06)	RRSCO - Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	CSCO - Commercial w/CP-51 (NYCRR 375-6 12/06)	ISCO - Industrial w/CP-51 (NYCRR 375-6 12/06)
Lab Sample ID	JC31165-6	JC31165-7	JC31250-1	JC31165-9	JC31250-4	JC31165-8	JC31250-3	JC31250-2	JC31431-4	JC31431-1	JC31431-2	JC31431-3	JC31595-1				
Date Sampled	11/4/2016	11/4/2016	11/7/2016	11/4/2016	11/7/2016	11/4/2016	11/7/2016	11/7/2016	11/8/2016	11/8/2016	11/8/2016	11/8/2016	11/10/2016				
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
VOCs																	
1,1,1-Trichloroethane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	0.68	100	500	1000
1,1,2,2-Tetrachloroethane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
1,1,2-Trichloroethane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
1,1-Dichloroethane	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.27	26	240	480
1,1-Dichloroethene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.33	100	500	1000
1,2,3-Trichlorobenzene	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
1,2,4-Trichlorobenzene	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
1,2-Dibromo-3-chloropropane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
1,2-Dibromoethane	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	NC	NC	NC	NC
1,2-Dichlorobenzene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	1.1	100	500	1000
1,2-Dichloroethane	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.02	3.1	30	60
1,2-Dichloropropane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
1,3-Dichlorobenzene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	2.4	49	280	560
1,4-Dichlorobenzene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	1.8	13	130	250
2-Butanone (MEK)	<0.0099	<0.010	<0.0088	<0.012	<0.011	<0.010	<0.011	<0.011	<0.011	<0.011	<0.010	<0.011	<0.0092	0.12	100	500	1000
2-Hexanone	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
4-Methyl-2-pentanone(MIBK)	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Acetone	<0.0099	<0.010	<0.0088	<0.012	<0.011	<0.010	<0.011	<0.011	<0.011	<0.011	<0.010	<0.011	**0.0128**	0.05	100	500	1000
Benzene	<0.00049	<0.00050	<0.00044	<0.00059	<0.00057	<0.00050	<0.00056	<0.00053	<0.00055	<0.00053	<0.00051	<0.00055	<0.00046	0.06	4.8	44	89
Bromochloromethane	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Bromodichloromethane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Bromoform	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Bromomethane	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Carbon disulfide	<0.0020	<0.0020	<0.0018	0.00026 J	<0.0023	<0.0020	<0.0022	**0.00024 J**	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Carbon tetrachloride	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	0.76	2.4	22	44
Chlorobenzene	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	1.1	100	500	1000
Chloroethane	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Chloroform	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	0.37	49	350	700
Chloromethane	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
cis-1,2-Dichloroethene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.25	100	500	1000
cis-1,3-Dichloropropene	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Cyclohexane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Dibromochloromethane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Dichlorodifluoromethane	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Ethylbenzene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	1	41	390	780
Freon 113	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Isopropylbenzene	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
m,p-Xylene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.26	100	500	1000
Methyl Acetate	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Methyl Tert Butyl Ether	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.93	100	500	1000
Methylcyclohexane	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Methylene chloride	<0.0049	<0.0050	**0.0017 J**	<0.0059	**0.0022 J**	<0.0050	**0.0012 J**	**0.0017 J**	<0.0055	<0.0053	<0.0051	<0.0055	**0.00095 J**	0.05	100	500	1000
o-Xylene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.26	100	500	1000
Styrene	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Tert Butyl Alcohol	<0.025	<0.025	<0.022	<0.029	<0.029	<0.025	<0.028	<0.027	<0.028	<0.026	<0.025	<0.027	<0.023	NC	NC	NC	NC
Tetrachloroethene	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	**0.00054 J**	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	1.3	19	150	300
Toluene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.7	100	500	1000
trans-1,2-Dichloroethene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.19	100	500	1000
trans-1,3-Dichloropropene	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	NC	NC	NC	NC
Trichloroethene	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	**0.0013**	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.47	21	200	400
Trichlorofluoromethane	<0.0049	<0.0050	<0.0044	<0.0059	<0.0057	<0.0050	<0.0056	<0.0053	<0.0055	<0.0053	<0.0051	<0.0055	<0.0046	NC	NC	NC	NC
Vinyl chloride	<0.0020	<0.0020	<0.0018	<0.0023	<0.0023	<0.0020	<0.0022	<0.0021	<0.0022	<0.0021	<0.0020	<0.0022	<0.0018	0.02	0.9	13	27
Xylene (total)	<0.00099	<0.0010	<0.00088	<0.0012	<0.0011	<0.0010	<0.0011	<0.0011	<0.0011	<0.0011	<0.0010	<0.0011	<0.00092	0.26	100	500	1000
SVOCs																	
1,1'-Biphenyl	**0.0174 J**	<0.070	<0.069	<0.068	<0.071	**0.0215 J**	**0.0213 J**	**0.0314 J**	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
1,4-Dioxane	<0.034	<0.035	<0.034	<0.034	<0.035	<0.036	<0.036	<0.035	<0.034	<0.034	<0.035	<0.041	<0.035	0.1	13	130	250
2,3,4,6-Tetrachlorophenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
2,4,5-Trichlorophenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
2,4,6-Trichlorophenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
2,4-Dichlorophenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
2,4-Dimethylphenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
2,4-Dinitrophenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
2,4-Dinitrotoluene	<0.034	<0.035	<0.034	<0.034	<0.035	<0.036	<0.036	<0.035	<0.034	<0.034	<0.035	<0.041	<0.035	NC	NC	NC	NC
2,6-Dinitrotoluene	<0.034	<0.035	<0.034	<0.034	<0.035	<0.036	<0.036	<0.035	<0.034	<0.034	<0.035	<0.041	<0.035	NC	NC	NC	NC
2-Chloronaphthalene	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
2-Chlorophenol	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
2-Methylnaphthalene	**0.0969**	**0.0321 J**	**0.0248 J**	**0.0236 J**	**0.0163 J**	**0.125**	**0.0916**	**0.156**	**<0.069**	**0.0188 J**	**0.0240 J**	**0.0695 J**	**0.0369 J**	NC	NC	NC	NC
2-Methylphenol	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	0.33	100	500	1000
2-Nitroaniline	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
2-Nitrophenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
3&4-Methylphenol	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
3,3'-Dichlorobenzidine	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
3-Nitroaniline	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
4,6-Dinitro-o-cresol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
4-Bromophenyl phenyl ether	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
4-Chloro-3-methyl phenol	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
4-Chloroaniline	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
4-Chlorophenyl phenyl ether	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
4-Nitroaniline	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
4-Nitrophenol	<0.34	<0.35	<0.34	<0.34	<0.35	<0.36	<0.36	<0.35	<0.34	<0.34	<0.35	<0.41	<0.35	NC	NC	NC	NC
Acenaphthene	**0.0315 J**	<0.035	<0.034	<0.034	<0.035	<0.036	**0.0847**	**0.0211 J**	<0.034	<0.034	<0.035	<0.041	<0.035	20	100	500	1000
Acenaphthylene	**0.147**	**0.0534**	**0.0393**	**0.0264 J**	**0.0272 J**	**0.123**	**0.154**	**0.202**	<0.034	**0.0248 J**	**0.0188 J**	**0.0264 J**	**0.0432**	100	100	500	1000
Acetophenone	**0.0180 J**	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
Anthracene	**0.228**	**0.0663**	**0.053**	**0.0538**	**0.0593**	**0.175**	**0.36**	**0.287**	<0.034	**0.0278 J**	**0.0317 J**	**0.0493**	**0.0447**	100	100	500	1000
Atrazine	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
Benzaldehyde	**0.0257 J**	<0.18	<0.17	<0.17	**0.0331 J**	<0.18	**0.0294 J**	**0.0365 J**	<0.17	<0.17	<0.18	**0.0261 J**	<0.18	NC	NC	NC	NC
Benzo(a)anthracene	**0.657**	**0.0879**	**0.141**	**0.087**	**0.0932**	**0.287**	**0.601**	**0.476**	**0.0168 J**	**0.0511**	**0.0787**	**0.163**	**0.1**	1	1	5.6	11
Benzo(a)pyrene	**0.693**	**0.0948**	**0.142**	**0.1**	**0.0802**	**0.298**	**0.581**	**0.494**	**0.0169 J**	**0.0553**	**0.0832**	**0.162**	**0.104**	1	1	1	1.1
Benzo(b)fluoranthene	**1.01**	**0.194**	**0.216**	**0.153**	**0.2**	**0.603**	**1.03**	**0.987**	**0.034**	**0.0937**	**0.125**	**0.273**	**0.223**	1	1	5.6	11
Benzo(g,h,i)perylene	**0.457**	**0.0819**	**0.149**	**0.111**	**0.0789**	**0.272**	**0.454**	**0.488**	<0.034	**0.0556**	**0.0717**	**0.111**	**0.0868**	100	100	500	1000
Benzo(k)fluoranthene	**0.363**	**0.0595**	**0.0787**	**0.0508**	**0.0601**	**0.183**	**0.329**	**0.255**	<0.034	**0.0308 J**	**0.0438**	**0.0858**	**0.0669**	0.8	3.9	56	110
bis(2-Chloroethoxy)methane	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
bis(2-Chloroethyl)ether	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
bis(2-Chloroisopropyl)ether	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
bis(2-Ethylhexyl)phthalate	**0.281**	<0.070	**0.18**	<0.068	**0.0484 J**	<0.071	**0.0767**	**0.0544 J**	<0.069	<0.067	<0.070	**0.165**	<0.071	NC	NC	NC	NC
Butyl benzyl phthalate	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	0.0743	<0.081	<0.071	NC	NC	NC	NC
Caprolactam	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
Carbazole	**0.0663 J**	**0.0164 J**	**0.0201 J**	**0.0159 J**	**0.0319 J**	**0.0715**	**0.159**	**0.107**	<0.069	<0.067	<0.070	**0.0337 J**	**0.0174 J**	NC	NC	NC	NC
Chrysene	**0.742**	**0.105**	**0.178**	**0.106**	**0.154**	**0.415**	**0.77**	**0.715**	**0.0292 J**	**0.0627**	**0.096**	**0.193**	**0.162**	1	3.9	56	110
Dibenzo(a,h)anthracene	**0.137**	**0.0222 J**	**0.0435**	**0.0311 J**	**0.0225 J**	**0.0859**	**0.151**	**0.152**	<0.034	<0.034	**0.0188 J**	**0.0338 J**	**0.0271 J**	0.33	0.33	0.56	1.1
Dibenzofuran	**0.0380 J**	**0.0147 J**	<0.069	<0.068	<0.071	**0.0521 J**	**0.0804**	**0.0728**	<0.069	<0.067	<0.070	**0.0227 J**	**0.0173 J**	7	59	350	1000
Diethyl phthalate	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
Dimethyl phthalate	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
Di-n-butyl phthalate	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	**0.0405 J**	**0.0939**	<0.071	NC	NC	NC	NC
Di-n-octyl phthalate	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
Fluoranthene	**1.21**	**0.137**	**0.215**	**0.14**	**0.129**	**0.436**	**1.37**	**0.768**	**0.0311 J**	**0.0823**	**0.133**	**0.258**	**0.139**	100	100	500	1000
Fluorene	**0.0464**	<0.035	<0.034	<0.034	<0.035	**0.0190 J**	**0.0798**	**0.0331 J**	<0.034	<0.034	<0.035	<0.041	<0.035	30	100	500	1000
Hexachlorobenzene	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	0.33	1.2	6	12
Hexachlorobutadiene	<0.034	<0.035	<0.034	<0.034	<0.035	<0.036	<0.036	<0.035	<0.034	<0.034	<0.035	<0.041	<0.035	NC	NC	NC	NC
Hexachlorocyclopentadiene	<0.34	<0.35	<0.34	<0.34	<0.35	<0.36	<0.36	<0.35	<0.34	<0.34	<0.35	<0.41	<0.35	NC	NC	NC	NC
Hexachloroethane	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
Indeno(1,2,3-cd)pyrene	**0.508**	**0.0922**	**0.113**	**0.0926**	**0.0743**	**0.242**	**0.433**	**0.403**	<0.034	**0.0516**	**0.0739**	**0.121**	**0.0998**	0.5	0.5	5.6	11
Isophorone	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
Naphthalene	**0.0658**	**0.0216 J**	**0.0193 J**	**0.0182 J**	**0.0157 J**	**0.108**	**0.0842**	**0.121**	<0.034	<0.034	**0.0171 J**	**0.051**	**0.0359**	12	100	500	1000
Nitrobenzene	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	15	69	140
N-Nitroso-di-n-propylamine	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	NC	NC	NC	NC
N-Nitrosodiphenylamine	<0.17	<0.18	<0.17	<0.17	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.18	<0.20	<0.18	NC	NC	NC	NC
Pentachlorophenol	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.13	<0.14	<0.16	<0.14	0.8	6.7	6.7	55
Phenanthrene	**0.541**	**0.053**	**0.116**	**0.063**	**0.0551**	**0.211**	**0.832**	**0.392**	**0.0241 J**	**0.0426**	**0.0785**	**0.148**	**0.103**	100	100	500	1000
Phenol	<0.068	<0.070	<0.069	<0.068	<0.071	<0.071	<0.072	<0.071	<0.069	<0.067	<0.070	<0.081	<0.071	0.33	100	500	1000
Pyrene	**1.12**	**0.133**	**0.233**	**0.119**	**0.11**	**0.414**	**1.13**	**0.759**	**0.0294 J**	**0.0997**	**0.127**	**0.257**	**0.165**	100	100	500	1000

Notes:

All analytical results except for pH and dioxin for soil are measured in miligrams per kilogram (mg/kg).

pH is measured in Standard Units (SU)

Dioxin is measure in picograms/gram (pg/g)

J = estimated value

All sample depths are presented in ft bgs (feet below ground surface)

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

NC = No criteria established for this contaminant

NR = Not run. Samples from October 31, 2016 were not run for herbicides.

Bold = Compound or analyte detected above the laboratory reporting limit (RL)

Bold + Yellow Highlight = Compound or analyte detected above the Unrestricted Use Soil Cleanup Objective

Bold + Green Highlight = Compound or analyte detected above the Unrestricted Use & Restricted Residential Use Soil Cleanup Objectives

Bold + Red Highlight = Compound or analyte detected above the Unrestricted Use, Restricted Residential, Commercial & Industrial Soil Cleanup Objectives

VOCs = Volatile Organic Compounds

SVOCs = Volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

EMPC = Esitmated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified-ion abundance ratio

UUSCO = Unrestricted Use Soil Cleanup Objectives (6NYCRR 375-6 12/06)

RRSCO = Restricted Residential Soil Cleanup Objectives (NYCRR 375-6 12/06)

CSCO = Commercial Soil Cleanup Objectives (NYCRR 375-6 12/06)

ISCO = Industrial Soil Cleanup Objectives (NYCRR 375-6 12/06)

* = Results were compared to the most stringent USEPA Regional Screening Levels and none exceeded.

TABLE 2
SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB28-161104	SB29-161104	SB30-161107	SB31-161104	SB32-161107	SB33-161104	SB34-161107	SB35-161107	SB36-161108	SB37-161108	SB38-161108	SB39-161108	SB40-161110	UUSCO - Unrestricted Use (6NYCRR 375-6 12/06)	RRSCO - Restricted Residential w/CP-51 (NYCRR 375-6 12/06)	CSCO - Commercial w/CP-51 (NYCRR 375-6 12/06)	ISCO - Industrial w/CP-51 (NYCRR 375-6 12/06)
Lab Sample ID	JC31165-6	JC31165-7	JC31250-1	JC31165-9	JC31250-4	JC31165-8	JC31250-3	JC31250-2	JC31431-4	JC31431-1	JC31431-2	JC31431-3	JC31595-1				
Date Sampled	11/4/2016	11/4/2016	11/7/2016	11/4/2016	11/7/2016	11/4/2016	11/7/2016	11/7/2016	11/8/2016	11/8/2016	11/8/2016	11/8/2016	11/10/2016				
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil				
PCBs																	
Aroclor 1016	<0.032	<0.035	<0.034	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	<0.034	<0.040	<0.033	0.1	1	1	25
Aroclor 1221	<0.032	<0.035	<0.034	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	<0.034	<0.040	<0.033	0.1	1	1	25
Aroclor 1232	<0.032	<0.035	<0.034	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	<0.034	<0.040	<0.033	0.1	1	1	25
Aroclor 1242	<0.032	<0.035	<0.034	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	<0.034	<0.040	<0.033	0.1	1	1	25
Aroclor 1248	<0.032	<0.035	<0.034	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	<0.034	<0.040	<0.033	0.1	1	1	25
Aroclor 1254	<0.032	<0.035	**0.0502**	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	**0.0858**	<0.040	<0.033	0.1	1	1	25
Aroclor 1260	<0.032	<0.035	**0.0347**	<0.031	<0.035	<0.035	0.0981	<0.032	<0.031	<0.034	**0.0553**	<0.040	<0.033	0.1	1	1	25
Aroclor 1268	<0.032	<0.035	<0.034	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	<0.034	<0.040	<0.033	0.1	1	1	25
Aroclor 1262	<0.032	<0.035	<0.034	<0.031	<0.035	<0.035	<0.035	<0.032	<0.031	<0.034	<0.034	<0.040	<0.033	0.1	1	1	25
TCL Pesticides																	
4,4'-DDD	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.0033	13	92	180
4,4'-DDE	**0.0026**	**0.00042 J**	<0.00068	**0.00058 J**	**0.0139**	**0.0011**	<0.00070	<0.00063	**0.002**	**0.00050 J**	**0.007**	**0.0069**	**0.0035**	0.0033	8.9	62	120
4,4'-DDT	**0.0133**	**0.0032**	**0.0058**	**0.0036**	**0.0291**	**0.0109**	**0.0138**	**0.0104**	**0.0035**	**0.0027**	**0.0214**	**0.0138**	**0.0044**	0.0033	7.9	47	94
Aldrin	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.005	0.097	0.68	1.4
alpha-BHC	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.02	0.48	3.4	6.8
alpha-Chlordane	**0.0062**	**0.0077**	**0.0023**	**0.00083**	**0.0898**	**0.0016**	**0.0082**	<0.00063	<0.00063	**0.00087**	**0.0019**	<0.00080	<0.00071	0.094	4.2	24	47
beta-BHC	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.036	0.36	3	14
delta-BHC	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.04	100	500	1000
Dieldrin	<0.00065	<0.00071	<0.00068	**0.0033**	<0.00069	<0.00069	**0.0402**	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.005	0.2	1.4	2.8
Endosulfan sulfate	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	2.4	24	200	920
Endosulfan-I	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	2.4	24	200	920
Endosulfan-II	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	2.4	24	200	920
Endrin	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.014	11	89	410
Endrin aldehyde	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	NC	NC	NC	NC
Endrin ketone	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	NC	NC	NC	NC
gamma-BHC (Lindane)	<0.00065	<0.00071	<0.00068	<0.00064	<0.00069	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.1	1.3	9.2	23
gamma-Chlordane	**0.0042**	**0.0053**	**0.0017**	**0.00074**	**0.104**	**0.001**	**0.0043**	<0.00063	<0.00063	**0.00049 J**	**0.0035**	<0.00080	<0.00071	NC	NC	NC	NC
Heptachlor	<0.00065	<0.00071	<0.00068	<0.00064	**0.0153**	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	0.042	2.1	15	29
Heptachlor epoxide	<0.00065	<0.00071	<0.00068	<0.00064	**0.004**	<0.00069	<0.00070	<0.00063	<0.00063	<0.00069	<0.00068	<0.00080	<0.00071	NC	NC	NC	NC
Methoxychlor	<0.0013	<0.0014	<0.0014	<0.0013	<0.0014	<0.0014	<0.0014	<0.0013	<0.0013	<0.0014	<0.0014	<0.0016	<0.0014	NC	NC	NC	NC
Toxaphene	<0.016	<0.018	<0.017	<0.016	<0.017	<0.017	<0.018	<0.016	<0.016	<0.017	<0.017	<0.020	<0.018	NC	NC	NC	NC
Herbicides																	
2,4,5-T	<0.0071	<0.0069	<0.0070	<0.0068	<0.0070	<0.0070	<0.0073	<0.0067	<0.0066	<0.0065	<0.0067	<0.0080	<0.0072	NC	NC	NC	NC
2,4,5-TP (Silvex)	<0.0071	<0.0069	<0.0070	<0.0068	<0.0070	<0.0070	<0.0073	<0.0067	<0.0066	<0.0065	<0.0067	<0.0080	<0.0072	3.8	100	500	1000
2,4-D	<0.036	<0.035	<0.035	<0.034	<0.035	<0.035	<0.037	<0.034	**0.0352**	<0.033	**0.0705**	**0.0993**	**0.0474**	NC	NC	NC	NC
2,4-DB	<0.036	<0.035	<0.035	<0.034	<0.035	<0.035	<0.037	<0.034	<0.033	<0.033	<0.034	<0.040	<0.036	NC	NC	NC	NC
Dalapon	<0.0071	<0.0069	<0.0070	<0.0068	<0.0070	<0.0070	<0.0073	<0.0067	<0.0066	<0.0065	<0.0067	<0.0080	<0.0072	NC	NC	NC	NC
Dicamba	<0.0071	<0.0069	<0.0070	<0.0068	<0.0070	<0.0070	<0.0073	<0.0067	<0.0066	<0.0065	<0.0067	<0.0080	<0.0072	NC	NC	NC	NC
Dichloroprop	<0.036	<0.035	<0.035	<0.034	<0.035	<0.035	<0.037	<0.034	<0.033	<0.033	<0.034	<0.040	<0.036	NC	NC	NC	NC
Dinoseb	<0.036	<0.035	<0.035	<0.034	<0.035	<0.035	<0.037	<0.034	<0.033	<0.033	<0.034	<0.040	<0.036	NC	NC	NC	NC
MCPA	<3.6	<3.5	<3.5	<3.4	<3.5	<3.5	<3.7	<3.4	<3.3	<3.3	<3.4	<4.0	<3.6	NC	NC	NC	NC
MCPP	<3.6	<3.5	<3.5	<3.4	<3.5	<3.5	<3.7	<3.4	<3.3	<3.3	<3.4	<4.0	<3.6	NC	NC	NC	NC
Pentachlorophenol	<0.0036	<0.0035	<0.0035	<0.0034	<0.0035	<0.0035	<0.0037	<0.0034	<0.0033	<0.0033	<0.0034	<0.0040	<0.0036	0.8	6.7	6.7	55
Metals																	
Aluminum	**4970**	**1560**	**2740**	**3000**	**2560**	**2070**	**6460**	**3570**	**3600**	**2050**	**2780**	**3830**	**4500**	NC	NC	NC	NC
Antimony	<2.1	<2.0	<2.0	<2.1	<2.1	<2.1	<2.2	2.7	<2.0	<2.0	<2.1	<1.9	<2.2	NC	NC	NC	NC
Arsenic	**5.5**	**2.6**	**3.2**	**3.6**	<2.1	<2.1	**3.9**	**4.2**	<2.0	**2**	**4.8**	**2.5**	**3.6**	13	16	16	16
Barium	**45.6**	<20	24.1	**24.9**	<21	<21	**111**	**100**	<20	<20	**116**	**19.2**	<22	350	400	400	10000
Beryllium	**0.25**	<0.20	<0.20	<0.21	<0.21	<0.21	**0.24**	**0.23**	<0.20	<0.20	<0.21	<0.19	<0.22	7.2	72	590	2700
Cadmium	**0.57**	<0.50	<0.51	<0.52	<0.52	<0.52	**0.63**	<0.53	<0.50	<0.50	**1.9**	<0.49	<0.56	2.5	4.3	9.3	60
Calcium	**1510**	<500	**3110**	**771**	**1030**	**3860**	**8110**	**1970**	<500	**1050**	**1410**	**1200**	<560	NC	NC	NC	NC
Chromium	**11.3**	**7.3**	**12**	**10.4**	**8.8**	**5.9**	**22**	**11.2**	**5.1**	**6.9**	**12.9**	**9.4**	**8.8**	NC	NC	NC	NC
Cobalt	<5.2	<5.0	<5.1	<5.2	<5.2	<5.2	<5.4	<5.3	<5.0	<5.0	<5.1	<4.9	<5.6	NC	NC	NC	NC
Copper	**31.1**	**18.6**	**36**	**38.5**	**14.7**	**16.7**	**72.7**	**70.6**	**5.7**	**8.4**	**70.5**	**30.6**	**13.3**	50	270	270	10000
Iron	**9380**	**5080**	**7500**	**8330**	**5130**	**5150**	**10800**	**10200**	**5030**	**4780**	**10600**	**7240**	**6060**	NC	NC	NC	NC
Lead	**110**	**21.1**	**111**	**43.7**	**20.6**	**27.3**	**55.7**	**88**	**10.3**	**22.5**	**196**	**31.3**	**17.2**	63	400	1000	3900
Magnesium	**985**	<500	**1740**	<520	<520	**2070**	**4610**	**595**	**520**	**605**	**866**	**544**	<560	NC	NC	NC	NC
Manganese	**142**	**50.6**	**92.7**	**101**	**80.8**	**67.4**	**159**	**106**	**95.4**	**52.8**	**115**	**105**	**82.3**	1600	2000	10000	10000
Mercury	**0.099**	<0.032	0.046	**0.16**	<0.032	<0.034	**0.1**	**0.13**	**0.75**	<0.033	**0.077**	<0.033	<0.035	0.18	0.81	2.8	5.7
Nickel	**9.1**	<4.0	**6.8**	**6.6**	**4.5**	**4.7**	**11.1**	**7.1**	<4.0	**4.4**	**10.6**	**5**	**5.3**	30	310	310	10000
Potassium	<1000	<1000	<1000	<1000	<1000	<1000	<1100	<1100	<1000	<990	<1000	<970	<1100	NC	NC	NC	NC
Selenium	<2.1	<2.0	<2.0	<2.1	<2.1	<2.1	<2.2	<2.1	<2.0	<2.0	<2.1	<1.9	<2.2	3.9	180	1500	6800
Silver	<0.52	<0.50	**0.56**	<0.52	<0.52	<0.52	**0.63**	**0.72**	<0.50	<0.50	<0.51	<0.49	<0.56	2	180	1500	6800
Sodium	<1000	<1000	<1000	<1000	<1000	<1000	<1100	<1100	<1000	<990	<1000	<970	<1100	NC	NC	NC	NC
Thallium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.1	<1.1	<1.0	<0.99	<1.0	<0.97	<1.1	NC	NC	NC	NC
Vanadium	**14**	**5.1**	**9.9**	**9.4**	**5.5**	**10**	**17.2**	**11.5**	**6.8**	**<5.0**	**12.3**	**8.5**	**16**	NC	NC	NC	NC
Zinc	**149**	**17**	**91.8**	**34.3**	**29.3**	**29.5**	**95.7**	**47.8**	**955**	**28.7**	**330**	**224**	**29.3**	109	10000	10000	10000
Dioxin																	
2,3,7,8-Tetrachlorodibenzodioxin (TCDD)	**0.344J**	**0.308J**	<0.992	**0.824 EPMC**	<0.104	**1.62**	**0.72**	**1.7 EMPC**	<0.077	**0.148J**	**1.81EPMC**	**0.991**	<0.297	*	*	*	*
General Chemistry																	
Corrosivity as pH (su)	7.03	6.81	7.39	8.36	6.2	6.51	6.85	7.28	6.85	7.28	7.1	6.84	5.29	NC	NC	NC	NC
Cyanide (mg/kg)	<0.26	<0.25	<0.23	<0.21	<0.23	<0.21	0.42	<0.22	<0.26	<0.26	<0.26	<0.30	<0.27	27	27	27	10000
Cyanide Reactivity (mg/kg)	<11	<11	<10	<11	<10	<11	<10	<10	<13	<10	<11	<13	<11	NC	NC	NC	NC
Ignitability (Flashpoint) (Deg. F)	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	>200	NC	NC	NC	NC
Solids, Percent (%)	92.2	94.5	94.8	94.9	92.7	92.2	91.3	93.9	96	96.8	94.7	79.9	91.9	NC	NC	NC	NC
Sulfide Reactivity (mg/kg)	<110	<110	<100	<110	<100	<110	<100	<100	<130	<100	<100	<130	<110	NC	NC	NC	NC

Notes:

All analytical results except for pH and dioxin for soil are measured in miligrams per kilogram (mg/kg).

pH is measured in Standard Units (SU)

Dioxin is measure in picograms/gram (pg/g)

J = estimated value

All sample depths are presented in ft bgs (feet below ground surface)

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

NC = No criteria established for this contaminant

NR = Not run. Samples from October 31, 2016 were not run for herbicides.

Bold = Compound or analyte detected above the laboratory reporting limit (RL)

Bold + Yellow Highlight = Compound or analyte detected above the Unrestricted Use Soil Cleanup Objective

Bold + Green Highlight = Compound or analyte detected above the Unrestricted Use & Restricted Residential Use Soil Cleanup Objectives

Bold + Red Highlight = Compound or analyte detected above the Unrestricted Use, Restricted Residential, Commercial & Industrial Soil Cleanup Objectives

VOCs = Volatile Organic Compounds

SVOCs = Volatile Organic Compounds

PCBs = Polychlorinated Biphenyls

EMPC = Esitmated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified-ion abundance ratio

UUSCO = Unrestricted Use Soil Cleanup Objectives (6NYCRR 375-6 12/06)

RRSCO = Restricted Residential Soil Cleanup Objectives (NYCRR 375-6 12/06)

CSCO = Commercial Soil Cleanup Objectives (NYCRR 375-6 12/06)

ISCO = Industrial Soil Cleanup Objectives (NYCRR 375-6 12/06)

* = Results were compared to the most stringent USEPA Regional Screening Levels and none exceeded.

TABLE 3
TCLP SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB01-161111	SB02-161111	SB03-161031	SB05-161111	SB06-161031	SB07-161031	SB08-161101	SB09-161101	SB10-161101	SB11-161101	SB12-161102	SB13-161102	SB14-161102	EPA MAXIMUM CONCENTRATION OF CONTAMINANTS FOR TOXICITY CHARACTERISTIC
Lab Sample ID	**JC31595-5**	**JC31595-4**	**JC30810-1**	**JC31595-6**	**JC30810-2**	**JC30810-3**	**JC30944-1**	**JC30944-4**	**JC30944-2**	**JC30944-3**	**JC30944-5**	**JC30944-6**	**JC30944-7**	
Date Sampled	**11/11/2016**	**11/11/2016**	**10/31/2016**	**11/11/2016**	**10/31/2016**	**10/31/2016**	**11/1/2016**	**11/1/2016**	**11/1/2016**	**11/1/2016**	**11/2/2016**	**11/2/2016**	**11/2/2016**	
Sample Matrix	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	
TCLP VOCs														
1,1-Dichloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0025	<0.0025	<0.0050	0.7
1,2-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.10	<0.10	<0.0050	0.5
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	7.5
2-Butanone (MEK)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.0050	<0.0050	<0.10	200
Benzene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.0050	<0.0025	0.5
Carbon tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	100
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6
Tetrachloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.7
Trichloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.2
TCLP SVOCs														
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	7.5
2,4,5-Trichlorophenol	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	400
2,4,6-Trichlorophenol	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2
2,4-Dinitrotoluene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.13
2-Methylphenol	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	200
3&4-Methylphenol	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	200
Hexachlorobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.13
Hexachlorobutadiene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.5
Hexachloroethane	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	3
Nitrobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	2
Pentachlorophenol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	100
Pyridine	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	5
TCLP Pesticides														
Chlordane	<0.0050	**0.0024 J**	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.03
Endrin	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.02
gamma-BHC (Lindane)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.4
Heptachlor	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.008
Heptachlor epoxide	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.008
Methoxychlor	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	10
Toxaphene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.5
TCLP Herbicides														
2,4-D	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	10
2,4,5-TP (Silvex)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	1
TCLP Metals														
Arsenic	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5
Barium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	100
Cadmium	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	1
Chromium	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	5
Lead	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.2
Selenium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1
Silver	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	5

Notes:

All analytical results are measured in milligrams per liter (mg/L).

Criteria are the USEPA - SW-846, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic

J = estimated value

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

TCLP = Toxicity characteristic leaching procedure

VOCs = Volatile organic Compounds

SVOCs = Semivolatile Organic Compounds

TABLE 3
TCLP SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB15-161103	SB16-161102	SB17-161103	SB18-161109	SB19-161109	SB20-161109	SB21-161109	SB22-161109	SB23-161110	SB24-161110	SB25-161103	SB26-161103	SB27-161103	EPA MAXIMUM CONCENTRATION OF CONTAMINANTS FOR TOXICITY CHARACTERISTIC
Lab Sample ID	**JC31165-2**	**JC30944-8**	**JC31165-1**	**JC31431-5**	**JC31431-6**	**JC31431-7**	**JC31431-9**	**JC31431-8**	**JC31595-2**	**JC31595-3**	**JC31165-5**	**JC31165-4**	**JC31165-3**	
Date Sampled	**11/3/2016**	**11/2/2016**	**11/3/2016**	**11/9/2016**	**11/9/2016**	**11/9/2016**	**11/9/2016**	**11/9/2016**	**11/10/2016**	**11/10/2016**	**11/3/2016**	**11/3/2016**	**11/3/2016**	
Sample Matrix	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	
TCLP VOCs														
1,1-Dichloroethene	<0.0050	<0.0025	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.7
1,2-Dichloroethane	<0.0050	<0.10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	7.5
2-Butanone (MEK)	<0.10	<0.0050	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	200
Benzene	<0.0025	<0.0050	<0.0025	<0.0025	**0.0105**	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.5
Carbon tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	100
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6
Tetrachloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.7
Trichloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.2
TCLP SVOCs														
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	7.5
2,4,5-Trichlorophenol	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	400
2,4,6-Trichlorophenol	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2
2,4-Dinitrotoluene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.13
2-Methylphenol	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	200
3&4-Methylphenol	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	200
Hexachlorobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.13
Hexachlorobutadiene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.5
Hexachloroethane	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	3
Nitrobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	2
Pentachlorophenol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	100
Pyridine	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	5
TCLP Pesticides														
Chlordane	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.03
Endrin	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.02
gamma-BHC (Lindane)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.4
Heptachlor	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.008
Heptachlor epoxide	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.008
Methoxychlor	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	10
Toxaphene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.5
TCLP Herbicides														
2,4-D	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	10
2,4,5-TP (Silvex)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	1
TCLP Metals														
Arsenic	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5
Barium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	100
Cadmium	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	1
Chromium	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	5
Lead	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.2
Selenium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1
Silver	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	5

Notes:

All analytical results are measured in milligrams per liter (mg/L).

Criteria are the USEPA - SW-846, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic

J = estimated value

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

TCLP = Toxicity characteristic leaching procedure

VOCs = Volatile organic Compounds

SVOCs = Semivolatile Organic Compounds

TABLE 3
TCLP SOIL ANALYTICAL RESULTS
LIRR EXPANSION PROJECT
NASSAU COUNTY, LONG ISLAND, NEW YORK

Client Sample ID:	SB28-161104	SB29-161104	SB30-161107	SB31-161104	SB32-161107	SB33-161104	SB34-161107	SB35-161107	SB36-161108	SB37-161108	SB38-161108	SB39-161108	SB40-161110	EPA MAXIMUM CONCENTRATION OF CONTAMINANTS FOR TOXICITY CHARACTERISTIC
Lab Sample ID	**JC31165-6**	**JC31165-7**	**JC31250-1**	**JC31165-9**	**JC31250-4**	**JC31165-8**	**JC31250-3**	**JC31250-2**	**JC31431-4**	**JC31431-1**	**JC31431-2**	**JC31431-3**	**JC31595-1**	
Date Sampled	**11/4/2016**	**11/4/2016**	**11/7/2016**	**11/4/2016**	**11/7/2016**	**11/4/2016**	**11/7/2016**	**11/7/2016**	**11/8/2016**	**11/8/2016**	**11/8/2016**	**11/8/2016**	**11/10/2016**	
Sample Matrix	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	**Soil**	
TCLP VOCs														
1,1-Dichloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.7
1,2-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	7.5
2-Butanone (MEK)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	200
Benzene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	**0.0057**	**0.0019 J**	<0.0025	**0.0011 J**	<0.0025	<0.0025	<0.0025	0.5
Carbon tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	100
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6
Tetrachloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.7
Trichloroethene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.5
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.2
TCLP SVOCs														
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	7.5
2,4,5-Trichlorophenol	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	400
2,4,6-Trichlorophenol	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2
2,4-Dinitrotoluene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.13
2-Methylphenol	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	200
3&4-Methylphenol	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	200
Hexachlorobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.13
Hexachlorobutadiene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.5
Hexachloroethane	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	3
Nitrobenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	2
Pentachlorophenol	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	100
Pyridine	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	5
TCLP Pesticides														
Chlordane	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.03
Endrin	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.02
gamma-BHC (Lindane)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.4
Heptachlor	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.008
Heptachlor epoxide	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.008
Methoxychlor	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	10
Toxaphene	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.5
TCLP Herbicides														
2,4-D	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	10
2,4,5-TP (Silvex)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	1
TCLP Metals														
Arsenic	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5
Barium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	100
Cadmium	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	1
Chromium	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	5
Lead	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.2
Selenium	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1
Silver	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	5

Notes:

All analytical results are measured in milligrams per liter (mg/L).

Criteria are the USEPA - SW-846, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic

J = estimated value

< # = Denotes parameter analyzed for but not detected; value shown is laboratory reporting limit (RL)

TCLP = Toxicity characteristic leaching procedure

VOCs = Volatile organic Compounds

SVOCs = Semivolatile Organic Compounds

APPENDIX A
SOIL BORING LOGS

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-01**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/11/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Creedmore Spur** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **3** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Light brown fine SAND, trace silt throughout			0	ppm	
				Organics, roots, plant material, and cobbles					
				Dry, no odors/staining			0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB01-161111		0	ppm	TCL VOCs
							0	ppm	
1							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
							0	ppm	
							0	ppm	
				Full boring composited and sampled from 0-3 ft. bgs. Refusal at 3 ft. bgs.	SB01-161111		0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
3									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-02**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/11/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-01** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **6.5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND, trace silt			0	ppm	
				Organics, roots, plant material and cobbles throughout			0	ppm	
				Dry, no odor/staining			0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB02-161111		0	ppm	TCL VOCs
1							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
5							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
6							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-6.5 ft. bgs.			0	ppm	
				Refusal at 6.5 ft. bgs.	SB02-161111		0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-03**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **10/31/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-2** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **4.5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Dry, no odors/staining	SB03-161031		0.0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB03-161031		0.0	ppm	TCL VOCs
							0.0	ppm	
1							0.0	ppm	
							0.0	ppm	
							0.0	ppm	
							0.0	ppm	
2					SB03-161031		0.0	ppm	
							0.0	ppm	
							0.0	ppm	
3							0.0	ppm	
		SM		Brown silty medium SAND (FILL) Dry, no odors/staining			0.0	ppm	
							0.0	ppm	
							0.0	ppm	
4							0.0	ppm	
		SP		Light brown SAND Dry, no odors/staining Full boring composited and sampled from 0-4.5 ft. bgs. Refusal at 4.5 ft. bgs.	SB03-161031		0.0 0.0	ppm ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NO.: **SB-03**

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-05**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/11/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-2** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **6.25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Dark brown silty fine SAND (FILL) Ballast throughout Dry, no odors/staining VOCs sampled from 0.5-2 ft. bgs.	SB05-161111		0 0 0 0	ppm ppm ppm ppm	TCL VOCs
1									
		SM		Brown silty fine SAND (FILL) Trace ballast throughout Dry, no odors/staining			0 0 0 0	ppm ppm ppm ppm	
2									
		SM		Brown silty fine SAND (FILL) Cobbles throughout Dry, no odors/staining			0 0 0 0 0 0 0 0	ppm ppm ppm ppm ppm ppm ppm ppm	
3									
4									
		SP		Orange to brown fine SAND Some cobbles throughout Moist, no odors/staining			0 0 0 0	ppm ppm ppm ppm	
5									
		SP		Orange to brown fine SAND Some large cobbles throughout Moist, no odors/staining Full boring composited and sampled from 0-6.25 ft. bgs. Refusal at 6.25 ft. bgs.	SB05-161111		0 0 0 0 0	ppm ppm ppm ppm ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
6									

BORING NO.: **SB-05**

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-06**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **10/31/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Covert Ave.** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		Asphalt		Asphalt					
		SP		Light brown fine SAND (FILL) Moist, no odors/staining					
1									
2							9.1	ppm	
3							9.1	ppm	
4							9.1	ppm	
5							8.4	ppm	
6							7.0	ppm	
7									
8							3.5	ppm	
9									
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-06**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **10/31/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					4.6	ppm	
11							0.0	ppm	
12							11.8	ppm	
							38.5	ppm	
13							62.9	ppm	
							122	ppm	
14									
							124	ppm	
15				VOCs sampled from 14.5-15 ft. bgs.					
		SP		Light brown fine SAND with trace bands of coarse sand Moist, slight petroleum odor at 15 ft. bgs., no staining	SB06-161031		403	ppm	TCL VOCs
							83	ppm	
16							91	ppm	
							110	ppm	
17							52	ppm	
18							15	ppm	
19									
							22	ppm	
20		SP		Tan medium SAND Moist, no odors/staining			14.3	ppm	
21							15.5	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-06**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **10/31/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					55.9	ppm	
22							21.8	ppm	
							28	ppm	
23							46	ppm	
							30	ppm	
24		SP		Light brown medium to coarse SAND Moist, no odors/staining	SB06-161031		39.2	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
25				Full boring composited and sampled from 0-25 ft. bgs.					

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-07**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **10/31/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Covert Ave./RW-2** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Dark brown silty SAND (FILL) Moist, no odors/staining					
1							4.5	ppm	
2									
							3.8	ppm	
3									
4							3.4	ppm	
5									
		SP		Orange fine SAND Dry, slight petroleum odor at 6 ft. bgs., no staining			38.7	ppm	
							25.3	ppm	
6				VOCs sampled from 6-6.5 ft. bgs.	SB07-161031		957	ppm	TCL VOCs
7							361	ppm	
		SP		Tan fine SAND Dry, no odors/staining					
8							257	ppm	
9							200	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-07**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **10/31/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					44.7	ppm	
11							29.4	ppm	
12									
							55.3	ppm	
13							19.2	ppm	
14									
		SP		Tan fine to medium SAND Dry, no odors/staining			29.2	ppm	
15									
		SP		Tan fine SAND Dry, no odors/staining			34	ppm	
16							24.4	ppm	
17							10.9	ppm	
							29.1	ppm	
18							29.2	ppm	
19							28.8	ppm	
20									
		SP		Tan fine SAND with some medium sand Dry, no odors/staining			13.1	ppm	
21							17.7	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-07**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **10/31/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP							
22							19.9	ppm	
23							24.9	ppm	
24							21.4	ppm	
				Full boring composited and sampled from 0-25 ft. bgs.	SB07-161031		20.9	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
25									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-08**

SHEET **1** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-2** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **10** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown fine silty SAND (FILL) Dry, no odors/staining			2.4	ppm	
							1.5	ppm	
							2.5	ppm	
							49.1	ppm	
1		SC-SM		VOCs sampled from 1-1.5 ft. bgs. Orange to brown clayey SAND Dry, no odors/staining	SB08-161101		52.4	ppm	TCL VOCs
							38.7	ppm	
							15.2	ppm	
2		SM		Orange silty fine SAND Dry, no odors/staining			10.1	ppm	
							10.6	ppm	
							13.1	ppm	
							13.8	ppm	
3							5.1	ppm	
							7.7	ppm	
							9.9	ppm	
							12.5	ppm	
4							8.2	ppm	
							10.6	ppm	
							14.1	ppm	
							15.8	ppm	
5									

BORING NO.: **SB-08**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-08**

SHEET **2** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM					22.4	ppm	
							24.3	ppm	
							28.5	ppm	
							16.8	ppm	
6		SP		Orange fine SAND Moist, no odors/staining			15.6	ppm	
							32.6	ppm	
							27.9	ppm	
							17.7	ppm	
7							16.3	ppm	
							17.4	ppm	
							19.8	ppm	
							23.9	ppm	
8							31.8	ppm	
							23.6	ppm	
							34.7	ppm	
							40.1	ppm	
9		SP		Tan fine SAND Moist, no odors/staining			41.2	ppm	
							17.3	ppm	
							42.2	ppm	
				Full boring composited and sampled from 0-10 ft. bgs. Refusal at 10 ft. bgs.	SB08-161101		51.3	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-09**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **New Hyde Park Rd.** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty SAND (FILL) Dry, no odors/staining			0.2	ppm	
							0.0	ppm	
1							0.1	ppm	
		SM		Brown silty SAND (FILL) Trace pebbles Dry, no odors/staining			0.3	ppm	
							0.2	ppm	
							0.2	ppm	
2							0.3	ppm	
		SM		Brown to orange silty SAND (FILL) Dry, no odors/staining			0.1	ppm	
							0.1	ppm	
							0.2	ppm	
3							0.2	ppm	
		SP		Orange fine SAND Dry, no odors/staining			0.1	ppm	
							0.4	ppm	
							0.8	ppm	
4							1.7	ppm	
							1.4	ppm	
							0.9	ppm	
							1.7	ppm	
5							1.5	ppm	
		SP		Orange fine SAND, trace medium sand Dry, no odors/staining			1.4	ppm	
6							3.7	ppm	
7							56.9	ppm	
8							17.8	ppm	
9							12.7	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-09**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Tan fine SAND Dry, no odors/staining			13.3	ppm	
							19.3	ppm	
11							36.7	ppm	
							103	ppm	
12				VOCs sampled from 12-12.5 ft. bgs.	SB09-161101		168	ppm	TCL VOCs
13		SP		Tan fine SAND, trace medium sand Dry, no odors/staining					
							29.5	ppm	
14							15.8	ppm	
15							25	ppm	
16							7.3	ppm	
17							4.1	ppm	
		SP		Tan to Brown fine SAND Dry, no odors/staining					
18							4.4	ppm	
19							15.2	ppm	
20							5	ppm	
		SP		Tan fine SAND with some medium sand Brown bands at 23 ft. Dry, no odors/staining					
21							5.3	ppm	

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-09**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP							
22							4.1	ppm	
23							7.3	ppm	
24							2.1	ppm	
25				Full boring composited and sampled from 0-25 ft. bgs.					Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-10**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **New Hyde Park Rd./RW-3** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown fine silty SAND (FILL) Dry, no odors/staining			2.6	ppm	
							1.9	ppm	
							4.0	ppm	
1							3.6	ppm	
		SP		Brown to orange fine SAND (FILL) Dry, no odors/staining			9.8	ppm	
							10.7	ppm	
							9.9	ppm	
2							23.8	ppm	
		SP		Orange fine SAND Dry, no odors/staining			30.3	ppm	
							29	ppm	
							42.1	ppm	
3							35.6	ppm	
							23.8	ppm	
							26.8	ppm	
							28.7	ppm	
4							26.2	ppm	
							26.2	ppm	
							18.4	ppm	
							18.6	ppm	
5							52.1	ppm	
		SP		Orange fine SAND with bands of medium sand Dry, no odors/staining			107	ppm	
6							147	ppm	
7							190	ppm	
		SP		Tan fine SAND with bands of medium sand Dry, no odors/staining					
8							272	ppm	
9							306	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-10**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		VOCs sampled from 10-10.5 ft. bgs. Tan fine SAND Dry, slight petroleum odor at 10 ft. bgs., no staining	SB10-161101		749	ppm	TCL VOCs
11		SP		Tan fine SAND with some medium sand Dry, no odors/staining			656	ppm	
12							554	ppm	
							425	ppm	
13							384	ppm	
		SP		Tan fine SAND with some medium sand Bands of brown coloration throughout Dry, no odors/staining					
14							289	ppm	
15		SP		Tan fine to medium SAND Moist, no odors/staining			179	ppm	
16							116	ppm	
17							134	ppm	
18		SP		Tan fine SAND Moist, no odors/staining			139	ppm	
19							130	ppm	
20							101	ppm	
21							146	ppm	

BORING NO.: **SB-10**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-10**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Dark orange fine to medium SAND Moist, no odors/staining					
22							140	ppm	
							119	ppm	
23							86	ppm	
24					SB10-161101		124	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
25				Full boring composited and sampled from 0-25 ft. bgs.			108	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-11**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **New Hyde Park Rd.** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		MLS		Brown sandy SILT (FILL) Dry, no odors/staining			0.6	ppm	
1							0.7	ppm	
2							0.6	ppm	
3		SP		Yellow fine SAND Dry, no odors/staining			0.4	ppm	
4							1.1	ppm	
5		SP		Yellow fine SAND with some medium sand Dry, no odors/staining			0.9	ppm	
6							1.2 1.1	ppm ppm	
		SP		Tan fine SAND with some medium sand Dry, no odors/staining			1.1	ppm	
7							1.2	ppm	
8							2.2	ppm	
9							0.5	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-11**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					0.8	ppm	
		SP		Orange fine SAND Dry, no odors/staining					
11							1.1	ppm	
12							1.0	ppm	
13							1.2	ppm	
14							1.1	ppm	
15		SP		Tan fine SAND Dry, no odors/staining			0.9	ppm	
							20.6	ppm	
16				VOCs sampled from 16-16.5	SB11-161101		27.5	ppm	TCL VOCs
17							20.7	ppm	
18		SP		Tan fine SAND with trace medium sand Dry, no odors/staining			21.6	ppm	
19							21.1	ppm	
20		SP		Tan fine SAND Dry, no odors/staining			11.0	ppm	
21		SP		Tan fine to medium SAND			12.7	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-11**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/01/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
22		SP		Dry, no odors/staining			15.9	ppm	
							11.14	ppm	
23							12.0	ppm	
24		SP		Dark tan fine SAND Dry, no odors/staining	SB11-161101		6.1	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
25				Full boring composited and sampled from 0-25 ft. bgs.			7.1	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-12**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/02/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Denton Ave./RW-3** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **7** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown fine silty SAND (FILL) Organics, roots, and plant material throughout Dry, no odors/staining			2.1	ppm	
							2.7	ppm	
							7.2	ppm	
1							3.2	ppm	
		SM		Light brown fine silty SAND (FILL) Some pebbles throughout Dry, no odors/staining			4.1	ppm	
							5.7	ppm	
							6.7	ppm	
2							6.0	ppm	
		SM		Brown fine silty SAND (FILL) Dry, no odors/staining			4.4	ppm	
							5.9	ppm	
							6.7	ppm	
3							7.2	ppm	
		SM		Brown fine silty SAND (FILL) Some pebbles throughout Dry, no odors/staining			8.0	ppm	
							8.2	ppm	
							9.1	ppm	
4							10.0	ppm	
							9.2	ppm	
							10.1	ppm	
							10.6	ppm	
5							11	ppm	
							6.9	ppm	
							8.3	ppm	
							10.1	ppm	
6							11.1	ppm	
		SP		Light brown SAND with some medium sand Dry, no odors/staining			10.9	ppm	
							11.2	ppm	
				VOCs sampled from 6.5-7 ft. bgs.	SB12-161102		15.9	ppm	TCL VOCs
				Full boring composited and sampled from 0-7 ft. bgs. Refusal at 7 ft. bgs.	SB12-161102		16.0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
7									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-13**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/02/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Denton Ave./Tanners Pond** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **7** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown fine silty SAND (FILL) Some pebbles throughout Dry, no odors/staining			6.7 6.3 5.0 5.8		
1		MLS		Brown sandy SILT (FILL) Dry, no odors/staining			6.4 7.1 8.3 8.3		
2		SP		Light brown fine SAND with some silt (FILL) Dry no odors/staining VOCs sampled from 2.5-3 ft. bgs.	SB13-161102		11 12.1 12.6 13		TCL VOCs
3		SM		Dark orange silty SAND (FILL) Dry, no odors/staining			10.5 10.9 10.8 9.3 10.1 10.0 11.7		
4		MLS		Brown sandy SILT (FILL) Dry, no odors/staining			3.1 3.6 3.5 3.4 2.5		
5				Full boring composited and sampled from 0-7 ft. bgs. Refusal at 7 ft. bgs.	SB13-161102		5.7 4.3		Full TCLP; Dioxin; Full TCL/TAL; RCRA
6									
7									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-14**

SHEET **1** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/02/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-4** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 7720DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **15** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		MLS		Black sandy SILT (FILL) Ballast throughout Dry, no odors/staining			2.3	ppm	
1							2.2	ppm	
2							70.8	ppm	
3		SP		Orange medium to fine SAND Some cobbles throughouot Dry, no odors/staining			76	ppm	
		SP		Orange fine SAND Dry, no odors/staining					
4							79.3	ppm	
		SP		VOCs sampled from 4.5-5 Orange medium to fine SAND Some cobbles throughout Dry, no odors/staining	SB14-161102		80.1	ppm	TCL VOCs
5		SP					26	ppm	
				Tan fine SAND with some medium sand Dry, no odors/staining					
6							30.3	ppm	
7							34.8	ppm	
							38.9	ppm	
8							36.1	ppm	
9		SP		Tan fine SAND, trace silt Dry, no odors/staining			37.2	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-14**

SHEET **2** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/02/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					21	ppm	
11									
		SP		Tan fine SAND with trace medium sand Dry, no odors/staining			23	ppm	
12							26.3	ppm	
13							28.9	ppm	
14									
		SP		Tan fine SAND with trace silt Dry, no odors/staining			29.1	ppm	
15				Full boring composited and sampled from 0-15 ft. bgs.	SB14-161102				Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NO.: **SB-14**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-15**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Willis Ave./RW-5** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 7720DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		MLS		Dark brown sandy SILT (FILL) Ballast throughout Dry, no odors/staining			6	ppm	
							5.5	ppm	
							7.1	ppm	
1							12	ppm	
							0.9	ppm	
							0.5	ppm	
							3	ppm	
2							4	ppm	
		MLS		Brown sandy SILT with (FILL) Ballast throughout Dry, no odors/staining			9.8	ppm	
							70.6	ppm	
							17.7	ppm	
3							17.2	ppm	
		SM		Light brown silty SAND (FILL) Some pebbles throughout Dry, no odors/staining			29	ppm	
							41	ppm	
							21	ppm	
4							13	ppm	
		SM		Light brown silty SAND (FILL) Moist, no odors/staining			0.9	ppm	
							0.3	ppm	
5							0.1	ppm	
		SP		Dark tan fine SAND, trace silt Cobbles throughout Moist, no odors/staining			244	ppm	
6							294	ppm	
							317	ppm	
							309	ppm	
7							323	ppm	
8							319	ppm	
							242	ppm	
9							219	ppm	
		SP		Orange fine SAND Moist, no odors/staining					
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-15**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					233	ppm	
		SP		Orange fine SAND with some medium sand Dry, no odors/staining					
11							267	ppm	
12							383	ppm	
13							285	ppm	
		SP		Tan medium SAND Dry, no odors/staining					
14							285	ppm	
15									
		SP		Orange fine SAND, little medium sand Dry, no odors/staining			283	ppm	
16							814	ppm	
17							615	ppm	
				VOCs sampled from 17.5-18 ft. bgs.	SB15-161103		725	ppm	TCL VOCs
18							622	ppm	
19							646	ppm	
20									
		SP		Orange fine SAND Pebbles throughout Dry, no odors/staining			574	ppm	
21							351	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-15**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP							
22							618	ppm	
							414	ppm	
23							445	ppm	
24							436	ppm	
				Full boring composited and sampled from 0-25 ft. bgs.					Full TCLP; Dioxin; Full TCL/TAL; RCRA
25					SB15-161103		310	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-16**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/02/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Willis Ave.** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 7720DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		ML		Sampled for VOCs from 0-0.5 ft. bgs Black SILT with fine sand (FILL) Some Ballast throughout Dry, no odors/staining	SB16-161102		92 97.5 37.6	ppm ppm ppm	TCL VOCs
1									
2		MLS		Brown very fine sandy SILT (FILL) Moist, no odors/staining			51	ppm	
3		SP		Orange fine to medium SAND Cobbles throughout Moist, no odors/staining			36 15 26.3	ppm ppm ppm	
4									
5									
6		SP		Tan medium SAND with little fine sand Some cobbles throughout Dry, no odors/staining			32 33 28 10 10.3	ppm ppm ppm ppm ppm	
7									
8									
9		SM		Dark orange fine silty SAND Large cobbles Dry, no odors/staining			14.9	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-16**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/02/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Tan fine SAND Dry, no odors/staining			11	ppm	
11		SP		Tan medium SAND with some fine sand Cobbles throughout Dry, no odors/staining			8.6	ppm	
12							20.6	ppm	
							23.1	ppm	
13							19.1	ppm	
14							18.7	ppm	
		SP		Orange fine SAND Dry, no odors/staining					
15		SP		Orange fine SAND with some medium sand Cobbles throughout Dry, no odors/staining			16.8	ppm	
16							23.3	ppm	
17							23.7	ppm	
18							29.1	ppm	
19							22.1	ppm	
20		SP		Orange fine SAND with some medium sand Cobbles throughout Brown bands at 23.5 ft. bgs. Dry, no odors/staining			19.1	ppm	
21							23.8	ppm	

BORING NO.: **SB-16**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-16**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/02/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP							
22							25.6	ppm	
23							12	ppm	
24							3.1	ppm	
25				Full boring composited and sampled from 0-25 ft. bgs.	SB16-161102				Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-17**

SHEET **1** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-6A** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 7720DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **20** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		MLS		Brown Sandy SILT (FILL) Some ballast Dry, no odors/staining			12.9 15.9 17.1 16.1	ppm ppm ppm ppm	
1		MLG		Brown gravelly SILT with some fine sand (FILL) Dry, no odors/staining			13.6 14.4. 16.3 13.5 20.9 20.9 22 19.3	ppm ppm ppm ppm ppm ppm ppm ppm	
2									
3		MLS		Brown fine sandy SILT (FILL) Dry, no odors/staining			19.1 21.9 23.6 25.7	ppm ppm ppm ppm	
4		MLS		Light brown fine sandy SILT (FILL) Some cobbles throughout Moist, no odors/staining			21 23.3 21.7 22.8	ppm ppm ppm ppm	
5		SP		Light brown medium SAND Dry, no odors/staining			167	ppm	
6		SP		Dark orange fine SAND with some medium sand Dry, no odors/staining			212 255	ppm ppm	
7									
8		SP		Tan fine SAND with little medium sand Rocks at 9 ft. bgs. Orange bands at 12 ft. bgs. Dry, no odors/staining			266 365	ppm ppm	
9									
10				VOCs sampled from 9.5-10 ft. bgs.	SB17-161103		393	ppm	TCL VOCs

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-17**

SHEET **2** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					178	ppm	
11							193	ppm	
12							197	ppm	
							187	ppm	
13							201	ppm	
14							204	ppm	
		SP		Orange fine SAND with some medium sand, trace silt Dry, no odors/staining					
15							202	ppm	
16									
		SP		Orange fine SAND, trace silt Dry, no odors/staining			157	ppm	
17									
		SP		Orange fine SAND with some medium sand, trace silt Dry, no odors/staining			168	ppm	
							181	ppm	
18							169	ppm	
19							196	ppm	
				Full boring composited and sampled from 0-20 ft. bgs.	SB17-161103				Full TCLP; Dioxin; Full TCL/TAL; RCRA
20									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-18**

SHEET **1** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/09/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-6B** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **10** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND, trace silt (FILL) Cobbles and ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB18-161109		0	ppm	TCL VOCs
							0	ppm	
1							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
		SP		Brown fine SAND, trace silt (FILL) Cobbbles and ballast throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
		SM		Brown silty fine SAND (FILL) Cobbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
5							0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-18**

SHEET **2** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/09/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Cobbles and organics throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
6							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
7							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
8							0	ppm	
		SP		Brown fine SAND with some medium sand, trace silt Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
9							0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-10 ft. bgs. Refusal at 10 ft. bgs.	SB18-161109		0	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-19**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/09/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-6B** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **4.5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Organics and some ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB19-161109		0	ppm	TCL VOCs
							0	ppm	
1		SM		Brown silty fine SAND (FILL) Organics, cobbles, and some ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2		SM		Brown to orange silty fine SAND (FILL) Cobbles and organics throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
3		SP		Brown fine SAND with trace medium sand, some silt (FILL) Cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-4.5 ft. bgs. Refusal at 4.5 ft. bgs.	SB19-161109		0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-20**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/09/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-7** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **3** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Dark brown silty fine SAND (FILL) Organics and trace rocks throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				Sampled for VOCs from 0.5-2 ft. bgs.	SB20-161109		0	ppm	TCL VOCs
							0	ppm	
1							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2									
		SP		Dark tan fine SAND Cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-3 ft. bgs. Refusal at 3 ft. bgs.	SB20-161109		0	ppm	
3									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-21**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/09/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-8** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **7** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Organics and rocks throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
1							0	ppm	
							0.1	ppm	
							0.1	ppm	
							0.2	ppm	
2							0.2	ppm	
		SM		Brown silty fine SAND (FILL) Organics, cobbles, and rocks throughout Dry, no odors/staining			0	ppm	
							0.1	ppm	
							0.5	ppm	
3							0.7	ppm	
		SM		Brown silty fine SAND (FILL) Organics and cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
							3.1	ppm	
							4.2	ppm	
							4.7	ppm	
5							3.7	ppm	
		SM		Brown silty fine SAND (FILL) Cobbles throughout Dry, no odors/staining			6.4	ppm	
							6.5	ppm	
				Sampled for VOCs from 5.5-6 ft. bgs.	SB21-161109		6.7	ppm	TCL VOCs
6							7	ppm	
		ML		Orange SILT with some fine sand (FILL) Dry, no odors/staining			2.5	ppm	
							3.1	ppm	
				Full boring composited and sampled from 0-7 ft. bgs. Refusal at 7 ft. bgs.			3.2	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
7					SB21-161109		3.5	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-22**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/09/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-9** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **4** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND, trace silt (FILL) Organics and some rocks throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
1		SP		Brown fine SAND, trace silt (FILL) Organics, some cobbles and some rocks throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
							0	ppm	
				VOCs sampled from 2.5-3 ft. bgs.	SB22-161109		0	ppm	TCL VOCs
							0	ppm	
3							0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-4 ft Refusal at 4 ft. bgs.	SB22-161109		0	ppm	
4									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-23**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/10/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-9** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 7720DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND, trace silt (FILL) Cobbles, organics, roots, and plant material throughout Dry, no odors/staining			0	ppm	
							0.1	ppm	
							0.1	ppm	
1							0	ppm	
							0	ppm	
							0.1	ppm	
							0.1	ppm	
2							0.1	ppm	
		SP		Brown fine SAND, trace silt (FILL) Cobbles throughout Dry, no odors/staining			0	ppm	
							0.1	ppm	
							0.1	ppm	
3							0.2	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
4							0.2	ppm	
							0	ppm	
							0	ppm	
		SM		Brown silty fine SAND (FILL) Trace organics, roots, and plant material Dry, no odors/staining			0	ppm	
5							0	ppm	
							0	ppm	
		ML		Tan silt (FILL) Dry, no odors/staining					
6							0	ppm	
7									
		SP		Light tan fine SAND with some medium sand Cobbles throughout Dry, no odors/staining			0	ppm	
8							0	ppm	
9							0	ppm	
10									

BORING NO.: **SB-23**

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-23**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/10/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					0	ppm	
11									
		SP		Tan fine SAND, trace medium sand Cobbles throughout Dry, no odors/staining			0	ppm	
12							0.5	ppm	
13							0.5	ppm	
		ML		Brown silt Wet, no odors/staining					
14							0.5	ppm	
				VOCs sampled from 14.5-15 ft. bgs.	SB23-161110		0.6	ppm	TCL VOCs
15							0	ppm	
		SP		Orange fine SAND, some medium sand Cobbles throughout Dry, no odors/staining					
16							0	ppm	
17							0	ppm	
18							0	ppm	
19							0	ppm	
20							0	ppm	
21							0	ppm	

BORING NO.: **SB-23**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-23**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/10/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
22		SP					0	ppm	
23							0	ppm	
24		SP		Orange fine SAND Dry, no odors/staining			0	ppm	
25				Full boring composited and sampled from 0-25 ft. bgs.	SB23-161110				Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-24**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/10/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-10/Meadowbrook** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND, some silt (FILL) Cobbles, organics, roots, plant material, and rocks throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB24-161110		0	ppm	TCL VOCs
							0	ppm	
1							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
		SP		Brown fine SAND, some silt (FILL) Cobbles and organics, roots, plant material throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
		SP		Brown fine SAND, some silt (FILL) Cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
5				Full boring composited and sampled from 0-4.5 ft. bgs. Refusal at 5 ft. bgs.	SB24-161110		0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-25**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-10/Cherry Lane** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **4** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Pebbles and Ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB25-161103		0	ppm	TCL VOCs
							0	ppm	
1							0	ppm	
							0	ppm	
		SM		Tan silty fine SAND (FILL) Dry, no odors/staining			0	ppm	
							0	ppm	
2							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
							0	ppm	
							0	ppm	
4				Full boring composited and sampled from 0-4 ft. bgs. Refusal at 4 ft. bgs.	SB25-161103		0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NO.: **SB-25**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-26**

SHEET **1** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Cherry Lane** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **10** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Light brown silty fine SAND (FILL) Pebbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB26-161103		0	ppm	TCL VOCs
							0	ppm	
1							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
		SM		Light brown to brown silty fine SAND (FILL) Pebbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
		SM		Light brown to brown silty fine SAND (FILL) Little pebbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
							0	ppm	
							0	ppm	
5							0	ppm	

BORING NO.: **SB-26**

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-26**

SHEET **2** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM					0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
6							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
7							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
8							0	ppm	
							0	ppm	
							0	ppm	
9							0	ppm	
		CL		Brown CLAY Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
10				Full boring composited and sampled from 0-10 ft. bgs.	SB26-161103		0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-27**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/03/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Carle Place Park** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **4** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Light brown silty SAND (FILL) Ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB27-161103		0	ppm	TCL VOCs
							0	ppm	
1							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
		SM		Brown to tan silty SAND (FILL) Cobbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled for 0-4 ft. bgs. Refusal at 4 ft. bgs.	SB27-161103		0	ppm	
4									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-28**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/04/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-12** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **3.5** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Dry, no odors/staining			0.3	ppm	
							0.4	ppm	
							0.5	ppm	
							0.5	ppm	
1							1.1	ppm	
							1.4	ppm	
							1.5	ppm	
							1.9	ppm	
2									
		SM		Brown silty fine SAND (FILL) Cobbles and ballast throughout Dry, no odors/staining			2.1	ppm	
							2.4	ppm	
							2.7	ppm	
							2.7	ppm	
3									
		SM		VOCs sampled from 3-3.5 Light brown silty SAND (FILL) Dry, no odors/staining	SB28-161104		3.5	ppm	TCL VOCs
				Full boring composited and sampled from 0-3.5 ft. bgs. Refusal at 3.5 ft. bgs.	SB28-161104		3.6	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-29**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/04/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-11** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **9** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND, little silt (FILL) Some ballast and organics, roots, and plant material throughout Dry, no odors/staining			14.8	ppm	
							16.3	ppm	
							15.1	ppm	
1							19.7	ppm	
							1.3	ppm	
							1.1	ppm	
							0.6	ppm	
2							0.8	ppm	
		SP		Brown fine SAND, little silt (FILL) Little cobbles throughout Dry, no odors/staining			9.7	ppm	
							5.4	ppm	
							5.5	ppm	
3							5.0	ppm	
		SP		Tan fine SAND, trace silt Little cobbles Dry, no odors/staining			0.7	ppm	
							3.6	ppm	
							3.7	ppm	
4							2.1	ppm	
		SP		Tan fine SAND Moist, no odors/staining			43.4	ppm	
							156	ppm	
							258	ppm	
5							255	ppm	
							276	ppm	
							355	ppm	
				VOCs sampled from 5.5-6 ft. bgs.	SB29-161104		540	ppm	TCL VOCs
6							581	ppm	
							329	ppm	
							410	ppm	
							145	ppm	
7							70.5	ppm	
							36.7	ppm	
							36.4	ppm	
							26.5	ppm	
8							12.8	ppm	
		SP		Brown fine SAND Moist, no odors/staining			5.5	ppm	
				Full boring composited and sampled from 0-9 ft. bgs.			5.4	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
9				Refusal at 9 ft. bgs.	SB29-161104		6.9	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-30**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/07/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **School St.-North** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 7822 DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Some Ballast throughout Dry, no odors/staining			0	ppm	
							4.5	ppm	
							3.8	ppm	
1							9.3	ppm	
							170	ppm	
							49	ppm	
							350	ppm	
2							185	ppm	
							222	ppm	
							238	ppm	
							267	ppm	
3							109	ppm	
							221	ppm	
							289	ppm	
		SP		Tan fine SAND Little Ballast throughouot Dry, no odors/staining			145	ppm	
4							330	ppm	
							445	ppm	
							530	ppm	
				VOCs sampled from 4.5-5 ft. bgs.	SB30-161107		1006	ppm	TCL VOCs
5							890	ppm	
		SP		Tan fine SAND Cobbles throughout Dry, no odors/staining			365	ppm	
6							447	ppm	
7							796	ppm	
							819	ppm	
8							778	ppm	
9							739	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-30**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/07/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Tan fine SAND with some medium sand Cobbles throughout Dry, no odors/staining			223	ppm	
11							333	ppm	
12							210	ppm	
13							239	ppm	
14		SP		Orange fine SAND Dry, no odors/staining			276	ppm	
15							231	ppm	
16							381	ppm	
17							251	ppm	
							251	ppm	
18							232	ppm	
19							118	ppm	
20							13.6	ppm	
21							121	ppm	

BORING NO.: **SB-30**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-30**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/07/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP							
22							11.5	ppm	
23							33.6	ppm	
24							59.1	ppm	
25				Full boring composited and sampled from 0-25 ft. bgs.	SB30-161107				Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-31**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/04/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **School St.-South** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 7720DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty SAND (FILL) Ballast throughout Dry, no odors/staining			695	ppm	
							1153	ppm	
							1962	ppm	
1							952	ppm	
							1599	ppm	
							1843	ppm	
							1683	ppm	
2							2053	ppm	
							3875	ppm	
							2030	ppm	
				VOCs sampled from 2.5-3 ft. bgs.	SB31-161104		4996	ppm	TCL VOCs
3							508	ppm	
							319	ppm	
							30	ppm	
							405	ppm	
4							288	ppm	
		SP		Brown to tan fine SAND, trace silt (FILL) Some cobbles Dry, no odors/staining			122	ppm	
							129	ppm	
							130	ppm	
5							14.2	ppm	
		SP		Tan fine SAND Moist, no odors/staining			0	ppm	
							14	ppm	
6									
		SP		Tan medium SAND Moist, no odors/staining			17	ppm	
7									
		SP		Tan fine SAND, little medium sand Moist, no odors/staining					
							21	ppm	
8									
							56	ppm	
9									
							8	ppm	
							59	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-31**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/04/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Tan fine SAND with some medium sand Moiist, no odors/staining			12	ppm	
11							122	ppm	
12							150	ppm	
							141	ppm	
13							106	ppm	
14							117	ppm	
							103	ppm	
15		SP		Orange fine SAND Moist, no odors/staining			189	ppm	
16							300	ppm	
		SP		Orange fine SAND with little medium sand Brown bands at 19.5 Dry, no odors/staining					
17							472	ppm	
18							363	ppm	
19							328	ppm	
20		SP		Tan fine SAND Moist, no odors/staining			325	ppm	
21							207	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-31**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/04/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP							
22							257	ppm	
							261	ppm	
23							20	ppm	
24							233	ppm	
				Full boring composited and sampled from 0-25 ft. bgs.					Full TCLP; Dioxin; Full TCL/TAL; RCRA
25					SB31-161104		68	ppm	

BORING NO.: **SB-31**

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-32**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/07/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-15** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Some ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB32-161107		0	ppm	TCL VOCs
							0	ppm	
1		SP		Tan fine SAND Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
5				Full boring composited and sampled from 0-5 ft. bgs. Refusal at 5 ft. bgs.	SB32-161107		0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-33**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/04/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-16** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **4** BOREHOLE DIAMETER (in):

ELEV.: DATUM:

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND with little silt (FILL) Ballast throughout Dry, no odors/staining			31	ppm	
							189	ppm	
							71	ppm	
							15.5	ppm	
1		SP		Brown to tan fine SAND (FILL) Some ballast Dry, no odors/staining			158	ppm	
							229	ppm	
							436	ppm	
							364	ppm	
2		SP		Tan to brown fine SAND, trace silt (FILL) Moist, no odors/staining			226	ppm	
							236	ppm	
							300	ppm	
							466	ppm	
3		SP		VOCs sampled from 3-3.5 ft. bgs. Tan to brown fine SAND (FILL) Little roocks throughout Moist, no odors/staining	SB33-161104		455	ppm	TCL VOCs
							399	ppm	
							210	ppm	
				Full boring composited and sampled from 0-4 ft. bgs. Refusal at 4 ft. bgs.	SB33-161104		380	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
4									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-34**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/07/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-15** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Dark brown silty fine SAND (FILL) Ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-1 ft. bgs.	SB34-161107		112	ppm	TCL VOCs
							148	ppm	
1							0	ppm	
							0	ppm	
							7.5	ppm	
							6.3	ppm	
2		SM		Dark brown silty fine SAND (FILL) Dry, no odors/staining			0	ppm	
							0	ppm	
							4.2	ppm	
							2.7	ppm	
3		SM		Brown silty fine SAND (FILL) Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0.6	ppm	
4							0	ppm	
							0	ppm	
		SP		Dark orange fine SAND Trace cobbles throughout Dry, no odors/staining Full boring composited and sampled from 0-5 ft. bgs. Refusal at 5 ft. bgs.	SB34-161107		0 0	ppm ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
5									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-35**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/07/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-16** DRILLER: **E. Santiago**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty SAND (FILL) Some ballast rocks, little organics, roots, plant material Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
1									
		SM		Brown silty SAND (FILL) Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2									
		SP		Dark brown to orange SAND with some silt Dry, no odor/staining Petroleum odor from 3-4 ft. bgs.			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
3									
				VOCs sampled from 3-3.5 ft. bgs.	SB35-161107		1411	ppm	TCL VOCs
							988	ppm	
							357	ppm	
							845	ppm	
4									
							25.3	ppm	
							29.6	ppm	
							25.7	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-5 ft. bgs. Refusal at 5 ft. bgs.	SB35-161107		98.9	ppm	
5									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-36**

SHEET **1** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-15** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **20** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB36-161108		0	ppm	TCL VOCs
1							0	ppm	
		SP		Brown to orange fine SAND, trace silt (FILL) Cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
		SP		Orange fine SAND Cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
		SM		Orange silty fine SAND Cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
5							0	ppm	
		SP		Tan fine SAND, trace medium sand Cobbles throughout Dry, no odors/staining			0	ppm	
6							0	ppm	
7							0	ppm	
8							0	ppm	
9							0	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-36**

SHEET **2** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					0	ppm	
11							0	ppm	
12							0	ppm	
13		SP		Tan medium SAND, some fine sand, trace siilt Dry, no odors/staining			0	ppm	
		SP		Orange fine sand Cobbles throughout Dry, no odors/staining					
14							0	ppm	
15							0	ppm	
16									
17							0	ppm	
18		SM		Brown silty fine SAND Moist, no odors/staining					
19		SM		Orange silty fine SAND Moist, no odors/staining Full boring composited and sampled from 0-20 ft. bgs.			0	ppm	
20					SB36-161108				Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NO.: **SB-36**

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-37**

SHEET **1** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Urban Ave./RW-15** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger/Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **20** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Brown fine SAND with trace silt (FILL) Some ballast Dry, no odors/staining			0	ppm	
							0.3	ppm	
							0.7	ppm	
1							0.4	ppm	
							0	ppm	
							1.5	ppm	
							2.7	ppm	
2							3.7	ppm	
		SP		Brown fine SAND with trace silt (FILL) Trace ballast throughout Dry, no odors/staining			0.4	ppm	
							1.4	ppm	
							2.5	ppm	
3							3.1	ppm	
		SM		Light brown silty fine SAND (FILL) Some cobbles throughout Dry, no odors/staining			0.5	ppm	
							1.5	ppm	
							8.4	ppm	
4							4.2	ppm	
							0	ppm	
							3.1	ppm	
							5.1	ppm	
5							4.6	ppm	
		SP		Tan fine SAND with some medium sand Dry, no odors/staining			2.7	ppm	
6									
		SP		Orange fine SAND, trace silt Cobbles throughout Dry, no odors/staining			4.7	ppm	
7									
							89.3	ppm	
8									
							27.6	ppm	
9									
							30.1	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-37**

SHEET **2** OF **2**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP					29.3	ppm	
11							397	ppm	
12							529	ppm	
13							462	ppm	
14							388	ppm	
				VOCs sampled from 14.5-15 ft. bgs.	SB37-161108		567	ppm	TCL VOCs
15		SP		Orange fine SAND, little medium sand, trace silt Dry, no odors/staining			32	ppm	
16							169	ppm	
17							117	ppm	
18							175	ppm	
19							130	ppm	
20				Full boring composited and sampled from 0-20 ft. bgs.	SB37-161108				Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-38**

SHEET **1** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **Urban Ave./RW-17** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Geoprobe 66DT**

DRILLING METHOD: **Direct Push**

BOREHOLE DEPTH (ft): **25** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
1							0	ppm	
		SM		Brown silty fine SAND (FILL) Ballast and cobbles throughout Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
2							0	ppm	
		SM		Brown to light brown silty fine SAND (FILL) Cobbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
3							0	ppm	
		SM		Dark orange silty fine SAND Cobbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
5							0	ppm	
							0	ppm	
6									
							0	ppm	
7									
							0	ppm	
		SP		Orange fine SAND with some medium sand, trace silt Moist, no odors/staining					
8							0	ppm	
		SP		Dark orange fine SAND Moist, no odors/staining					
9							0.3	ppm	
10									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-38**

SHEET **2** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Tan fine SAND with some medium sand, trace silt Cobbles throughout Moist, no odors/staining			0	ppm	
11							0	ppm	
12							0.5	ppm	
13							0.7	ppm	
14							1.3	ppm	
				VOCs sampled from 14.5-15 ft. bgs.	SB38-161108		3.8		TCL VOCs
15							0		
16									
17							0	ppm	
18									
19							0	ppm	
20							0	ppm	
21							0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-38**

SHEET **3** OF **3**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP							
22							0	ppm	
23							0	ppm	
24							0.3	ppm	
25				Full boring composited and sampled from 0-25 ft. bgs.	SB38-161108				Full TCLP; Dioxin; Full TCL/TAL; RCRA

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-39**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/08/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-17** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SM		Brown silty fine SAND (FILL) Ballast throughout Dry, no odors/staining			0	ppm	
							0	ppm	
				VOCs sampled from 0.5-2 ft. bgs.	SB39-161108		0	ppm	TCL VOCs
							0	ppm	
1		SM		Brown silty fine SAND (FILL) Dry, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
2		SP		Brown to tan fine SAND with some silt (FILL) Cobbles throughout Moist, no odors/staining			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
3		SP		Tan fine SAND Cobbles throughout Moist, no odors/staining Refusal at 5 ft. bgs.			0	ppm	
							0	ppm	
							0	ppm	
							0	ppm	
4							0	ppm	
							0	ppm	
							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-5 ft. bgs. Refusal at 5 ft. bgs.	SB39-161108		0	ppm	
5									

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

MATRIXNEWORLD
Engineering Progress

BORING LOG

BORING NO.: **SB-40**

SHEET **1** OF **1**

PROJECT NO.: **16-144** PROJECT: **LIRR Expansion Project** DATE: **11/10/16**

PROJECT LOCATION: **Floral Park to Hicksville, Nassau County, NY** CLIENT: **LIRR**

BORING LOCATION: **RW-15** DRILLER: **K. McGourty**

DRILLING CONTRACTOR: **LAWES** LOGGED BY: **M. Clelland**

DRILLING EQUIPMENT: **Hand Auger**

DRILLING METHOD: **Hand Auger**

BOREHOLE DEPTH (ft): **4.5** BOREHOLE DIAMETER (in): _____

ELEV.: _____ DATUM: _____

GROUNDWATER LEVELS			
Date	Time	Depth	Casing Depth

Depth Feet (Elev.)	Sample Recovery	USCS	Graphic	Description Of Material	Sample Name	Sample Time	PID		Laboratory Tests
		SP		Dark brown fine SAND, some silt (FILL) Cobbles throughout Dry, no odors/staining			0	ppm	
							0.1	ppm	
							0.1	ppm	
							0	ppm	
1		SM		Dark brown silty fine SAND (FILL) Cobbles throughout Dry, no odors/staining			0	ppm	
							0.1	ppm	
							0.1	ppm	
							0.1	ppm	
2							0	ppm	
							0.1	ppm	
		SP		VOCs sampled from 2.5-3 ft. bgs. Orange fine SAND, trace silt Cobbles throughout Moist, no odors/staining	SB40-161110		0.1	ppm	TCL VOCs
							0.2	ppm	
3							0	ppm	
							0	ppm	
							0	ppm	
							0.2	ppm	
4							0	ppm	Full TCLP; Dioxin; Full TCL/TAL; RCRA
				Full boring composited and sampled from 0-5 ft. bgs. Refusal at 5 ft. bgs.	SB40-161110		0	ppm	

BORING NEW WORLD SOILBORINGLOGS.GPJ MATRIX EGS.GDT 12/20/16

APPENDIX B
PHOTOLOG

MATRIXNEWORLD
Engineering Progress

26 Columbia Turnpike
Florham Park, NJ 07932
973-240-1800 Phone
973-240-1818 Fax

Photo Log

LOCATION: LIRR Floral Station to Hicksville Station
DATE: 10/31/16-11/11/16
PROJECT #: 16-144
PHOTOGRAPHER: M. Clelland

PHOTO 1: Geoprobe drilling SB-11 at RW #13
11/1/2016

PHOTO 2: Location of the boring SB-16 at the Willis Ave crossing
11/2/2016

MATRIXNEWORLD
Engineering Progress

26 Columbia Turnpike
Florham Park, NJ 07932
973-240-1800 Phone
973-240-1818 Fax

Photo Log

LOCATION: LIRR Floral Station to Hicksville Station
DATE: 10/31/16-11/11/16
PROJECT #: 16-144
PHOTOGRAPHER: M. Clelland

PHOTO 3: Restored bore hole SB-17, along RW #6A
11/3/2016

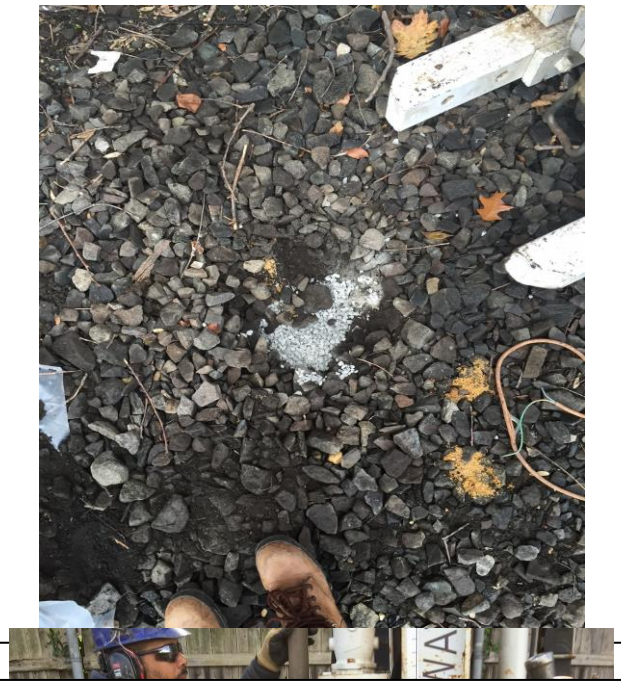

PHOTO 4: Soil cores on School St, Westbury, NY (SB-31)
11/4/2016

MATRIXNEWORLD
Engineering Progress

26 Columbia Turnpike
Florham Park, NJ 07932
973-240-1800 Phone
973-240-1818 Fax

Photo Log

LOCATION: LIRR Floral Station to Hicksville Station
DATE: 10/31/16-11/11/16
PROJECT #: 16-144
PHOTOGRAPHER: M. Clelland

PHOTO 5: Geoprobe drilling SB-37 at RW #15
11/8/2016

PHOTO 6: Bore hole on RW #6B (SB-19)
11/9/2016

MATRIXNEWORLD
Engineering Progress

26 Columbia Turnpike
Florham Park, NJ 07932
973-240-1800 Phone
973-240-1818 Fax

Photo Log

LOCATION: LIRR Floral Station to Hicksville Station
DATE: 10/31/16-11/11/16
PROJECT #: 16-144
PHOTOGRAPHER: M. Clelland

PHOTO 7: Soils produced via hand auger from SB-22 along RW #9
11/9/2016

PHOTO 8: Location of the soil boring at Creedmore Spur (SB-01)
11/11/16

APPENDIX C
LABORATORY ANALYTICAL DATA PACKAGE

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC30810

Sampling Date: 10/31/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com; mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: 71

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC30810

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC30810-1	10/31/16	11:05	MC	10/31/16	SO	Soil	SB03-161031
JC30810-1A	10/31/16	11:05	MC	10/31/16	SO	Soil	SB03-161031
JC30810-2	10/31/16	13:05	MC	10/31/16	SO	Soil	SB06-161031
JC30810-2A	10/31/16	13:05	MC	10/31/16	SO	Soil	SB06-161031
JC30810-3	10/31/16	14:15	MC	10/31/16	SO	Soil	SB07-161031
JC30810-3A	10/31/16	14:15	MC	10/31/16	SO	Soil	SB07-161031

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

2

Summary of Hits

Job Number: JC30810
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 10/31/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC30810-1	**SB03-161031**					
Acetone		0.0377	0.010	0.0052	mg/kg	SW846 8260C
Methylene chloride		0.0017 J	0.0052	0.0010	mg/kg	SW846 8260C
Acenaphthene		0.0237 J	0.035	0.012	mg/kg	SW846 8270D
Acenaphthylene		0.125	0.035	0.018	mg/kg	SW846 8270D
Acetophenone		0.0321 J	0.17	0.0075	mg/kg	SW846 8270D
Anthracene		0.168	0.035	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.370	0.035	0.0098	mg/kg	SW846 8270D
Benzo(a)pyrene		0.327	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.660	0.035	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.231	0.035	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.226	0.035	0.016	mg/kg	SW846 8270D
Butyl benzyl phthalate		0.0724	0.070	0.0085	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0480 J	0.070	0.0048	mg/kg	SW846 8270D
Benzaldehyde		0.135 J	0.17	0.0086	mg/kg	SW846 8270D
Carbazole		0.0621 J	0.070	0.0050	mg/kg	SW846 8270D
Chrysene		0.595	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0861	0.035	0.015	mg/kg	SW846 8270D
Dibenzofuran		0.100	0.070	0.014	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.0422 J	0.070	0.0081	mg/kg	SW846 8270D
Fluoranthene		0.858	0.035	0.016	mg/kg	SW846 8270D
Fluorene		0.0371	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.298	0.035	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.234	0.070	0.0079	mg/kg	SW846 8270D
Naphthalene		0.185	0.035	0.0098	mg/kg	SW846 8270D
Phenanthrene		0.537	0.035	0.012	mg/kg	SW846 8270D
Pyrene		0.713	0.035	0.011	mg/kg	SW846 8270D
4,4'-DDE [a]		0.0026	0.00070	0.00036	mg/kg	SW846 8081B
4,4'-DDT [b]		0.0181	0.00070	0.00041	mg/kg	SW846 8081B
Aluminum		3930	50		mg/kg	SW846 6010C
Arsenic		5.6	2.0		mg/kg	SW846 6010C
Barium		35.4	20		mg/kg	SW846 6010C
Beryllium		0.25	0.20		mg/kg	SW846 6010C
Calcium		787	500		mg/kg	SW846 6010C
Chromium		12.9	0.99		mg/kg	SW846 6010C
Copper		37.0	2.5		mg/kg	SW846 6010C
Iron		9290	50		mg/kg	SW846 6010C
Lead		95.1	2.0		mg/kg	SW846 6010C
Magnesium		850	500		mg/kg	SW846 6010C
Manganese		128	1.5		mg/kg	SW846 6010C
Mercury		0.058	0.032		mg/kg	SW846 7471B
Nickel		12.1	4.0		mg/kg	SW846 6010C
Silver		1.0	0.50		mg/kg	SW846 6010C
Vanadium		11.6	5.0		mg/kg	SW846 6010C

Summary of Hits

Job Number: JC30810
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 10/31/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Zinc		81.5	5.0		mg/kg	SW846 6010C
JC30810-1A	**SB03-161031**					
Corrosivity as pH		6.09 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC30810-2	**SB06-161031**					
Methylene chloride		0.0028 J	0.0055	0.0011	mg/kg	SW846 8260C
Toluene		0.00024 J	0.0011	0.00014	mg/kg	SW846 8260C
Benzo(a)anthracene		0.0165 J	0.035	0.0099	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0177 J	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0201 J	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0197 J	0.035	0.016	mg/kg	SW846 8270D
Pyrene		0.0170 J	0.035	0.011	mg/kg	SW846 8270D
Aluminum		1950	52		mg/kg	SW846 6010C
Chromium		4.8	1.0		mg/kg	SW846 6010C
Copper		5.6	2.6		mg/kg	SW846 6010C
Iron		4390	52		mg/kg	SW846 6010C
Lead		4.6	2.1		mg/kg	SW846 6010C
Magnesium		631	520		mg/kg	SW846 6010C
Manganese		59.6	1.6		mg/kg	SW846 6010C
Nickel		7.2	4.2		mg/kg	SW846 6010C
Silver		0.57	0.52		mg/kg	SW846 6010C
Vanadium		5.4	5.2		mg/kg	SW846 6010C
Zinc		16.1	5.2		mg/kg	SW846 6010C
JC30810-2A	**SB06-161031**					
Corrosivity as pH		8.13 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC30810-3	**SB07-161031**					
Methylene chloride		0.0022 J	0.0052	0.0010	mg/kg	SW846 8260C
Acenaphthylene		0.0425	0.035	0.018	mg/kg	SW846 8270D
Anthracene		0.0580	0.035	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0845	0.035	0.0098	mg/kg	SW846 8270D
Benzo(a)pyrene		0.102	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.203	0.035	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.109	0.035	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0633	0.035	0.016	mg/kg	SW846 8270D
Carbazole		0.0319 J	0.069	0.0050	mg/kg	SW846 8270D
Chrysene		0.153	0.035	0.011	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC30810
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 10/31/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Dibenzo(a,h)anthracene	0.0287 J	0.035	0.015	mg/kg	SW846 8270D
Fluoranthene	0.241	0.035	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.117	0.035	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0230 J	0.069	0.0078	mg/kg	SW846 8270D
Naphthalene	0.0163 J	0.035	0.0097	mg/kg	SW846 8270D
Phenanthrene	0.0783	0.035	0.012	mg/kg	SW846 8270D
Pyrene	0.252	0.035	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]	0.0069	0.00068	0.00032	mg/kg	SW846 8081B
gamma-Chlordane [a]	0.0039	0.00068	0.00030	mg/kg	SW846 8081B
4,4'-DDD [a]	0.0028	0.00068	0.00044	mg/kg	SW846 8081B
4,4'-DDE [a]	0.0089	0.00068	0.00036	mg/kg	SW846 8081B
4,4'-DDT [c]	0.0582	0.0034	0.0020	mg/kg	SW846 8081B
Heptachlor epoxide	0.00081	0.00068	0.00037	mg/kg	SW846 8081B
Aroclor 1260	0.0512	0.034	0.014	mg/kg	SW846 8082A
Aluminum	2390	53		mg/kg	SW846 6010C
Arsenic	4.9	2.1		mg/kg	SW846 6010C
Calcium	2610	530		mg/kg	SW846 6010C
Chromium	7.5	1.1		mg/kg	SW846 6010C
Copper	20.4	2.6		mg/kg	SW846 6010C
Iron	9430	53		mg/kg	SW846 6010C
Lead	82.7	2.1		mg/kg	SW846 6010C
Magnesium	1850	530		mg/kg	SW846 6010C
Manganese	102	1.6		mg/kg	SW846 6010C
Nickel	8.7	4.2		mg/kg	SW846 6010C
Silver	0.84	0.53		mg/kg	SW846 6010C
Vanadium	9.7	5.3		mg/kg	SW846 6010C
Zinc	69.6	5.3		mg/kg	SW846 6010C
JC30810-3A SB07-161031					
Corrosivity as pH	8.03 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93

(a) More than 40 % RPD for detected concentrations between the two GC columns.
(b) Reported from 1st signal. %D of check on 2nd signal excess method criteria (20 %) so using for confirmation only. More than 40% RPD for detected concentrations between the two GC columns.
(c) Reported from 1st signal. %D of check on 2nd signal excess method criteria (20 %) so using for confirmation only.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C133008.D	1	11/12/16	PS	11/01/16 10:00	n/a	V3C6066
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0377	0.010	0.0052	mg/kg	
71-43-2	Benzene	ND	0.00052	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0052	0.00033	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0052	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0052	0.00051	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0052	0.00045	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0052	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00057	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0021	0.00051	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00025	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0052	0.00057	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00020	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00046	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00032	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0052	0.00051	mg/kg	
591-78-6	2-Hexanone	ND	0.0052	0.0015	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0052	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00053	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00028	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0052	0.00089	mg/kg	
75-09-2	Methylene chloride	0.0017	0.0052	0.0010	mg/kg	J
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.026	0.0032	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00029	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0052	0.00024	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0052	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00034	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0052	0.00066	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0010	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	106%		77-125%
460-00-4	4-Bromofluorobenzene	93%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M129104.D	1	11/09/16	CS	11/02/16	OP98236	EM5507
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.070	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.062	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.070	0.022	mg/kg	
	3&4-Methylphenol	ND	0.070	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.093	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.070	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.021	mg/kg	
83-32-9	Acenaphthene	0.0237	0.035	0.012	mg/kg	J
208-96-8	Acenaphthylene	0.125	0.035	0.018	mg/kg	
98-86-2	Acetophenone	0.0321	0.17	0.0075	mg/kg	J
120-12-7	Anthracene	0.168	0.035	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.070	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.370	0.035	0.0098	mg/kg	
50-32-8	Benzo(a)pyrene	0.327	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.660	0.035	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.231	0.035	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.226	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.070	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	0.0724	0.070	0.0085	mg/kg	
92-52-4	1,1'-Biphenyl	0.0480	0.070	0.0048	mg/kg	J
100-52-7	Benzaldehyde	0.135	0.17	0.0086	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.070	0.0083	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.013	mg/kg	
86-74-8	Carbazole	0.0621	0.070	0.0050	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.070	0.014	mg/kg	
218-01-9	Chrysene	0.595	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.070	0.0074	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.070	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.070	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.070	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.070	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0861	0.035	0.015	mg/kg	
132-64-9	Dibenzofuran	0.100	0.070	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.070	0.0057	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.070	0.0087	mg/kg	
84-66-2	Diethyl phthalate	ND	0.070	0.0074	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.070	0.0062	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0422	0.070	0.0081	mg/kg	J
206-44-0	Fluoranthene	0.858	0.035	0.016	mg/kg	
86-73-7	Fluorene	0.0371	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.070	0.0088	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.298	0.035	0.016	mg/kg	
78-59-1	Isophorone	ND	0.070	0.0074	mg/kg	
91-57-6	2-Methylnaphthalene	0.234	0.070	0.0079	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0082	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0087	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0090	mg/kg	
91-20-3	Naphthalene	0.185	0.035	0.0098	mg/kg	
98-95-3	Nitrobenzene	ND	0.070	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.070	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.537	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.713	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0088	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	70%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	70%		30-106%
118-79-6	2,4,6-Tribromophenol	102%		24-140%
4165-60-0	Nitrobenzene-d5	72%		26-122%
321-60-8	2-Fluorobiphenyl	78%		36-112%
1718-51-0	Terphenyl-d14	87%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129563.D	1	11/15/16	KD	11/02/16	OP98243	G1G4141
Run #2 [a]	1G129614.D	5	11/16/16	KD	11/02/16	OP98243	G1G4142

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2	15.0 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00070	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00070	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00070	0.00044	mg/kg	
319-86-8	delta-BHC	ND	0.00070	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00070	0.00031	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00070	0.00033	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00070	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00070	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00070	0.00045	mg/kg	
72-55-9	4,4'-DDE [b]	0.0026	0.00070	0.00036	mg/kg	
50-29-3	4,4'-DDT [c]	0.0181	0.00070	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00070	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00070	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00070	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00070	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00070	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00070	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00070	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00070	0.00054	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	60%	72%	24-136%
877-09-8	Tetrachloro-m-xylene	58%	70%	24-136%
2051-24-3	Decachlorobiphenyl	63%	67%	10-153%
2051-24-3	Decachlorobiphenyl	86%	71%	10-153%

(a) Confirmation run.
(b) More than 40 % RPD for detected concentrations between the two GC columns.
(c) Reported from 1st signal. %D of check on 2nd signal excess method criteria (20 %) so using for confirmation

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q

only. More than 40% RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64429.D	1	11/02/16	RK	11/02/16	OP98242	G5G1496
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	70%		20-152%
877-09-8	Tetrachloro-m-xylene	65%		20-152%
2051-24-3	Decachlorobiphenyl	61%		12-157%
2051-24-3	Decachlorobiphenyl	90%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	95.8
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3930	50	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.0	2.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Arsenic	5.6	2.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Barium	35.4	20	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.25	0.20	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.50	0.50	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Calcium	787	500	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Chromium	12.9	0.99	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.0	5.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Copper	37.0	2.5	mg/kg	1	11/03/16	11/07/16	AB	SW846 6010C [3]	SW846 3050B [4]
Iron	9290	50	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Lead	95.1	2.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Magnesium	850	500	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Manganese	128	1.5	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.058	0.032	mg/kg	1	11/03/16	11/03/16	JPM	SW846 7471B [1]	SW846 7471B [5]
Nickel	12.1	4.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 990	990	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.0	2.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Silver	1.0	0.50	mg/kg	1	11/03/16	11/07/16	AB	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 990	990	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 0.99	0.99	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Vanadium	11.6	5.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Zinc	81.5	5.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40681
(2) Instrument QC Batch: MA40702
(3) Instrument QC Batch: MA40715
(4) Prep QC Batch: MP96940
(5) Prep QC Batch: MP96944

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	95.8
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.22	0.22	mg/kg	1	11/06/16 10:03	YZ	SW846 9012B/LACHAT
Solids, Percent	95.8		%	1	11/03/16 17:12	RI	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131855.D	5	11/02/16	HA	11/01/16	GP1159	V3B5873
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		76-120%
17060-07-0	1,2-Dichloroethane-D4	115%		64-135%
2037-26-5	Toluene-D8	96%		76-117%
460-00-4	4-Bromofluorobenzene	92%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31585.D	1	11/05/16	SB	11/04/16	OP98302	E6P1468
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	45%		14-88%
4165-62-2	Phenol-d5	30%		10-110%
118-79-6	2,4,6-Tribromophenol	89%		39-149%
4165-60-0	Nitrobenzene-d5	72%		32-128%
321-60-8	2-Fluorobiphenyl	62%		35-119%
1718-51-0	Terphenyl-d14	96%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104132.D	1	11/09/16	VDT	11/04/16	OP98308	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	96%		50-142%
19719-28-9	2,4-DCAA	99%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74756.D	1	11/10/16	KD	11/04/16	OP98305	G4G1947
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		30-137%
877-09-8	Tetrachloro-m-xylene	92%		30-137%
2051-24-3	Decachlorobiphenyl	67%		10-137%
2051-24-3	Decachlorobiphenyl	70%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	95.8
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/02/16	11/02/16	MS	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40674
(2) Instrument QC Batch: MA40688
(3) Prep QC Batch: MP96938
(4) Prep QC Batch: MP96939

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB03-161031		
Lab Sample ID:	JC30810-1A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	95.8
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.09 NC		su	1	11/09/16 17:52	PO	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/04/16 12:31	MP	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/08/16 22:00	CB	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/04/16 16:43	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C133009.D	1	11/12/16	PS	11/01/16 10:00	n/a	V3C6066
Run #2							

	Initial Weight
Run #1	4.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0055	mg/kg	
71-43-2	Benzene	ND	0.00055	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0055	0.00035	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0022	0.00017	mg/kg	
75-25-2	Bromoform	ND	0.0055	0.00029	mg/kg	
74-83-9	Bromomethane	ND	0.0055	0.00054	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0019	mg/kg	
75-15-0	Carbon disulfide	ND	0.0022	0.00019	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0022	0.00018	mg/kg	
108-90-7	Chlorobenzene	ND	0.0022	0.00018	mg/kg	
75-00-3	Chloroethane	ND	0.0055	0.00047	mg/kg	
67-66-3	Chloroform	ND	0.0022	0.00026	mg/kg	
74-87-3	Chloromethane	ND	0.0055	0.00023	mg/kg	
110-82-7	Cyclohexane	ND	0.0022	0.00060	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0022	0.00054	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0022	0.00017	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00027	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00019	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00017	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0055	0.00060	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00019	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00048	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00017	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0022	0.00034	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0022	0.00022	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0022	0.00024	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0055	0.00054	mg/kg	
591-78-6	2-Hexanone	ND	0.0055	0.0015	mg/kg	

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0022	0.00017	mg/kg	
79-20-9	Methyl Acetate	ND	0.0055	0.0022	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0022	0.00056	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00029	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0055	0.00094	mg/kg	
75-09-2	Methylene chloride	0.0028	0.0055	0.0011	mg/kg	J
100-42-5	Styrene	ND	0.0022	0.00016	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.028	0.0034	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0022	0.00026	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0022	0.00031	mg/kg	
108-88-3	Toluene	0.00024	0.0011	0.00014	mg/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	0.0055	0.00025	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0055	0.00020	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0022	0.00018	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0022	0.00036	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00021	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0055	0.00070	mg/kg	
75-01-4	Vinyl chloride	ND	0.0022	0.00022	mg/kg	
	m,p-Xylene	ND	0.0011	0.00024	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00022	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	104%		77-125%
460-00-4	4-Bromofluorobenzene	95%		72-130%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M129014.D	1	11/06/16	KLS	11/02/16	OP98236	EM5503
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.070	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.070	0.022	mg/kg	
	3&4-Methylphenol	ND	0.070	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.070	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	ND	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	ND	0.035	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.070	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0165	0.035	0.0099	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0177	0.035	0.016	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0201	0.035	0.016	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.070	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.070	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.070	0.0048	mg/kg	
100-52-7	Benzaldehyde	ND	0.18	0.0087	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.070	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	ND	0.070	0.0051	mg/kg	

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Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.070	0.014	mg/kg	
218-01-9	Chrysene	ND	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.070	0.0075	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.070	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.070	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.070	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.070	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.035	0.016	mg/kg	
132-64-9	Dibenzofuran	ND	0.070	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.070	0.0057	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.070	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.070	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.070	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.070	0.0082	mg/kg	
206-44-0	Fluoranthene	ND	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.070	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0197	0.035	0.016	mg/kg	J
78-59-1	Isophorone	ND	0.070	0.0075	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.070	0.0079	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0091	mg/kg	
91-20-3	Naphthalene	ND	0.035	0.0099	mg/kg	
98-95-3	Nitrobenzene	ND	0.070	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.070	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	ND	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.0170	0.035	0.011	mg/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0089	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	79%		30-106%

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Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		30-106%
118-79-6	2,4,6-Tribromophenol	98%		24-140%
4165-60-0	Nitrobenzene-d5	82%		26-122%
321-60-8	2-Fluorobiphenyl	82%		36-112%
1718-51-0	Terphenyl-d14	109%		36-132%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129564.D	1	11/15/16	KD	11/02/16	OP98243	G1G4141
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00069	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00069	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00069	0.00044	mg/kg	
319-86-8	delta-BHC	ND	0.00069	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00069	0.00031	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00069	0.00033	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00069	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00069	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00069	0.00044	mg/kg	
72-55-9	4,4'-DDE	ND	0.00069	0.00036	mg/kg	
50-29-3	4,4'-DDT	ND	0.00069	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00069	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00069	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00069	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00069	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00069	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00069	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00069	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00069	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		24-136%
877-09-8	Tetrachloro-m-xylene	86%		24-136%
2051-24-3	Decachlorobiphenyl	85%		10-153%
2051-24-3	Decachlorobiphenyl	74%		10-153%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64430.D	1	11/03/16	RK	11/02/16	OP98242	G5G1496
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	114%		20-152%
877-09-8	Tetrachloro-m-xylene	106%		20-152%
2051-24-3	Decachlorobiphenyl	94%		12-157%
2051-24-3	Decachlorobiphenyl	96%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1950	52	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Arsenic	< 2.1	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Barium	< 21	21	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Beryllium	< 0.21	0.21	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.52	0.52	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Calcium	< 520	520	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Chromium	4.8	1.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.2	5.2	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Copper	5.6	2.6	mg/kg	1	11/03/16	11/07/16	AB	SW846 6010C [3]	SW846 3050B [4]
Iron	4390	52	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Lead	4.6	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Magnesium	631	520	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Manganese	59.6	1.6	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Mercury	< 0.035	0.035	mg/kg	1	11/03/16	11/03/16	JPM	SW846 7471B [1]	SW846 7471B [5]
Nickel	7.2	4.2	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Silver	0.57	0.52	mg/kg	1	11/03/16	11/07/16	AB	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.0	1.0	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Vanadium	5.4	5.2	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Zinc	16.1	5.2	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40681
(2) Instrument QC Batch: MA40702
(3) Instrument QC Batch: MA40715
(4) Prep QC Batch: MP96940
(5) Prep QC Batch: MP96944

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.23	0.23	mg/kg	1	11/06/16 10:04	YZ	SW846 9012B/LACHAT
Solids, Percent	94.2		%	1	11/03/16 17:12	RI	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131862.D	5	11/02/16	HA	11/01/16	GP1159	V3B5873
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		76-120%
17060-07-0	1,2-Dichloroethane-D4	114%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	90%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31586.D	1	11/05/16	SB	11/04/16	OP98302	E6P1468
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		14-88%
4165-62-2	Phenol-d5	33%		10-110%
118-79-6	2,4,6-Tribromophenol	107%		39-149%
4165-60-0	Nitrobenzene-d5	89%		32-128%
321-60-8	2-Fluorobiphenyl	78%		35-119%
1718-51-0	Terphenyl-d14	112%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104133.D	1	11/09/16	VDT	11/04/16	OP98308	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	94%		50-142%
19719-28-9	2,4-DCAA	105%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	94.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74757.D	1	11/10/16	KD	11/04/16	OP98305	G4G1947
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		30-137%
877-09-8	Tetrachloro-m-xylene	84%		30-137%
2051-24-3	Decachlorobiphenyl	69%		10-137%
2051-24-3	Decachlorobiphenyl	71%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/02/16	11/02/16	MS	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40674
(2) Instrument QC Batch: MA40688
(3) Prep QC Batch: MP96938
(4) Prep QC Batch: MP96939

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB06-161031		
Lab Sample ID:	JC30810-2A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	8.13 NC		su	1	11/09/16 17:52	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/04/16 12:32	MP	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/08/16 22:00	CB	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/04/16 16:43	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C133010.D	1	11/12/16	PS	11/01/16 10:00	n/a	V3C6066
Run #2							

	Initial Weight
Run #1	5.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0052	mg/kg	
71-43-2	Benzene	ND	0.00052	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0052	0.00033	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0052	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0052	0.00050	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0052	0.00045	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0052	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00057	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0021	0.00050	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00025	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0052	0.00057	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00045	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00032	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0052	0.00050	mg/kg	
591-78-6	2-Hexanone	ND	0.0052	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0052	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00052	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00028	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0052	0.00088	mg/kg	
75-09-2	Methylene chloride	0.0022	0.0052	0.0010	mg/kg	J
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.026	0.0032	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00029	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0052	0.00023	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0052	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00034	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0052	0.00065	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0010	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	115%		68-124%
2037-26-5	Toluene-D8	104%		77-125%
460-00-4	4-Bromofluorobenzene	98%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M129015.D	1	11/06/16	KLS	11/02/16	OP98236	EM5503
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.069	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.069	0.022	mg/kg	
	3&4-Methylphenol	ND	0.069	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.092	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.069	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0425	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0074	mg/kg	
120-12-7	Anthracene	0.0580	0.035	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.069	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0845	0.035	0.0098	mg/kg	
50-32-8	Benzo(a)pyrene	0.102	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.203	0.035	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.109	0.035	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0633	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.069	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.069	0.0084	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.069	0.0047	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0086	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.069	0.0082	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0319	0.069	0.0050	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.069	0.014	mg/kg	
218-01-9	Chrysene	0.153	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.069	0.0074	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.069	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.069	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.069	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.069	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0287	0.035	0.015	mg/kg	J
132-64-9	Dibenzofuran	ND	0.069	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.069	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.069	0.0086	mg/kg	
84-66-2	Diethyl phthalate	ND	0.069	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.069	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.069	0.0081	mg/kg	
206-44-0	Fluoranthene	0.241	0.035	0.015	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.069	0.0087	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.117	0.035	0.016	mg/kg	
78-59-1	Isophorone	ND	0.069	0.0074	mg/kg	
91-57-6	2-Methylnaphthalene	0.0230	0.069	0.0078	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0081	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0086	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0089	mg/kg	
91-20-3	Naphthalene	0.0163	0.035	0.0097	mg/kg	J
98-95-3	Nitrobenzene	ND	0.069	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.069	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.0783	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.252	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0088	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	71%		30-106%
118-79-6	2,4,6-Tribromophenol	86%		24-140%
4165-60-0	Nitrobenzene-d5	79%		26-122%
321-60-8	2-Fluorobiphenyl	80%		36-112%
1718-51-0	Terphenyl-d14	93%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129565.D	1	11/15/16	KD	11/02/16	OP98243	G1G4141
Run #2	1G129566.D	5	11/15/16	KD	11/02/16	OP98243	G1G4141

	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2	15.5 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00068	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00068	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00068	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00068	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00068	0.00030	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0069	0.00068	0.00032	mg/kg	
5103-74-2	gamma-Chlordane [a]	0.0039	0.00068	0.00030	mg/kg	
60-57-1	Dieldrin	ND	0.00068	0.00034	mg/kg	
72-54-8	4,4'-DDD [a]	0.0028	0.00068	0.00044	mg/kg	
72-55-9	4,4'-DDE [a]	0.0089	0.00068	0.00036	mg/kg	
50-29-3	4,4'-DDT [b]	0.0582 [c]	0.0034	0.0020	mg/kg	
72-20-8	Endrin	ND	0.00068	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00068	0.00027	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00068	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00068	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00068	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00068	0.00033	mg/kg	
1024-57-3	Heptachlor epoxide	0.00081	0.00068	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00034	mg/kg	
53494-70-5	Endrin ketone	ND	0.00068	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0071	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%	98%	24-136%
877-09-8	Tetrachloro-m-xylene	82%	87%	24-136%
2051-24-3	Decachlorobiphenyl	73%	81%	10-153%
2051-24-3	Decachlorobiphenyl	85%	101%	10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.
(b) Reported from 1st signal. %D of check on 2nd signal excess method criteria (20 %) so using for confirmation only.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q

(c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64431.D	1	11/03/16	RK	11/02/16	OP98242	G5G1496
Run #2							

	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.034	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.034	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.034	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.034	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.034	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.034	0.017	mg/kg	
11096-82-5	Aroclor 1260	0.0512	0.034	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.034	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.034	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	118%		20-152%
877-09-8	Tetrachloro-m-xylene	115%		20-152%
2051-24-3	Decachlorobiphenyl	79%		12-157%
2051-24-3	Decachlorobiphenyl	117%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.4
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2390	53	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Arsenic	4.9	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Barium	< 21	21	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Beryllium	< 0.21	0.21	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Calcium	2610	530	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Chromium	7.5	1.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Copper	20.4	2.6	mg/kg	1	11/03/16	11/07/16	AB	SW846 6010C [3]	SW846 3050B [4]
Iron	9430	53	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Lead	82.7	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Magnesium	1850	530	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Manganese	102	1.6	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Mercury	< 0.035	0.035	mg/kg	1	11/03/16	11/03/16	JPM	SW846 7471B [1]	SW846 7471B [5]
Nickel	8.7	4.2	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Silver	0.84	0.53	mg/kg	1	11/03/16	11/07/16	AB	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Vanadium	9.7	5.3	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]
Zinc	69.6	5.3	mg/kg	1	11/03/16	11/05/16	AB	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40681
(2) Instrument QC Batch: MA40702
(3) Instrument QC Batch: MA40715
(4) Prep QC Batch: MP96940
(5) Prep QC Batch: MP96944

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.4
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.22	0.22	mg/kg	1	11/06/16 10:05	YZ	SW846 9012B/LACHAT
Solids, Percent	94.4		%	1	11/03/16 17:12	RI	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131863.D	5	11/03/16	HA	11/01/16	GP1159	V3B5873
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		76-120%
17060-07-0	1,2-Dichloroethane-D4	116%		64-135%
2037-26-5	Toluene-D8	96%		76-117%
460-00-4	4-Bromofluorobenzene	90%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31587.D	1	11/05/16	SB	11/04/16	OP98302	E6P1468
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		14-88%
4165-62-2	Phenol-d5	37%		10-110%
118-79-6	2,4,6-Tribromophenol	112%		39-149%
4165-60-0	Nitrobenzene-d5	94%		32-128%
321-60-8	2-Fluorobiphenyl	81%		35-119%
1718-51-0	Terphenyl-d14	108%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104134.D	1	11/09/16	VDT	11/04/16	OP98308	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	99%		50-142%
19719-28-9	2,4-DCAA	98%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	94.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74758.D	1	11/10/16	KD	11/04/16	OP98305	G4G1947
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	109%		30-137%
877-09-8	Tetrachloro-m-xylene	103%		30-137%
2051-24-3	Decachlorobiphenyl	96%		10-137%
2051-24-3	Decachlorobiphenyl	98%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.4
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/02/16	11/02/16	MS	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/02/16	11/04/16	ND	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40674
(2) Instrument QC Batch: MA40688
(3) Prep QC Batch: MP96938
(4) Prep QC Batch: MP96939

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB07-161031		
Lab Sample ID:	JC30810-3A	**Date Sampled:**	10/31/16
Matrix:	SO - Soil	**Date Received:**	10/31/16
		Percent Solids:	94.4
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	8.03 NC		su	1	11/09/16 17:52	PO	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/04/16 12:33	MP	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/08/16 22:00	CB	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/04/16 16:43	MP	SW846 CHAP7/9034

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Parameter Certification Exceptions

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Cyanide Reactivity		**SW846 CHAP7/9012 B**	SO	Accutest is not certified for this parameter.[a]
Sulfide Reactivity		**SW846 CHAP7/9034**	SO	Accutest is not certified for this parameter.[a]

(a) Reactivity analyzed following SW846 Chapter 7 is no longer recognized by regulatory agencies. Use of results should be verified through the program to which the data is being submitted.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

SGS ACCUTEST

SCC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC30810

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City: Florham Park State: NJ Zip: 07932
Project Contact: Brian Crespi E-mail: bcrespi@matrix-nwe.com
Phone #: 212 324 4251
Sampler(s) Name(s): M. Cleland + B. Crespi. Phone #:

Project Information

Project Name: L1RR Expansion
Street:
City: Long Island State: New York
Project #: 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (Full)	TCLP (Full)	RCRA char.	Dioxin		3x5 Gams Encores Recd 10/31/16						LAB USE ONLY
1	SB03-161031		10/31/16	1105	MC	S	7					4			3	X	X	X	X								C63
2	SB08-161031		10/31/16	1305	MC	S	7					4			3	X	X	X	X								4L2
3	SB07-161031		10/31/16	1415	MC	S	7					4			3	X	X	X	X								P22
																											14B2
																											4086
																											SUB

INITIAL ASESSMENT 3B
LABEL VERIFICATION

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice.

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	10/31/16 1509	1 Chris Lau	2 Chris Lau	10/31/16 1530	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 330 [x] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [x] Cooler Temp. 2.1°C

JC30810: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC30810 **Client:** **Project:**

Date / Time Received: 10/31/2016 6:30:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.1);

Cooler Temps (Corrected) °C: Cooler 1: (3.0);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30810

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30810-1 Collected: 31-OCT-16 11:05 By: MC Received: 31-OCT-16 By: AS SB03-161031						
JC30810-1	SW846 8082A	02-NOV-16 23:46	RK	02-NOV-16	FN	P8082PCB11AO
JC30810-1	SW846 7471B	03-NOV-16 12:07	JPM	03-NOV-16	JPM	HG
JC30810-1	SM2540 G-97	03-NOV-16 17:12	RI			SOL104
JC30810-1	SW846 6010C	05-NOV-16 01:51	AB	03-NOV-16	JA	AL,AS,BA,BE,CA,CD,CO,CR,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30810-1	SW846 9012B/LACHAT	06-NOV-16 10:03	YZ	05-NOV-16	HS	CN
JC30810-1	SW846 6010C	07-NOV-16 12:27	AB	03-NOV-16	JA	AG,CU
JC30810-1	SW846 8270D	09-NOV-16 20:57	CS	02-NOV-16	FN	AB8270TCL20
JC30810-1	SW846 8260C	12-NOV-16 12:38	PS			V8260TCL20
JC30810-1	SW846 8081B	15-NOV-16 12:47	KD	02-NOV-16	FN	P8081PESTTCL
JC30810-1	SW846 8081B	16-NOV-16 12:19	KD	02-NOV-16	FN	P8081PESTTCL
JC30810-2 Collected: 31-OCT-16 13:05 By: MC Received: 31-OCT-16 By: AS SB06-161031						
JC30810-2	SW846 8082A	03-NOV-16 00:04	RK	02-NOV-16	FN	P8082PCB11AO
JC30810-2	SW846 7471B	03-NOV-16 12:08	JPM	03-NOV-16	JPM	HG
JC30810-2	SM2540 G-97	03-NOV-16 17:12	RI			SOL104
JC30810-2	SW846 6010C	05-NOV-16 01:57	AB	03-NOV-16	JA	AL,AS,BA,BE,CA,CD,CO,CR,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30810-2	SW846 9012B/LACHAT	06-NOV-16 10:04	YZ	05-NOV-16	HS	CN
JC30810-2	SW846 8270D	06-NOV-16 20:14	KLS	02-NOV-16	FN	AB8270TCL20
JC30810-2	SW846 6010C	07-NOV-16 12:45	AB	03-NOV-16	JA	AG,CU
JC30810-2	SW846 8260C	12-NOV-16 13:06	PS			V8260TCL20
JC30810-2	SW846 8081B	15-NOV-16 13:04	KD	02-NOV-16	FN	P8081PESTTCL
JC30810-3 Collected: 31-OCT-16 14:15 By: MC Received: 31-OCT-16 By: AS SB07-161031						
JC30810-3	SW846 8082A	03-NOV-16 00:22	RK	02-NOV-16	FN	P8082PCB11AO
JC30810-3	SW846 7471B	03-NOV-16 12:10	JPM	03-NOV-16	JPM	HG
JC30810-3	SM2540 G-97	03-NOV-16 17:12	RI			SOL104
JC30810-3	SW846 6010C	05-NOV-16 02:03	AB	03-NOV-16	JA	AL,AS,BA,BE,CA,CD,CO,CR,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30810

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30810-3	SW846 9012B/LACHAT	06-NOV-16 10:05	YZ	05-NOV-16	HS	CN
JC30810-3	SW846 8270D	06-NOV-16 20:43	KLS	02-NOV-16	FN	AB8270TCL20
JC30810-3	SW846 6010C	07-NOV-16 12:51	AB	03-NOV-16	JA	AG,CU
JC30810-3	SW846 8260C	12-NOV-16 13:34	PS			V8260TCL20
JC30810-3	SW846 8081B	15-NOV-16 13:20	KD	02-NOV-16	FN	P8081PESTTCL
JC30810-3	SW846 8081B	15-NOV-16 13:37	KD	02-NOV-16	FN	P8081PESTTCL
JC30810-1A	Collected: 31-OCT-16 11:05 By: MC		Received: 31-OCT-16 By: AS			
SB03-161031						
JC30810-1A	SW846 7470A	02-NOV-16 14:31	MS	02-NOV-16	MS	EHG
JC30810-1A	SW846 8260C	02-NOV-16 20:15	HA	01-NOV-16	MS	V8260TCLP
JC30810-1A	SW846 6010C	04-NOV-16 01:03	ND	02-NOV-16	RM	EAS,EBA,ECD,ECR,EPB,ESE
JC30810-1A	SW846 CHAP7/9012 B	04-NOV-16 12:31	MP	03-NOV-16	CD	CREAC
JC30810-1A	SW846 CHAP7/9034	04-NOV-16 16:43	MP	03-NOV-16	CD	SREAC
JC30810-1A	SW846 8270D	05-NOV-16 03:09	SB	04-NOV-16	NG	AB8270TCLP
JC30810-1A	SW846 1010A/ASTM D93	08-NOV-16 22:00	CB			IGN
JC30810-1A	SW846 8151	09-NOV-16 02:13	VDT	04-NOV-16	GM	H8151TCLP
JC30810-1A	SW846 9045D	09-NOV-16 17:52	PO			CORR
JC30810-1A	SW846 8081B	10-NOV-16 18:26	KD	04-NOV-16	SS	P8081TCLP
JC30810-2A	Collected: 31-OCT-16 13:05 By: MC		Received: 31-OCT-16 By: AS			
SB06-161031						
JC30810-2A	SW846 7470A	02-NOV-16 14:33	MS	02-NOV-16	MS	EHG
JC30810-2A	SW846 8260C	02-NOV-16 23:47	HA	01-NOV-16	MS	V8260TCLP
JC30810-2A	SW846 6010C	04-NOV-16 01:10	ND	02-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30810-2A	SW846 CHAP7/9012 B	04-NOV-16 12:32	MP	03-NOV-16	CD	CREAC
JC30810-2A	SW846 CHAP7/9034	04-NOV-16 16:43	MP	03-NOV-16	CD	SREAC
JC30810-2A	SW846 8270D	05-NOV-16 03:32	SB	04-NOV-16	NG	AB8270TCLP
JC30810-2A	SW846 1010A/ASTM D93	08-NOV-16 22:00	CB			IGN
JC30810-2A	SW846 8151	09-NOV-16 02:44	VDT	04-NOV-16	GM	H8151TCLP
JC30810-2A	SW846 9045D	09-NOV-16 17:52	PO			CORR
JC30810-2A	SW846 8081B	10-NOV-16 18:41	KD	04-NOV-16	SS	P8081TCLP
JC30810-3A	Collected: 31-OCT-16 14:15 By: MC		Received: 31-OCT-16 By: AS			
SB07-161031						
JC30810-3A	SW846 7470A	02-NOV-16 14:34	MS	02-NOV-16	MS	EHG
JC30810-3A	SW846 8260C	03-NOV-16 00:17	HA	01-NOV-16	MS	V8260TCLP

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30810

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30810-3A	SW846 6010C	04-NOV-16 01:16	ND	02-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30810-3A	SW846 CHAP7/9012 B	04-NOV-16 12:33	MP	03-NOV-16	CD	CREAC
JC30810-3A	SW846 CHAP7/9034	04-NOV-16 16:43	MP	03-NOV-16	CD	SREAC
JC30810-3A	SW846 8270D	05-NOV-16 03:56	SB	04-NOV-16	NG	AB8270TCLP
JC30810-3A	SW846 1010A/ASTM D93	08-NOV-16 22:00	CB			IGN
JC30810-3A	SW846 8151	09-NOV-16 03:15	VDT	04-NOV-16	GM	H8151TCLP
JC30810-3A	SW846 9045D	09-NOV-16 17:52	PO			CORR
JC30810-3A	SW846 8081B	10-NOV-16 18:55	KD	04-NOV-16	SS	P8081TCLP

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-1.1	Secured Storage	Luis Villanueva	11/01/16 09:39	Retrieve from Storage
JC30810-1.1	Luis Villanueva	Secured Staging Area	11/01/16 09:39	Return to Storage
JC30810-1.1	Secured Staging Area	Mark Setaro	11/01/16 13:04	Retrieve from Storage
JC30810-1.1	Mark Setaro	Secured Storage	11/01/16 17:16	Return to Storage
JC30810-1.1	Secured Storage	Vikas Parikh	11/02/16 04:47	Retrieve from Storage
JC30810-1.1	Vikas Parikh	Steven Zarchy	11/02/16 06:29	Custody Transfer
JC30810-1.1	Steven Zarchy	Secured Storage	11/02/16 13:54	Return to Storage
JC30810-1.1	Secured Storage	Jessica Adametz	11/03/16 07:05	Retrieve from Storage
JC30810-1.1	Jessica Adametz	Secured Storage	11/03/16 12:28	Return to Storage
JC30810-1.1	Secured Storage	Edwin Gonzalez	11/03/16 14:53	Retrieve from Storage
JC30810-1.1	Edwin Gonzalez	Secured Staging Area	11/03/16 14:53	Return to Storage
JC30810-1.1	Secured Staging Area	Chris Brunson	11/03/16 23:42	Retrieve from Storage
JC30810-1.1	Chris Brunson	Secured Storage	11/03/16 23:42	Return to Storage
JC30810-1.1	Secured Storage	Todd Shoemaker	11/08/16 16:38	Retrieve from Storage
JC30810-1.1	Todd Shoemaker	Secured Staging Area	11/08/16 16:39	Return to Storage
JC30810-1.1	Secured Staging Area	Chris Brunson	11/08/16 20:19	Retrieve from Storage
JC30810-1.1	Chris Brunson	Secured Storage	11/08/16 20:19	Return to Storage
JC30810-1.1.1	Mark Setaro	TCLP	11/01/16 17:16	Leachate from JC30810-1.1
JC30810-1.1.1	TCLP	Mark Setaro	11/02/16 08:09	Leachate from JC30810-1.1
JC30810-1.1.1	Mark Setaro	Secured Storage	11/02/16 16:42	Return to Storage
JC30810-1.1.2	Vikas Parikh	Organics Prep	11/02/16 04:58	Extract from JC30810-1.1
JC30810-1.1.2	Organics Prep	Albert Quayson	11/02/16 14:20	Extract from JC30810-1.1
JC30810-1.1.2	Albert Quayson	Extract Storage	11/02/16 14:20	Return to Storage
JC30810-1.1.2	Extract Storage	Kristi Schollenberger	11/06/16 13:03	Retrieve from Storage
JC30810-1.1.2	Kristi Schollenberger	GCMSM	11/06/16 13:03	Load on Instrument
JC30810-1.1.2	GCMSM	Kristi Schollenberger	11/13/16 13:36	Unload from Instrument
JC30810-1.1.2	Kristi Schollenberger	Extract Freezer	11/13/16 13:36	Return to Storage
JC30810-1.1.3	Vikas Parikh	Organics Prep	11/02/16 05:00	Extract from JC30810-1.1
JC30810-1.1.3	Organics Prep	Finley Nyaata	11/02/16 16:55	Extract from JC30810-1.1
JC30810-1.1.3	Finley Nyaata	Extract Storage	11/02/16 16:57	Return to Storage
JC30810-1.1.3	Extract Storage	William Gonzalez	11/02/16 18:44	Retrieve from Storage
JC30810-1.1.3	William Gonzalez	GC5G	11/02/16 18:44	Load on Instrument
JC30810-1.1.3	GC5G	William Gonzalez	11/03/16 12:27	Unload from Instrument
JC30810-1.1.3	William Gonzalez	Extract Freezer	11/03/16 12:27	Return to Storage
JC30810-1.1.4	Vikas Parikh	Organics Prep	11/02/16 05:02	Extract from JC30810-1.1
JC30810-1.1.4	Organics Prep	Finley Nyaata	11/02/16 16:58	Extract from JC30810-1.1
JC30810-1.1.4	Finley Nyaata	Extract Storage	11/02/16 16:58	Return to Storage
JC30810-1.1.4	Extract Storage	Kristen Drake	11/11/16 15:57	Retrieve from Storage
JC30810-1.1.4	Kristen Drake	GC6G	11/11/16 15:57	Load on Instrument
JC30810-1.1.4	GC6G	Rebecca Krug	11/16/16 10:44	Unload from Instrument

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-1.1.4	Rebecca Krug	Extract Freezer	11/16/16 10:44	Return to Storage
JC30810-1.1.5	Jessica Adametz	Metals Digestion	11/03/16 09:01	Digestate from JC30810-1.1
JC30810-1.1.5	Metals Digestion	Jessica Adametz	11/03/16 09:04	Digestate from JC30810-1.1
JC30810-1.1.5	Jessica Adametz	Metals Digestate Storage	11/03/16 09:04	Return to Storage
JC30810-1.2	Secured Storage	Luis Villanueva	11/01/16 09:39	Retrieve from Storage
JC30810-1.2	Luis Villanueva	Secured Staging Area	11/01/16 09:39	Return to Storage
JC30810-1.2	Secured Staging Area	Mark Setaro	11/01/16 13:04	Retrieve from Storage
JC30810-1.2	Mark Setaro	Secured Storage	11/01/16 17:16	Return to Storage
JC30810-1.2.1	Mark Setaro	TCLP	11/01/16 17:16	Leachate from JC30810-1.2
JC30810-1.2.1	TCLP	Mark Setaro	11/02/16 08:09	Leachate from JC30810-1.2
JC30810-1.2.1	Mark Setaro	Secured Storage	11/02/16 16:42	Return to Storage
JC30810-1.2.2	Gage Donahue	TCLP	11/02/16 08:40	Leachate from JC30810-1.2
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30810-1.2.2	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-1.2
JC30810-1.2.2	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-1.2.2	Secured Storage	HeeEun Ahn	11/02/16 13:30	Retrieve from Storage
JC30810-1.2.2	HeeEun Ahn	Secured Storage	11/02/16 17:00	Return to Storage
JC30810-1.2.3	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-1.2
JC30810-1.2.3	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-1.2.4	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-1.2
JC30810-1.2.4	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-1.2.4	Secured Storage	Vikas Parikh	11/04/16 05:16	Retrieve from Storage
JC30810-1.2.4	Vikas Parikh	Secured Storage	11/04/16 11:04	Return to Storage
JC30810-1.2.5	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-1.2
JC30810-1.2.5	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-1.2.5	Secured Storage	Martin Serwatka	11/02/16 11:44	Retrieve from Storage
JC30810-1.2.5	Martin Serwatka	Deval Patel	11/02/16 17:12	Custody Transfer
JC30810-1.2.5	Deval Patel	Secured Storage	11/02/16 17:24	Return to Storage
JC30810-1.2.6	Deval Patel	Metals Digestion	11/02/16 17:19	Digestate from JC30810-1.2.5
JC30810-1.2.6	Metals Digestion	Deval Patel	11/02/16 17:19	Digestate from JC30810-1.2.5
JC30810-1.2.6	Deval Patel	Metals Digestate Storage	11/02/16 17:19	Return to Storage
JC30810-1.2.7	Vikas Parikh	Organics Prep	11/04/16 05:23	Extract from JC30810-1.2.4
JC30810-1.2.7	Organics Prep	Greg Mayer	11/04/16 17:48	Extract from JC30810-1.2.4
JC30810-1.2.7	Greg Mayer	Extract Storage	11/04/16 17:48	Return to Storage
JC30810-1.2.7	Extract Storage	Vincent Drago	11/08/16 15:32	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-1.2.7	Vincent Drago	GC3G	11/08/16 15:32	Load on Instrument
JC30810-1.2.7	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30810-1.2.7	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30810-1.2.8	Vikas Parikh	Organics Prep	11/04/16 05:25	Extract from JC30810-1.2.4
JC30810-1.2.8	Organics Prep	Nicholas Goydish	11/04/16 13:17	Extract from JC30810-1.2.4
JC30810-1.2.8	Nicholas Goydish	Extract Storage	11/04/16 13:17	Return to Storage
JC30810-1.2.8	Extract Storage	Sean Block	11/04/16 23:03	Retrieve from Storage
JC30810-1.2.8	Sean Block	GCMS6P	11/04/16 23:03	Load on Instrument
JC30810-1.2.8	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30810-1.2.8	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30810-1.2.9	Vikas Parikh	Organics Prep	11/04/16 05:26	Extract from JC30810-1.2.4
JC30810-1.2.9	Organics Prep	Stephen Seuling	11/04/16 15:58	Extract from JC30810-1.2.4
JC30810-1.2.9	Stephen Seuling	Extract Storage	11/04/16 15:58	Return to Storage
JC30810-1.2.9	Extract Storage	Christine Phillips	11/10/16 17:06	Retrieve from Storage
JC30810-1.2.9	Christine Phillips	GC4G	11/10/16 17:06	Load on Instrument
JC30810-1.3	Secured Storage	Alfredo Crespo	11/03/16 07:44	Retrieve from Storage
JC30810-1.3	Alfredo Crespo	Secured Staging Area	11/03/16 07:44	Return to Storage
JC30810-1.3	Secured Staging Area	James Patrick McIlvaine	11/03/16 07:52	Retrieve from Storage
JC30810-1.3	Secured Storage	Luis Villanueva	11/03/16 13:43	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30810-1.3	Luis Villanueva	Secured Storage	11/03/16 17:14	Return to Storage
JC30810-1.3	Secured Storage	Sahara Feliciano	11/05/16 07:54	Retrieve from Storage
JC30810-1.3	Sahara Feliciano	Secured Staging Area	11/05/16 07:54	Return to Storage
JC30810-1.3	Secured Staging Area	Hans Seignon	11/05/16 08:30	Retrieve from Storage
JC30810-1.3	Hans Seignon	Secured Storage	11/05/16 15:59	Return to Storage
JC30810-1.3	Secured Storage	Alexis Jones	11/07/16 15:09	Retrieve from Storage
JC30810-1.3	Alexis Jones	Secured Storage	11/07/16 16:13	Return to Storage
JC30810-1.4	Secured Storage	Robert Lofrano	11/01/16 15:45	Retrieve from Storage
JC30810-1.4	Robert Lofrano		11/01/16 17:14	Subcontract
JC30810-1.6	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-1.6	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-1.7	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-1.7	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-1.7	Secured Storage	Prashant Shukla	11/12/16 11:56	Retrieve from Storage
JC30810-1.7	Prashant Shukla	GCMS3C	11/12/16 11:56	Load on Instrument
JC30810-1.7	GCMS3C	Prashant Shukla	11/14/16 11:00	Unload from Instrument
JC30810-1.7	Prashant Shukla		11/14/16 11:01	Depleted

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-1.8	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-1.8	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-1.8	Secured Storage	Alexis Jones	11/07/16 16:42	Retrieve from Storage
JC30810-1.8	Alexis Jones	GCMSV	11/07/16 16:43	Load on Instrument
JC30810-1.8	GCMSV	Alexis Jones	11/08/16 08:49	Unload from Instrument
JC30810-1.8	Alexis Jones	Secured Storage	11/08/16 08:51	Return to Storage
JC30810-1.8	Secured Storage	Prashant Shukla	11/12/16 13:12	Retrieve from Storage
JC30810-1.8	Prashant Shukla	GCMS3C	11/12/16 13:12	Load on Instrument
JC30810-1.8	GCMS3C	Prashant Shukla	11/14/16 11:00	Unload from Instrument
JC30810-1.8	Prashant Shukla		11/14/16 11:01	Depleted
JC30810-2.1	Secured Storage	Luis Villanueva	11/01/16 09:39	Retrieve from Storage
JC30810-2.1	Luis Villanueva	Secured Staging Area	11/01/16 09:39	Return to Storage
JC30810-2.1	Secured Staging Area	Mark Setaro	11/01/16 13:04	Retrieve from Storage
JC30810-2.1	Mark Setaro	Secured Storage	11/01/16 17:16	Return to Storage
JC30810-2.1	Secured Storage	Vikas Parikh	11/02/16 04:47	Retrieve from Storage
JC30810-2.1	Vikas Parikh	Steven Zarchy	11/02/16 06:29	Custody Transfer
JC30810-2.1	Steven Zarchy	Secured Storage	11/02/16 13:54	Return to Storage
JC30810-2.1	Secured Storage	Jessica Adametz	11/03/16 07:05	Retrieve from Storage
JC30810-2.1	Jessica Adametz	Secured Storage	11/03/16 12:28	Return to Storage
JC30810-2.1	Secured Storage	Edwin Gonzalez	11/03/16 14:53	Retrieve from Storage
JC30810-2.1	Edwin Gonzalez	Secured Staging Area	11/03/16 14:53	Return to Storage
JC30810-2.1	Secured Staging Area	Chris Brunson	11/03/16 23:42	Retrieve from Storage
JC30810-2.1	Chris Brunson	Secured Storage	11/03/16 23:42	Return to Storage
JC30810-2.1	Secured Storage	Todd Shoemaker	11/08/16 16:38	Retrieve from Storage
JC30810-2.1	Todd Shoemaker	Secured Staging Area	11/08/16 16:39	Return to Storage
JC30810-2.1	Secured Staging Area	Chris Brunson	11/08/16 20:19	Retrieve from Storage
JC30810-2.1	Chris Brunson	Secured Storage	11/08/16 20:19	Return to Storage
JC30810-2.1.1	Mark Setaro	TCLP	11/01/16 17:16	Leachate from JC30810-2.1
JC30810-2.1.1	TCLP	Mark Setaro	11/02/16 08:09	Leachate from JC30810-2.1
JC30810-2.1.1	Mark Setaro	Secured Storage	11/02/16 16:42	Return to Storage
JC30810-2.1.2	Vikas Parikh	Organics Prep	11/02/16 04:58	Extract from JC30810-2.1
JC30810-2.1.2	Organics Prep	Albert Quayson	11/02/16 14:20	Extract from JC30810-2.1
JC30810-2.1.2	Albert Quayson	Extract Storage	11/02/16 14:20	Return to Storage
JC30810-2.1.2	Extract Storage	Kristi Schollenberger	11/06/16 13:03	Retrieve from Storage
JC30810-2.1.2	Kristi Schollenberger	GCMSM	11/06/16 13:03	Load on Instrument
JC30810-2.1.2	GCMSM	Kristi Schollenberger	11/13/16 13:36	Unload from Instrument
JC30810-2.1.2	Kristi Schollenberger	Extract Freezer	11/13/16 13:36	Return to Storage
JC30810-2.1.3	Vikas Parikh	Organics Prep	11/02/16 05:00	Extract from JC30810-2.1
JC30810-2.1.3	Organics Prep	Finley Nyaata	11/02/16 16:55	Extract from JC30810-2.1
JC30810-2.1.3	Finley Nyaata	Extract Storage	11/02/16 16:57	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-2.1.3	Extract Storage	William Gonzalez	11/02/16 18:44	Retrieve from Storage
JC30810-2.1.3	William Gonzalez	GC5G	11/02/16 18:44	Load on Instrument
JC30810-2.1.3	GC5G	William Gonzalez	11/03/16 12:27	Unload from Instrument
JC30810-2.1.3	William Gonzalez	Extract Freezer	11/03/16 12:27	Return to Storage
JC30810-2.1.4	Vikas Parikh	Organics Prep	11/02/16 05:02	Extract from JC30810-2.1
JC30810-2.1.4	Organics Prep	Finley Nyaata	11/02/16 16:58	Extract from JC30810-2.1
JC30810-2.1.4	Finley Nyaata	Extract Storage	11/02/16 16:58	Return to Storage
JC30810-2.1.4	Extract Storage	Kristen Drake	11/11/16 15:57	Retrieve from Storage
JC30810-2.1.4	Kristen Drake	GC6G	11/11/16 15:57	Load on Instrument
JC30810-2.1.4	GC6G	Rebecca Krug	11/16/16 10:44	Unload from Instrument
JC30810-2.1.4	Rebecca Krug	Extract Freezer	11/16/16 10:44	Return to Storage
JC30810-2.1.5	Jessica Adametz	Metals Digestion	11/03/16 09:01	Digestate from JC30810-2.1
JC30810-2.1.5	Metals Digestion	Jessica Adametz	11/03/16 09:04	Digestate from JC30810-2.1
JC30810-2.1.5	Jessica Adametz	Metals Digestate Storage	11/03/16 09:04	Return to Storage
JC30810-2.2	Secured Storage	Luis Villanueva	11/01/16 09:39	Retrieve from Storage
JC30810-2.2	Luis Villanueva	Secured Staging Area	11/01/16 09:39	Return to Storage
JC30810-2.2	Secured Staging Area	Mark Setaro	11/01/16 13:04	Retrieve from Storage
JC30810-2.2	Mark Setaro	Secured Storage	11/01/16 17:16	Return to Storage
JC30810-2.2.1	Mark Setaro	TCLP	11/01/16 17:16	Leachate from JC30810-2.2
JC30810-2.2.1	TCLP	Mark Setaro	11/02/16 08:09	Leachate from JC30810-2.2
JC30810-2.2.1	Mark Setaro	Secured Storage	11/02/16 16:42	Return to Storage
JC30810-2.2.2	Gage Donahue	TCLP	11/02/16 08:40	Leachate from JC30810-2.2
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30810-2.2.2	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-2.2
JC30810-2.2.2	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-2.2.2	Secured Storage	HeeEun Ahn	11/02/16 13:30	Retrieve from Storage
JC30810-2.2.2	HeeEun Ahn	Secured Storage	11/02/16 17:00	Return to Storage
JC30810-2.2.3	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-2.2
JC30810-2.2.3	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-2.2.4	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-2.2
JC30810-2.2.4	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-2.2.4	Secured Storage	Vikas Parikh	11/04/16 05:16	Retrieve from Storage
JC30810-2.2.4	Vikas Parikh	Secured Storage	11/04/16 11:04	Return to Storage
JC30810-2.2.5	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-2.2
JC30810-2.2.5	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-2.2.5	Secured Storage	Martin Serwatka	11/02/16 11:44	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-2.2.5	Martin Serwatka	Deval Patel	11/02/16 17:12	Custody Transfer
JC30810-2.2.5	Deval Patel	Secured Storage	11/02/16 17:24	Return to Storage
JC30810-2.2.6	Deval Patel	Metals Digestion	11/02/16 17:19	Digestate from JC30810-2.2.5
JC30810-2.2.6	Metals Digestion	Deval Patel	11/02/16 17:19	Digestate from JC30810-2.2.5
JC30810-2.2.6	Deval Patel	Metals Digestate Storage	11/02/16 17:19	Return to Storage
JC30810-2.2.7	Vikas Parikh	Organics Prep	11/04/16 05:23	Extract from JC30810-2.2.4
JC30810-2.2.7	Organics Prep	Greg Mayer	11/04/16 17:48	Extract from JC30810-2.2.4
JC30810-2.2.7	Greg Mayer	Extract Storage	11/04/16 17:48	Return to Storage
JC30810-2.2.7	Extract Storage	Vincent Drago	11/08/16 15:32	Retrieve from Storage
JC30810-2.2.7	Vincent Drago	GC3G	11/08/16 15:32	Load on Instrument
JC30810-2.2.7	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30810-2.2.7	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30810-2.2.8	Vikas Parikh	Organics Prep	11/04/16 05:25	Extract from JC30810-2.2.4
JC30810-2.2.8	Organics Prep	Nicholas Goydish	11/04/16 13:17	Extract from JC30810-2.2.4
JC30810-2.2.8	Nicholas Goydish	Extract Storage	11/04/16 13:17	Return to Storage
JC30810-2.2.8	Extract Storage	Sean Block	11/04/16 23:03	Retrieve from Storage
JC30810-2.2.8	Sean Block	GCMS6P	11/04/16 23:03	Load on Instrument
JC30810-2.2.8	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30810-2.2.8	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30810-2.2.9	Vikas Parikh	Organics Prep	11/04/16 05:26	Extract from JC30810-2.2.4
JC30810-2.2.9	Organics Prep	Stephen Seuling	11/04/16 15:58	Extract from JC30810-2.2.4
JC30810-2.2.9	Stephen Seuling	Extract Storage	11/04/16 15:58	Return to Storage
JC30810-2.2.9	Extract Storage	Christine Phillips	11/10/16 17:06	Retrieve from Storage
JC30810-2.2.9	Christine Phillips	GC4G	11/10/16 17:06	Load on Instrument
JC30810-2.3	Secured Storage	Alfredo Crespo	11/03/16 07:44	Retrieve from Storage
JC30810-2.3	Alfredo Crespo	Secured Staging Area	11/03/16 07:44	Return to Storage
JC30810-2.3	Secured Staging Area	James Patrick McIlvaine	11/03/16 07:52	Retrieve from Storage
JC30810-2.3	Secured Storage	Luis Villanueva	11/03/16 13:43	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30810-2.3	Luis Villanueva	Secured Storage	11/03/16 17:14	Return to Storage
JC30810-2.3	Secured Storage	Sahara Feliciano	11/05/16 07:54	Retrieve from Storage
JC30810-2.3	Sahara Feliciano	Secured Staging Area	11/05/16 07:54	Return to Storage
JC30810-2.3	Secured Staging Area	Hans Seignon	11/05/16 08:30	Retrieve from Storage
JC30810-2.3	Hans Seignon	Secured Storage	11/05/16 15:59	Return to Storage
JC30810-2.3	Secured Storage	Alexis Jones	11/07/16 15:09	Retrieve from Storage
JC30810-2.3	Alexis Jones	Secured Storage	11/07/16 16:13	Return to Storage
JC30810-2.4	Secured Storage	Robert Lofrano	11/01/16 15:45	Retrieve from Storage
JC30810-2.4	Robert Lofrano		11/01/16 17:14	Subcontract

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-2.6	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-2.6	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-2.7	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-2.7	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-2.7	Secured Storage	Prashant Shukla	11/12/16 11:56	Retrieve from Storage
JC30810-2.7	Prashant Shukla	GCMS3C	11/12/16 11:56	Load on Instrument
JC30810-2.7	GCMS3C	Prashant Shukla	11/14/16 11:00	Unload from Instrument
JC30810-2.7	Prashant Shukla		11/14/16 11:01	Depleted
JC30810-2.8	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-2.8	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-2.8	Secured Storage	Alexis Jones	11/07/16 16:42	Retrieve from Storage
JC30810-2.8	Alexis Jones	GCMSV	11/07/16 16:43	Load on Instrument
JC30810-2.8	GCMSV	Alexis Jones	11/08/16 08:49	Unload from Instrument
JC30810-2.8	Alexis Jones	Secured Storage	11/08/16 08:51	Return to Storage
JC30810-2.8	Secured Storage	Prashant Shukla	11/12/16 13:42	Retrieve from Storage
JC30810-2.8	Prashant Shukla	GCMS3C	11/12/16 13:42	Load on Instrument
JC30810-2.8	GCMS3C	Prashant Shukla	11/14/16 11:00	Unload from Instrument
JC30810-2.8	Prashant Shukla		11/14/16 11:01	Depleted
JC30810-3.1	Secured Storage	Luis Villanueva	11/01/16 09:39	Retrieve from Storage
JC30810-3.1	Luis Villanueva	Secured Staging Area	11/01/16 09:39	Return to Storage
JC30810-3.1	Secured Staging Area	Mark Setaro	11/01/16 13:04	Retrieve from Storage
JC30810-3.1	Mark Setaro	Secured Storage	11/01/16 17:16	Return to Storage
JC30810-3.1	Secured Storage	Vikas Parikh	11/02/16 04:47	Retrieve from Storage
JC30810-3.1	Vikas Parikh	Steven Zarchy	11/02/16 06:29	Custody Transfer
JC30810-3.1	Steven Zarchy	Secured Storage	11/02/16 13:54	Return to Storage
JC30810-3.1	Secured Storage	Jessica Adametz	11/03/16 07:05	Retrieve from Storage
JC30810-3.1	Jessica Adametz	Secured Storage	11/03/16 12:28	Return to Storage
JC30810-3.1	Secured Storage	Edwin Gonzalez	11/03/16 14:53	Retrieve from Storage
JC30810-3.1	Edwin Gonzalez	Secured Staging Area	11/03/16 14:53	Return to Storage
JC30810-3.1	Secured Staging Area	Chris Brunson	11/03/16 23:42	Retrieve from Storage
JC30810-3.1	Chris Brunson	Secured Storage	11/03/16 23:42	Return to Storage
JC30810-3.1	Secured Storage	Todd Shoemaker	11/08/16 16:38	Retrieve from Storage
JC30810-3.1	Todd Shoemaker	Secured Staging Area	11/08/16 16:39	Return to Storage
JC30810-3.1	Secured Staging Area	Chris Brunson	11/08/16 20:19	Retrieve from Storage
JC30810-3.1	Chris Brunson	Secured Storage	11/08/16 20:19	Return to Storage
JC30810-3.1.1	Mark Setaro	TCLP	11/01/16 17:16	Leachate from JC30810-3.1
JC30810-3.1.1	TCLP	Mark Setaro	11/02/16 08:09	Leachate from JC30810-3.1
JC30810-3.1.1	Mark Setaro	Secured Storage	11/02/16 16:42	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-3.1.2	Vikas Parikh	Organics Prep	11/02/16 04:58	Extract from JC30810-3.1
JC30810-3.1.2	Organics Prep	Albert Quayson	11/02/16 14:20	Extract from JC30810-3.1
JC30810-3.1.2	Albert Quayson	Extract Storage	11/02/16 14:20	Return to Storage
JC30810-3.1.2	Extract Storage	Kristi Schollenberger	11/06/16 13:03	Retrieve from Storage
JC30810-3.1.2	Kristi Schollenberger	GCMSM	11/06/16 13:03	Load on Instrument
JC30810-3.1.2	GCMSM	Kristi Schollenberger	11/13/16 13:36	Unload from Instrument
JC30810-3.1.2	Kristi Schollenberger	Extract Freezer	11/13/16 13:36	Return to Storage
JC30810-3.1.3	Vikas Parikh	Organics Prep	11/02/16 05:00	Extract from JC30810-3.1
JC30810-3.1.3	Organics Prep	Finley Nyaata	11/02/16 16:55	Extract from JC30810-3.1
JC30810-3.1.3	Finley Nyaata	Extract Storage	11/02/16 16:57	Return to Storage
JC30810-3.1.3	Extract Storage	William Gonzalez	11/02/16 18:44	Retrieve from Storage
JC30810-3.1.3	William Gonzalez	GC5G	11/02/16 18:44	Load on Instrument
JC30810-3.1.3	GC5G	William Gonzalez	11/03/16 12:27	Unload from Instrument
JC30810-3.1.3	William Gonzalez	Extract Freezer	11/03/16 12:27	Return to Storage
JC30810-3.1.4	Vikas Parikh	Organics Prep	11/02/16 05:02	Extract from JC30810-3.1
JC30810-3.1.4	Organics Prep	Finley Nyaata	11/02/16 16:58	Extract from JC30810-3.1
JC30810-3.1.4	Finley Nyaata	Extract Storage	11/02/16 16:58	Return to Storage
JC30810-3.1.4	Extract Storage	Kristen Drake	11/11/16 15:57	Retrieve from Storage
JC30810-3.1.4	Kristen Drake	GC6G	11/11/16 15:57	Load on Instrument
JC30810-3.1.4	GC6G	Rebecca Krug	11/16/16 10:44	Unload from Instrument
JC30810-3.1.4	Rebecca Krug	Extract Freezer	11/16/16 10:44	Return to Storage
JC30810-3.1.5	Jessica Adametz	Metals Digestion	11/03/16 09:01	Digestate from JC30810-3.1
JC30810-3.1.5	Metals Digestion	Jessica Adametz	11/03/16 09:04	Digestate from JC30810-3.1
JC30810-3.1.5	Jessica Adametz	Metals Digestate Storage	11/03/16 09:04	Return to Storage
JC30810-3.2	Secured Storage	Luis Villanueva	11/01/16 09:39	Retrieve from Storage
JC30810-3.2	Luis Villanueva	Secured Staging Area	11/01/16 09:39	Return to Storage
JC30810-3.2	Secured Staging Area	Mark Setaro	11/01/16 13:04	Retrieve from Storage
JC30810-3.2	Mark Setaro	Secured Storage	11/01/16 17:16	Return to Storage
JC30810-3.2.1	Mark Setaro	TCLP	11/01/16 17:16	Leachate from JC30810-3.2
JC30810-3.2.1	TCLP	Mark Setaro	11/02/16 08:09	Leachate from JC30810-3.2
JC30810-3.2.1	Mark Setaro	Secured Storage	11/02/16 16:42	Return to Storage
JC30810-3.2.2	Gage Donahue	TCLP	11/02/16 08:40	Leachate from JC30810-3.2
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30810-3.2.2	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-3.2
JC30810-3.2.2	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-3.2.2	Secured Storage	HeeEun Ahn	11/02/16 13:30	Retrieve from Storage
JC30810-3.2.2	HeeEun Ahn	Secured Storage	11/02/16 17:00	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30810-3.2.3	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-3.2
JC30810-3.2.3	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-3.2.4	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-3.2
JC30810-3.2.4	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-3.2.4	Secured Storage	Vikas Parikh	11/04/16 05:16	Retrieve from Storage
JC30810-3.2.4	Vikas Parikh	Secured Storage	11/04/16 11:04	Return to Storage
JC30810-3.2.5	TCLP	Gage Donahue	11/02/16 08:53	Leachate from JC30810-3.2
JC30810-3.2.5	Gage Donahue	Secured Storage	11/02/16 11:43	Return to Storage
JC30810-3.2.5	Secured Storage	Martin Serwatka	11/02/16 11:44	Retrieve from Storage
JC30810-3.2.5	Martin Serwatka	Deval Patel	11/02/16 17:12	Custody Transfer
JC30810-3.2.5	Deval Patel	Secured Storage	11/02/16 17:24	Return to Storage
JC30810-3.2.6	Deval Patel	Metals Digestion	11/02/16 17:19	Digestate from JC30810-3.2.5
JC30810-3.2.6	Metals Digestion	Deval Patel	11/02/16 17:19	Digestate from JC30810-3.2.5
JC30810-3.2.6	Deval Patel	Metals Digestate Storage	11/02/16 17:19	Return to Storage
JC30810-3.2.7	Vikas Parikh	Organics Prep	11/04/16 05:23	Extract from JC30810-3.2.4
JC30810-3.2.7	Organics Prep	Greg Mayer	11/04/16 17:48	Extract from JC30810-3.2.4
JC30810-3.2.7	Greg Mayer	Extract Storage	11/04/16 17:48	Return to Storage
JC30810-3.2.7	Extract Storage	Vincent Drago	11/08/16 15:32	Retrieve from Storage
JC30810-3.2.7	Vincent Drago	GC3G	11/08/16 15:32	Load on Instrument
JC30810-3.2.7	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30810-3.2.7	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30810-3.2.8	Vikas Parikh	Organics Prep	11/04/16 05:25	Extract from JC30810-3.2.4
JC30810-3.2.8	Organics Prep	Nicholas Goydish	11/04/16 13:17	Extract from JC30810-3.2.4
JC30810-3.2.8	Nicholas Goydish	Extract Storage	11/04/16 13:17	Return to Storage
JC30810-3.2.8	Extract Storage	Sean Block	11/04/16 23:03	Retrieve from Storage
JC30810-3.2.8	Sean Block	GCMS6P	11/04/16 23:03	Load on Instrument
JC30810-3.2.8	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30810-3.2.8	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30810-3.2.9	Vikas Parikh	Organics Prep	11/04/16 05:26	Extract from JC30810-3.2.4
JC30810-3.2.9	Organics Prep	Stephen Seuling	11/04/16 15:58	Extract from JC30810-3.2.4
JC30810-3.2.9	Stephen Seuling	Extract Storage	11/04/16 15:58	Return to Storage
JC30810-3.2.9	Extract Storage	Christine Phillips	11/10/16 17:06	Retrieve from Storage
JC30810-3.2.9	Christine Phillips	GC4G	11/10/16 17:06	Load on Instrument
JC30810-3.3	Secured Storage	Alfredo Crespo	11/03/16 07:44	Retrieve from Storage
JC30810-3.3	Alfredo Crespo	Secured Staging Area	11/03/16 07:44	Return to Storage
JC30810-3.3	Secured Staging Area	James Patrick McIlvaine	11/03/16 07:52	Retrieve from Storage
JC30810-3.3	Secured Storage	Luis Villanueva	11/03/16 13:43	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30810
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 10/31/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30810-3.3	Luis Villanueva	Secured Storage	11/03/16 17:14	Return to Storage
JC30810-3.3	Secured Storage	Sahara Feliciano	11/05/16 07:54	Retrieve from Storage
JC30810-3.3	Sahara Feliciano	Secured Staging Area	11/05/16 07:54	Return to Storage
JC30810-3.3	Secured Staging Area	Hans Seignon	11/05/16 08:30	Retrieve from Storage
JC30810-3.3	Hans Seignon	Secured Storage	11/05/16 15:59	Return to Storage
JC30810-3.3	Secured Storage	Alexis Jones	11/07/16 15:09	Retrieve from Storage
JC30810-3.3	Alexis Jones	Secured Storage	11/07/16 16:13	Return to Storage
JC30810-3.4	Secured Storage	Robert Lofrano	11/01/16 15:45	Retrieve from Storage
JC30810-3.4	Robert Lofrano		11/01/16 17:14	Subcontract
JC30810-3.6	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-3.6	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-3.7	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-3.7	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-3.7	Secured Storage	Alexis Jones	11/07/16 16:42	Retrieve from Storage
JC30810-3.7	Alexis Jones	GCMSV	11/07/16 16:43	Load on Instrument
JC30810-3.7	GCMSV	Alexis Jones	11/08/16 08:49	Unload from Instrument
JC30810-3.7	Alexis Jones	Secured Storage	11/08/16 08:51	Return to Storage
JC30810-3.8	Secured Storage	Jayna Patel	11/01/16 10:11	Retrieve from Storage
JC30810-3.8	Jayna Patel	Secured Storage	11/01/16 10:11	Return to Storage
JC30810-3.8	Secured Storage	Prashant Shukla	11/12/16 11:56	Retrieve from Storage
JC30810-3.8	Prashant Shukla	GCMS3C	11/12/16 11:56	Load on Instrument
JC30810-3.8	GCMS3C	Prashant Shukla	11/14/16 11:00	Unload from Instrument
JC30810-3.8	Prashant Shukla		11/14/16 11:01	Depleted

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e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC30810X

Sampling Date: 10/31/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **195**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC30810X

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC30810-1X	10/31/16	11:05	MC	10/31/16	SO	Soil	SB03-161031
JC30810-2X	10/31/16	13:05	MC	10/31/16	SO	Soil	SB06-161031
JC30810-3X	10/31/16	14:15	MC	10/31/16	SO	Soil	SB07-161031

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Subcontract Lab Data

Report of Analysis

2

FINAL LAB REPORT

JC30810X

A9382

16-Nov-2016

Prepared by

SGS NORTH AMERICA

Prepared for

Accutest

Tammy McCloskey

Fresh Ponds Crp Village Bldg B 2235 Route 130
Dayton, NJ 08810
Phone: 732.329.0200
Email: TammyMcCloskey@sgs.com

This report is approved by

Tamara Morgan
2016.11.21 08:04:53 -05'00'

Tamara Morgan

Senior Project Manager

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Results reported relate only to the items tested.

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PROJECT INFORMATION SUMMARY *(When applicable, see QC Annotations for details)*

Client Project	JC30810X
SGS Project #	A9382
Analytical Protocol(s)	Method 8290 TCDD only
No. Samples Submitted	3
Additional QC Sample(s)	0
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
Date Received	02-Nov-16
Condition Received	Good
Temperature upon Receipt (ºC)	0.0
Extraction within Holding Time	Yes
Analysis within Holding Time	Yes

2

QC ANNOTATIONS:

1. Please see Appendices attached for data qualifier/attribute and lab identifier descriptions which may be contained in the project.

APPENDIX A: GENERAL DATA QUALIFIERS / DATA ATTRIBUTES

B	The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
C	Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve) and is an estimated value.
EMPC	Represents an Estimated Maximum Possible Concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
H/h	If the standard recovery is below the method or SOP specified value “H” is assigned. If the obtained value is less than half the specified value “h” is assigned.
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve) and is an estimated value.
ND	Indicates a non-detect.
NR or R	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
SI	Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.

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APPENDIX B: DRBC/TMDL SPECIFIC DATA QUALIFIERS / DATA ATTRIBUTES

J	The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL).
U	The analyte was not detected in the sample at the estimated detection limit (EDL).
E	The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).
D	Dilution Data. Result was obtained from the analysis of a dilution.
B	Analyte found in the sample and associated method blank.
C	Co-eluting congener
Cxx	Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. 'Xx' denotes the IUPAC number with the lowest numerical designated congener.
NR	Analyte is not reportable because of problems in sample preparation or analysis.
V	Labeled standard recovery is not within method control limits.
X	Results from re-injection/repeat/second-column analysis.
EMPC	Estimated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

APPENDIX C: LAB IDENTIFIERS

AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

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SGS CERTIFICATIONS

Arkansas	88-0682
California (ELAP)	ELAP Cert #2914
CLIA	34D1013708
Connecticut	PH-0258
USDA Soil Permit	P330-14-00135
DoD	2726.01
Florida (Primary NELAP)	E87634
ISO 17025/IEC	2726.01
Louisiana	4115
Maine	#2016028
Massachusetts	M-NC919
Minnesota (Primary NELAP For Method 23)	Lab #037-999-459 Cert #981125
New Jersey	NC100
New York	11685
North Carolina DWR	481
North Dakota	R-197
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	Lab #99029 Cert #99029002
Texas	T104704260-16-9
US Coast Guard	16714/159.317/SGS
Virginia	Lab #460214 Cert #8722
Washington	C913
West Virginia	293

Rev. 12-Sep-2016

Sample ID: SB03-161031 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9382	Date Received:	02-Nov-2016
Project ID:	JC30810X	Weight/Volume:	9.73 g	Lab Sample ID	A9382_14496_DF_001-D10	Date Extracted:	04-Nov-2016
Date Collected:	31-Oct-2016	% Solid:	96.2 %	QC Batch No:	14496	Date Analyzed:	16-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	6:09:11

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	1.73			ES 2378-TCDD	80.6	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	86	

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Sample ID: SB06-161031 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9382	Date Received:	02-Nov-2016
Project ID:	JC30810X	Weight/Volume:	10.81 g	Lab Sample ID	A9382_14496_DF_002	Date Extracted:	04-Nov-2016
Date Collected:	31-Oct-2016	% Solid:	94.0 %	QC Batch No:	14496	Date Analyzed:	16-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	4:24:49

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.207			ES 2378-TCDD	69.7	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	76.1	

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Sample ID: SB07-161031 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9382	Date Received:	02-Nov-2016
Project ID:	JC30810X	Weight/Volume:	11.25 g	Lab Sample ID	A9382_14496_DF_003	Date Extracted:	04-Nov-2016
Date Collected:	31-Oct-2016	% Solid:	94.2 %	QC Batch No:	14496	Date Analyzed:	16-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	5:16:59

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.303			J	ES 2378-TCDD	70.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	83.3	

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Sample ID: Method Blank A9382_14496 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9382	Date Received:	n/a
Project ID:	JC30810X	Weight/Volume:	10.00 g	Lab Sample ID	MB1_14496_DF_SDS	Date Extracted:	04-Nov-2016
Date Collected:	n/a	% Solid:	n/a	QC Batch No:	14496	Date Analyzed:	16-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	3:32:37

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.162			ES 2378-TCDD	83.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	87.2	

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METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161115C18	Analysis Date:	16-NOV-2016 01:48:16
Lab ID:	OPR1_14496_DF		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	9.54	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 16 Nov 2016 11:51 Analyst: al

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161115C18	Analysis Date:	16-NOV-2016 01:48:16
Lab ID:	OPR1_14496_DF		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	74.6	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	33	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 16 Nov 2016 11:51 Analyst: al

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*02-Nov-16 at 09:45*
AP Project name:	*A9382*
Requested TAT:	*14 days*
Projected due date:	*16-Nov-16*
Matrix:	*Soil*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	*Tammy McCloskey*
Company:	*Accutest*
Project Name & Site:	*JC30810X*
Project PO#:	*JC30810X*
QAAP/Contract #:	*N/A*
Requested Analysis:	*Method 8290 TCDD*
Phone#:	*732-329-0200*
Email Address:	*tammy.mccloskey@sgs.com*

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB03-161031	A9382_001	SO	1	8 oz clear	31-Oct-16	11:05	0	1	563393496067
SB06-161031	A9382_002	SO	1	8 oz clear	31-Oct-16	13:05	0	1	563393496067
SB07-161031	A9382_003	SO	1	8 oz clear	31-Oct-16	14:15	0	1	563393496067

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Jeannie Milholland *Logged in by: Robin Appelle* *QC'ed by:* AK 1 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

CHAIN OF CUSTODY

99382

SGS ACCUTEST

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking #	Bottle Order Control #
SGS Accutest Quote #	SGS Accutest Job JC30810X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: tammy.mccloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR Expansion, Long Island, NY
** ~~LIRR, Center Street, Long Beach, NY~~
Street: **per TM. AK 11/3/16
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD	LAB USE ONLY
1X	SB03-161031		10/31/16	11:05:00 AM	MC	SO	1					1				X	
2X	SB06-161031		10/31/16	1:05:00 PM	MC	SO	1					1				X	
3X	SB07-161031		10/31/16	2:15:00 PM	MC	SO	1					1				X	

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- ☐ Std. 10 Business Days
- ☐ 5 Day RUSH
- ☐ 3 Day EMERGENCY
- ☐ 2 Day EMERGENCY
- ☐ 1 Day EMERGENCY
- ☒ other Due 11/14/2016

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- ☐ Commercial "A" (Level 1)
- ☐ Commercial "B" (Level 2)
- ☐ FULLT1 (Level 3+4)
- ☐ NJ Reduced
- ☐ Commercial "C"
- ☐ NYASP Category A
- ☐ NYASP Category B
- ☐ State Forms
- ☐ EDD Format
- ☒ Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

5633 9349 6067

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Tin	Received By:	Relinquished By:	Date Time:	Received By:
1	11-1-16 1700	1 FEDEX	2 Fed Ex.	11-2-16 0945	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 427 ☑ Intact ☐ Not intact	Preserved where applicable ☑	On Ice ☐ Cooler Temp. 0.0°C

2

SGS

Project Initiation Form

Project Number: A9382

Initiation Date: 02-Nov-16

Client Name: Accutest

Analysis Method: 8290 PCDD/F

Sample Matrix: Soil

TAT: 14 days

Project Manager: Tamara

Special Instructions

8290 w/ OPR
2378 TCDD only

Reporting Instructions

8290 w/ OPR
2378 TCDD only

PM Initials: akornega Date: 02-Nov-2016

SGS

Methods: PCB PCDD/F QUANTICS Extraction Type: SDS TALEX
PAH WHO-2 USV PEST CLL Carbon SPE

Solid | Final Volume:

Batch# 14496 | Split: 1/2 1/4 | Extract Initial/Date: AW 11/4/16 | Clean-up Initial/Date: 11/10/16 | Transfer Init/Date: 11/16/16

Lab Sample ID	Extraction Position / Solvent: DCM	Extraction Weight/Volume (g) mL	(Td)	~~ASECS #~~	manual columns	Observations
A9382_14496_001	42	10.12				br soil, om, rocks
A9382_14496_002	43	11.50				lt br soil, m, sand-like
A9382_14496_003	44	11.94				brown soil, rocks, m, sand-like
MB1_14496	40	10.00				Hydromatrix 6325623-01
OPR1_14496	41	10.00				Hydromatrix 6325623-01
			11/10/16	11/10/16		

Supply IDs	
Toluene	158853
MeCHL	163037
Florisil	7537701
Hexane	163429
Silica	06272016
S Nitrate	11 10 2016
Base Silica	10212016
HydroMatrix	6325623-01
Tetradecane	07042016
H_2SO_4	—
A Silica	11 10 2016
Sodium Sulfate	03192015

Additional Cleanup	
Acid Partition Date/Initial:	
Mini-Acid Date/Initial:	
Carbon Column Date/Initial:	
GPC Date/Initial:	
Bond-Elute Date/Initial:	

Cycle Time		
TOL	Start: 1337	Stop: 0900
HEX	Start:	Stop: AW
DCM	Start: 11/4/16	Stop:

2

SGS

Methods: PCB PCDD/F QUANTICS
PAH WHO-2 USV PEST

Solid

Batch# 14496

Inter-Department Communication Sheet

Sample A9382-001 ~~yellow~~ in final extract yellow color - D10 performed on sample. JM 11/11/16

TRANSFER: AW 11/11/16

RECEIVED:

SGS

Wt. Volume Results
14496

Batch #: A9382

Comments:

ar 11/10/14

Lab Sample ID	Boat WT.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	% Solid	Average % Solid	RSD	Qtest Ratio (if Applicable)	Dry Wt. Equiv.	Extracted Wt.	Final Wt.
A9382_001	1.09	3.18	3.1	96.17%	96.17%	N/A	N/A	10.4	10.12	9.732404
A9382_002	1.11	3.43	3.29	93.97%	93.97%	N/A	N/A	10.64	11.5	10.80655
A9382_003	1.1	3.52	3.38	94.21%	94.21%	N/A	N/A	10.61	11.94	11.248674

% Solid Determination WorkSheet

SGS

Batch: 14496

Lab Sample ID	Boat Wt.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	Comments
A9382_14496_001	1.09	3.18	3.10	
A9382_14496_002	1.11	3.43	3.29	
A9382_14496_003	1.10	3.52	3.38	
Date/Initials: AW 11/4/16				

2

SGS

Methods: PCB, PAH, RCDD/F, WHO-2, QUANTICS, USV, PEST

Solid

Batch # 14496

Spiker Initials/Date:	Am 11/4/16	Am 11/4/16	Am 11/4/16	CMW 11/10/16	CMW 11/11/16		
Lab Sample ID	Ax-A Amount: 20 µl	Ax-B Amount: 20 µl	ES Amount: 20 µl	D/F CS/SS Amount: 20 µl	JS Amount: 20 µl	Amount:	Amount:
	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials
A9382_14496_001	—	—	AW	[illegible]	AW		
A9382_14496_002	—	—	AW	[illegible]	AW		
A9382_14496_003	—	—	AW	[illegible]	AW		
MB1_14496	—	—	AW	[illegible]	AW		
OPR1_14496	AW	AW	AW	[illegible]	AW		
	11/4/16	11/4/16	11/4/16	11/10/16	11/11/16		

Standard Information

Spike ID	D/F Ax-A	D/F Ax-B	D/F ES	D/F CS/SS	D/F JS		
SIL #	2163	15-175-2	2230	15-152-1	15-102-4		
Concentration	10ng/mL	10pg/uL	100pg/uL	40pg/uL	100pg/uL		
Expiration Date	11/7/17	7/27/17	11/2021	6/17/17	12/31/16 (red label)		

SGS

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*02-Nov-16 at 09:45*
AP Project name:	*A9382*
Requested TAT:	*14 days*
Projected due date:	*16-Nov-16*
Matrix:	*Soil*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	*Tammy McCloskey*
Company:	*Accutest*
Project Name & Site:	*JC30810X*
Project PO#:	*JC30810X*
QAAP/Contract #:	*N/A*
Requested Analysis:	*Method 8290 TCDD*
Phone#:	*732-329-0200*
Email Address:	*tammy.mccloskey@sgs.com*

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB03-161031	A9382_001	SO	1	8 oz clear	31-Oct-16	11:05	0	1	563393496067
SB06-161031	A9382_002	SO	1	8 oz clear	31-Oct-16	13:05	0	1	563393496067
SB07-161031	A9382_003	SO	1	8 oz clear	31-Oct-16	14:15	0	1	563393496067

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Jeannie Miholland *Logged in by: Robin Appelle* *QC'ed by:* _____

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

9 9382

SGS ACCUTEST

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking #	Bottle Order Control #
SGS Accutest Quote #	SGS Accutest Job JC30810X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: tammy.mccloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR, Center Street, Long Beach, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD	LAB USE ONLY
1X	SB03-161031		10/31/16	11:05:00 AM	MC	SO	1					1				X	
2X	SB06-161031		10/31/16	1:05:00 PM	MC	SO	1					1				X	
3X	SB07-161031		10/31/16	2:15:00 PM	MC	SO	1					1				X	

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other Due 11/14/2016

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

5633 9349 6067

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Tin	Received By:	Relinquished By:	Date Time:	Received By:
1	11-1-16 1700	1 FEDEX	2 Fed Ex.	11-2-16 0945	2 Jeanne M. Wallace
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 427 [✓] Intact [ ] Not intact	Preserved where applicable [✓]	On Ice [✓] Cooler Temp. 0.0°C

2

SGS Environmental Services — Run Log **Project: A9382_14496_DF**

Instrument: HRMS3 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
17	161115C17	3	CS3_161115_DF_CA	1.00	SIL 15-104-2	ARL	182-109	16-Nov-2016	00:57:54
18	161115C18	6	OPR1_14496_DF	1.00	0_14496_OPR001	ARL	395-183	16-Nov-2016	01:48:16
19	161115C19	2	SBS_161115_DF_CD	1.00	SIL 15-49-1	ARL	681-772	16-Nov-2016	02:40:26
20	161115C20	5	MB1_14496_DF_SDS	10.00	Method Blank	ARL	536-117	16-Nov-2016	03:32:37
21	161115C21	8	A9382_14496_DF_002	10.81	SB06-161031	ARL	501-343	16-Nov-2016	04:24:49
22	161115C22	9	A9382_14496_DF_003	11.25	SB07-161031	ARL	166-735	16-Nov-2016	05:16:59
23	161115C23	7	A9382_14496_DF_001-D10	9.73	SB03-161031	ARL	137-685	16-Nov-2016	06:09:11
24	161115C24	2	SBS_161115_DF_CF	1.00	SIL 15-49-1	ARL	571-870	16-Nov-2016	07:01:21
25	161115C25	3	CS3_161115_DF_CB	1.00	SIL 15-104-2	ARL	445-271	16-Nov-2016	07:53:32

REVIEWED
By Amber Kornegay at 4:04 pm, Nov 16, 2016

REVIEWED
By Autumn Lindquist at 2:08 pm, Nov 16, 2016

Project file: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\A9382_14496_DF.utp_prj, saved 16-Nov-2016 14:06
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951

Printed: 16-Nov-2016 14:06

Lab ID: MB1_14496_DF_SDS | Acq'd: 16 Nov 2016 03:32 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9382_14496 | UTP: 16-Nov-2016 11:47:36 ARL | J-level: 0.5 pg/g | Split: 1 | Checkcode: 536-117-JKY

Datafile: 161115C20 | Report: 16 Nov 2016 11:51 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	3835	0.162

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	26.35	1.0285	1.0287	+0.3	4.91E+07	0.77	Y	1.06	83.9

Lab ID: MB1_14496_DF_SDS | Acq'd: 16 Nov 2016 03:32 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9382_14496 | UTP: 16-Nov-2016 11:47:36 ARL | J-level: 0.5 pg/g | Split: 1 | Checkcode: 536-117-JKY

Datafile: 161115C20 | Report: 16 Nov 2016 11:51 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	25.62		-	-	-	5.50E+07	0.79	Y	-	-
JS 123467-HxCDD	36.57		-	-	-	2.11E+07	1.26	Y	-	-
CS 37Cl-2378-TCDD	26.38		1.0294	1.0297	+0.5	2.38E+07	n/a	-	1.24	87.2

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: MB1_14496_DF_SDS | **Sample ID: Method Blank** | **Acq: 16-Nov-2016 03:32:37**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 5** | **User: ARL Datafile: 161115C20**

Results: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\MB1_14496_DF_SDS.utp_res, saved 16-Nov-2016 11:47 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 5893, 5821, 5461 scc: 536-117 | *PKD: 16-Nov-2016 11:34 Printed: 16-Nov-2016 12:05 Page 1 of 1*

Lab ID: A9382_14496_DF_001-D10 | Acq'd: 16 Nov 2016 06:09 ARL | Wt/Vol: 9.73 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB03-161031 | UTP: 16-Nov-2016 11:47:41 ARL | J-level: 0.514 pg/g | Split: 1 | Checkcode: 137-685-ZZX

Datafile: 161115C23 | Report: 16 Nov 2016 11:52 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	7956	1.73

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	26.39	1.0285	1.0285	0	8.96E+06	0.81	Y	1.06	80.6

Lab ID: A9382_14496_DF_001-D10 | Acq'd: 16 Nov 2016 06:09 ARL | Wt/Vol: 9.73 g | ICAL: HRMS3_DF_12212015_06JAN2016

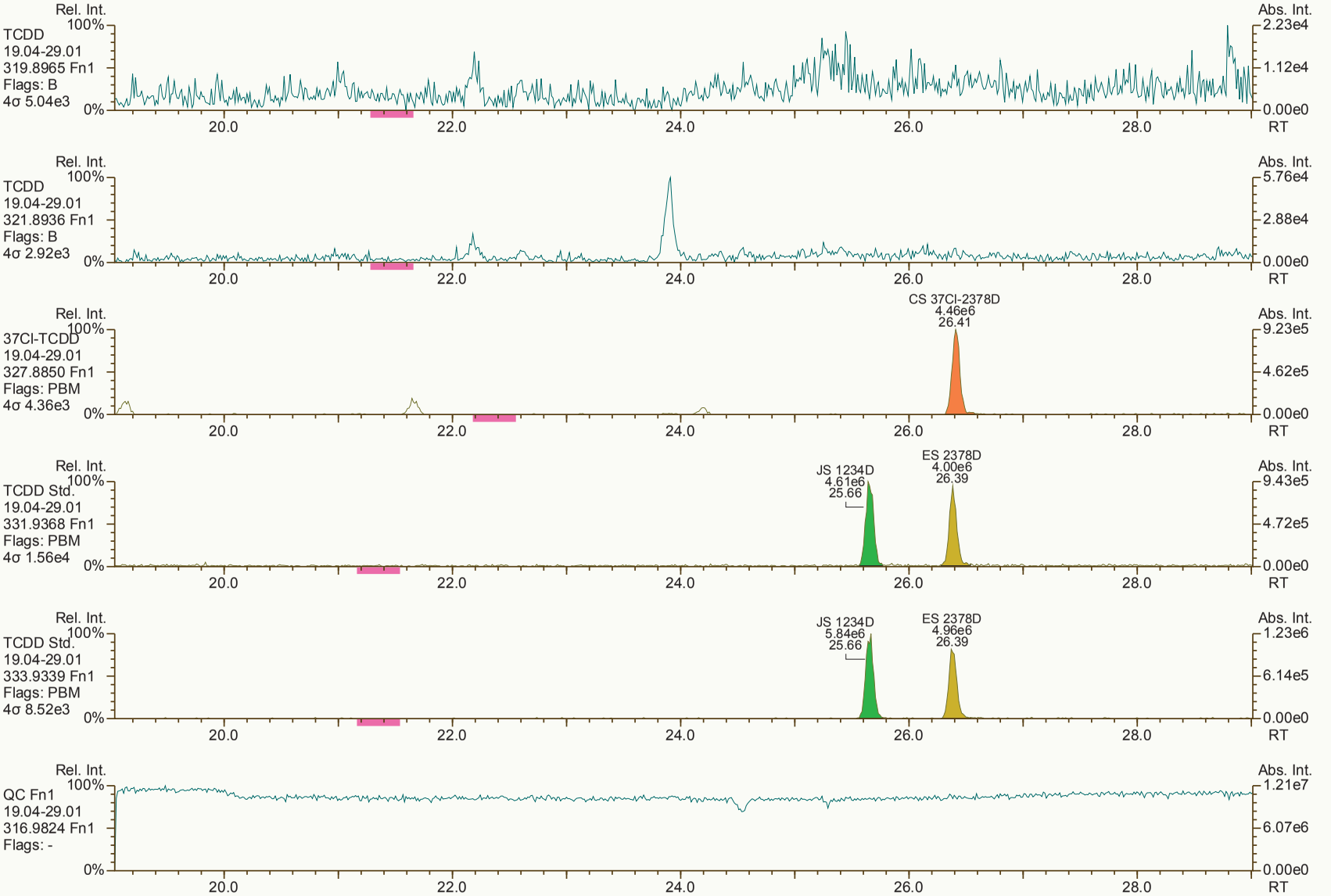
Client ID: SB03-161031 | UTP: 16-Nov-2016 11:47:41 ARL | J-level: 0.514 pg/g | Split: 1 | Checkcode: 137-685-ZZX

Datafile: 161115C23 | Report: 16 Nov 2016 11:52 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	25.66		-	-	-	1.05E+07	0.79	Y	-	-
JS 123467-HxCDD	36.60		-	-	-	4.75E+06	1.30	Y	-	-
CS 37Cl-2378-TCDD	26.41		1.0294	1.0295	+0.2	4.46E+06	n/a	-	1.24	86

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: A9382_14496_DF_001-D10 | **Sample ID: SB03-161031** | **Acq: 16-Nov-2016 06:09:11**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 7** | **User: ARL Datafile: 161115C23**



Results: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\A9382_14496_DF_001-D10.utp_res, saved 16-Nov-2016 11:47 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 3237, 1788, 8761 scc: 137-685 *Revised: 16-Nov-2016 11:37 (ARL) Printed: 16-Nov-2016 12:07 Page 1 of 1*

Lab ID: A9382_14496_DF_002 | Acq'd: 16 Nov 2016 04:24 ARL | Wt/Vol: 10.81 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB06-161031 | UTP: 16-Nov-2016 11:47:38 ARL | J-level: 0.463 pg/g | Split: 1 | Checkcode: 501-343-TXX

Datafile: 161115C21 | Report: 16 Nov 2016 11:52 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0008	-		-	-	-	1.19	-	5253	0.207

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	26.46	1.0285	1.0287	+0.3	5.42E+07	0.80	Y	1.06	69.7

Lab ID: A9382_14496_DF_002 | Acq'd: 16 Nov 2016 04:24 ARL | Wt/Vol: 10.81 g | ICAL: HRMS3_DF_12212015_06JAN2016

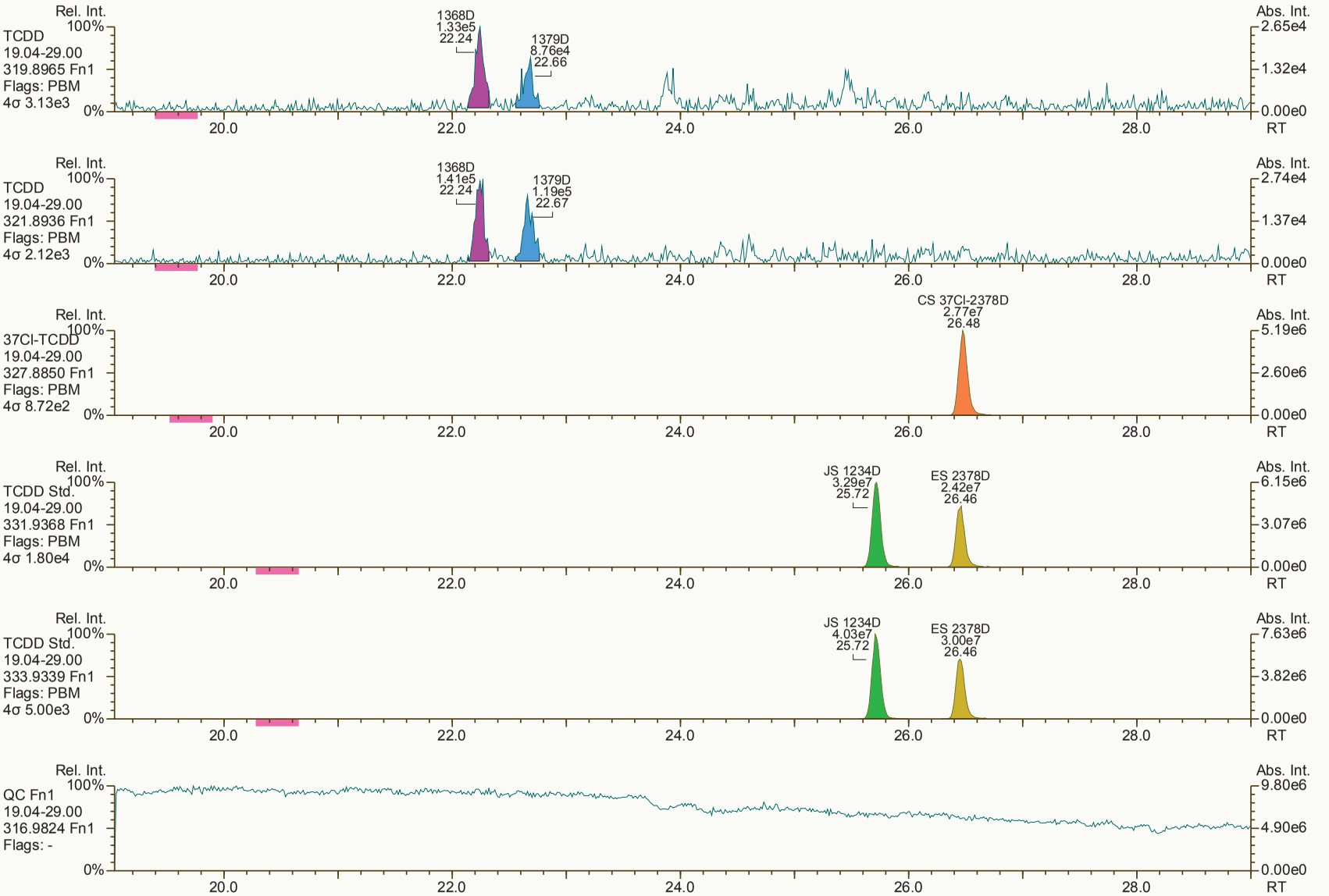
Client ID: SB06-161031 | UTP: 16-Nov-2016 11:47:38 ARL | J-level: 0.463 pg/g | Split: 1 | Checkcode: 501-343-TXX

Datafile: 161115C21 | Report: 16 Nov 2016 11:52 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	25.72		-	-	-	7.32E+07	0.82	Y	-	-
JS 123467-HxCDD	36.72		-	-	-	1.36E+07	1.26	Y	-	-
CS 37Cl-2378-TCDD	26.48		1.0295	1.0296	+0.2	2.77E+07	n/a	-	1.24	76.1

Totals	Conc	EMPC
Total TCDD	0.594	1.31

SGS ID: A9382_14496_DF_002 | **Sample ID: SB06-161031** | **Acq: 16-Nov-2016 04:24:49**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 8** | **User: ARL Datafile: 161115C21**



Results: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\A9382_14496_DF_002.utp_res, saved 16-Nov-2016 12:44 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 8340, 3763, 0448 scc: 501-343 | *Revised: 16-Nov-2016 11:46 (ARL) Printed: 16-Nov-2016 14:06 Page 1 of 1*

Lab ID: A9382_14496_DF_003 | Acq'd: 16 Nov 2016 05:16 ARL | Wt/Vol: 11.25 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB07-161031 | UTP: 16-Nov-2016 11:47:39 ARL | J-level: 0.444 pg/g | Split: 1 | Checkcode: 166-735-KQY

Datafile: 161115C22 | Report: 16 Nov 2016 11:52 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	26.44	J	1.0008	1.0008	0	1.59E+05	0.77	Y	1.19	0.303	4327	0.101

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	26.42	1.0285	1.0285	0	7.88E+07	0.80	Y	1.06	70.8

Lab ID: A9382_14496_DF_003 | Acq'd: 16 Nov 2016 05:16 ARL | Wt/Vol: 11.25 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB07-161031 | UTP: 16-Nov-2016 11:47:39 ARL | J-level: 0.444 pg/g | Split: 1 | Checkcode: 166-735-KQY

Datafile: 161115C22 | Report: 16 Nov 2016 11:52 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

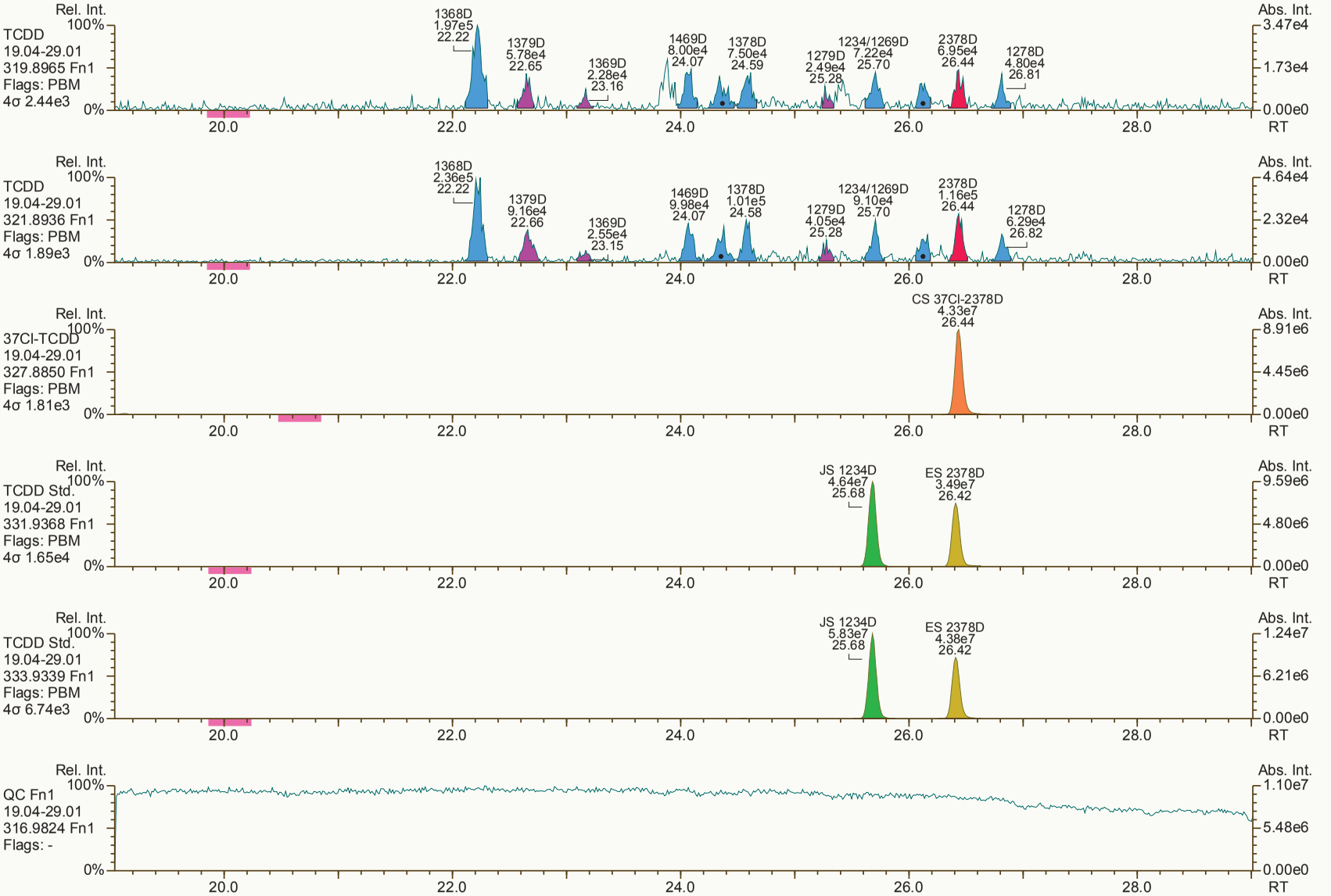
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	25.68		-	-	-	1.05E+08	0.80	Y	-	-
JS 123467-HxCDD	36.66		-	-	-	2.50E+07	1.18	Y	-	-
CS 37Cl-2378-TCDD	26.44		1.0295	1.0295	0	4.33E+07	n/a	-	1.24	83.3

Totals	Conc	EMPC
Total TCDD	2.86	3.31

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.6	0.77
Response	1.85E+05	1.59E+05

SGS ID: A9382_14496_DF_003 | **Sample ID: SB07-161031** | **Acq: 16-Nov-2016 05:16:59**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 9** | **User: ARL Datafile: 161115C22**



Results: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\A9382_14496_DF_003.utp_res, saved 16-Nov-2016 12:46 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 5350, 0421, 6200 scc: 166-735 | *PKD: 16-Nov-2016 11:47 Printed: 16-Nov-2016 12:50 Page 1 of 1*

SGS Environmental Services — Run Log **Project: A9382_14496_DF**

Instrument: HRMS3 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
17	161115C17	3	CS3_161115_DF_CA	1.00	SIL 15-104-2	ARL	182-109	16-Nov-2016	00:57:54
18	161115C18	6	OPR1_14496_DF	1.00	0_14496_OPR001	ARL	395-183	16-Nov-2016	01:48:16
19	161115C19	2	SBS_161115_DF_CD	1.00	SIL 15-49-1	ARL	681-772	16-Nov-2016	02:40:26
20	161115C20	5	MB1_14496_DF_SDS	10.00	Method Blank	ARL	536-117	16-Nov-2016	03:32:37
21	161115C21	8	A9382_14496_DF_002	10.81	SB06-161031	ARL	501-343	16-Nov-2016	04:24:49
22	161115C22	9	A9382_14496_DF_003	11.25	SB07-161031	ARL	166-735	16-Nov-2016	05:16:59
23	161115C23	7	A9382_14496_DF_001-D10	9.73	SB03-161031	ARL	137-685	16-Nov-2016	06:09:11
24	161115C24	2	SBS_161115_DF_CF	1.00	SIL 15-49-1	ARL	571-870	16-Nov-2016	07:01:21
25	161115C25	3	CS3_161115_DF_CB	1.00	SIL 15-104-2	ARL	445-271	16-Nov-2016	07:53:32

REVIEWED
By Amber Kornegay at 3:59 pm, Nov 16, 2016

REVIEWED
By Autumn Lindquist at 2:08 pm, Nov 16, 2016

Project file: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\A9382_14496_DF.utp_prj, saved 16-Nov-2016 14:06
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951

Printed: 16-Nov-2016 14:06

Dioxin/Furan QC Summary | **Acq'd: 16 Nov 2016 00:57 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161115_DF_CA | **UTP: 16-Nov-2016 11:47:32 ARL** | **Checkcode: 182-109-QMW**

Sample ID: SIL 15-104-2 | **Report: 16 Nov 2016 11:51 al** | **Datafile: 161115C17**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.39	6.68E+06	0.79	Y	1.19	1.05	-11%
ES 2378-TCDD	26.36	6.35E+07	0.80	Y	1.06	1.00	-6%

Dioxin/Furan QC Summary | **Acq'd: 16 Nov 2016 00:57 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161115_DF_CA | **UTP: 16-Nov-2016 11:47:32 ARL** | **Checkcode: 182-109-QMW**

Sample ID: SIL 15-104-2 | **Report: 16 Nov 2016 11:51 al** | **Datafile: 161115C17**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.63	6.38E+07	0.79	Y	-	-	-
CS 37Cl-2378-TCDD	26.39	6.96E+06	n/a	-	1.24	1.09	-12%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161115C17 Analysis Date: 16-NOV-2016 00:57:54

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.79	0.65 - 0.89	Y	8.85	8 - 12	Y

Processed: 16 Nov 2016 11:51 Analyst: al

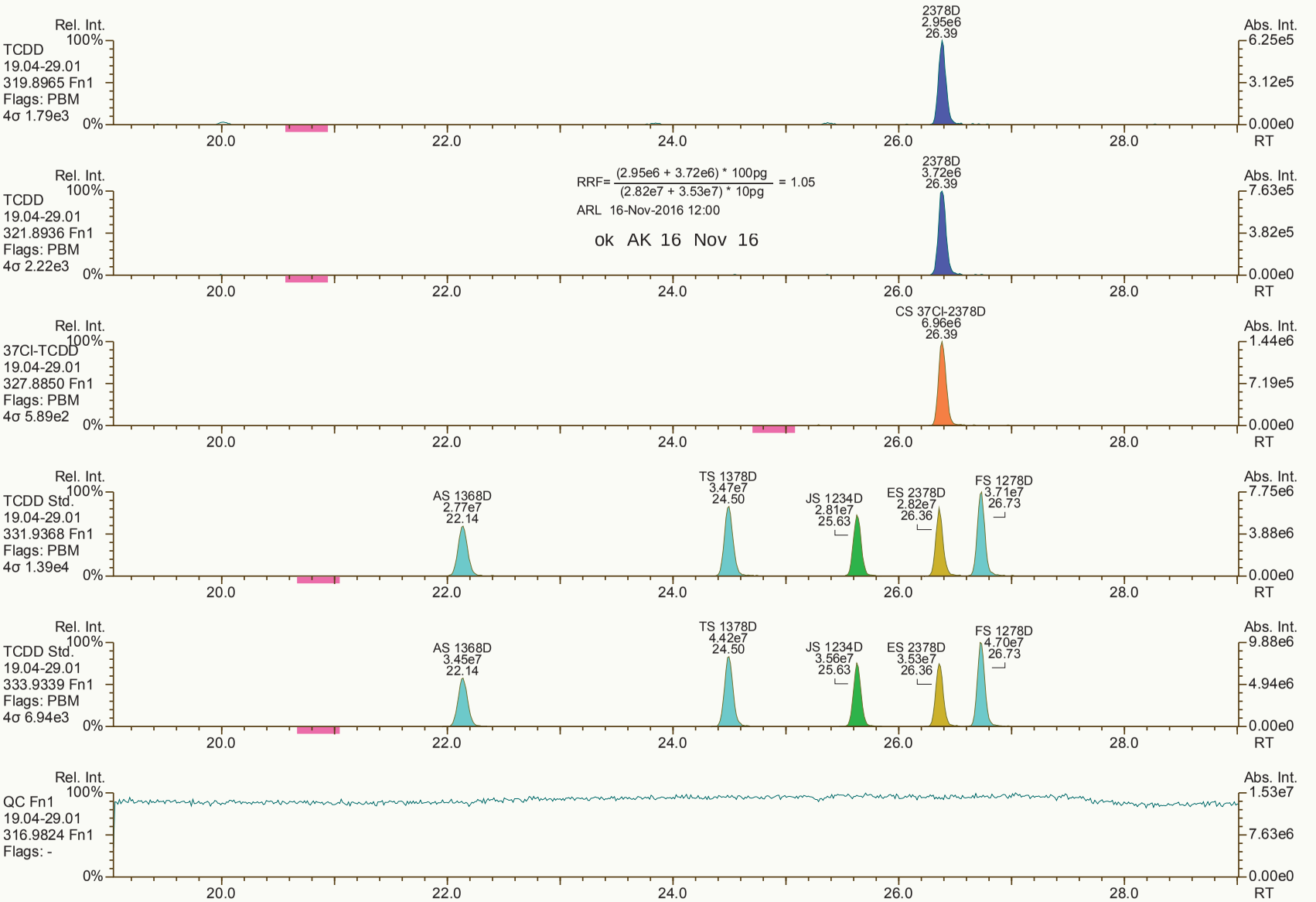
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161115C17 Analysis Date: 16-NOV-2016 00:57:54

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65 - 0.89	Y	93.7	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				8.79	7.9 - 12.7	Y

Processed: 16 Nov 2016 11:51 Analyst: al

SGS ID: CS3_161115_DF_CA | **Sample ID: SIL 15-104-2** | **Acq: 16-Nov-2016 00:57:54**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161115C17**



Results: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\CS3_161115_DF_CA.utp_res, saved 16-Nov-2016 12:02 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 6071, 8230, 4522 scc: 182-109 *Revised: 16-Nov-2016 11:32 (ARL) Printed: 16-Nov-2016 12:05 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 16 Nov 2016 07:53 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161115_DF_CB | **UTP: 16-Nov-2016 11:47:42 ARL** | **Checkcode: 445-271-DBM**

Sample ID: SIL 15-104-2 | **Report: 16 Nov 2016 11:51 al** | **Datafile: 161115C25**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.39	6.68E+06	0.79	Y	1.19	1.05	-11%
ES 2378-TCDD	26.36	6.35E+07	0.80	Y	1.06	1.00	-6%

Dioxin/Furan QC Summary | **Acq'd: 16 Nov 2016 07:53 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161115_DF_CB | **UTP: 16-Nov-2016 11:47:42 ARL** | **Checkcode: 445-271-DBM**

Sample ID: SIL 15-104-2 | **Report: 16 Nov 2016 11:51 al** | **Datafile: 161115C25**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.63	6.38E+07	0.79	Y	-	-	-
CS 37Cl-2378-TCDD	26.39	6.96E+06	n/a	-	1.24	1.09	-12%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016

Instrument ID: HRMS3 GC Column ID: ZB-5ms

VER Data Filename: 161115C25 Analysis Date: 16-NOV-2016 07:53:32

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.81	0.65 - 0.89	Y	8.91	8 - 12	Y

Processed: 16 Nov 2016 11:51 Analyst: al

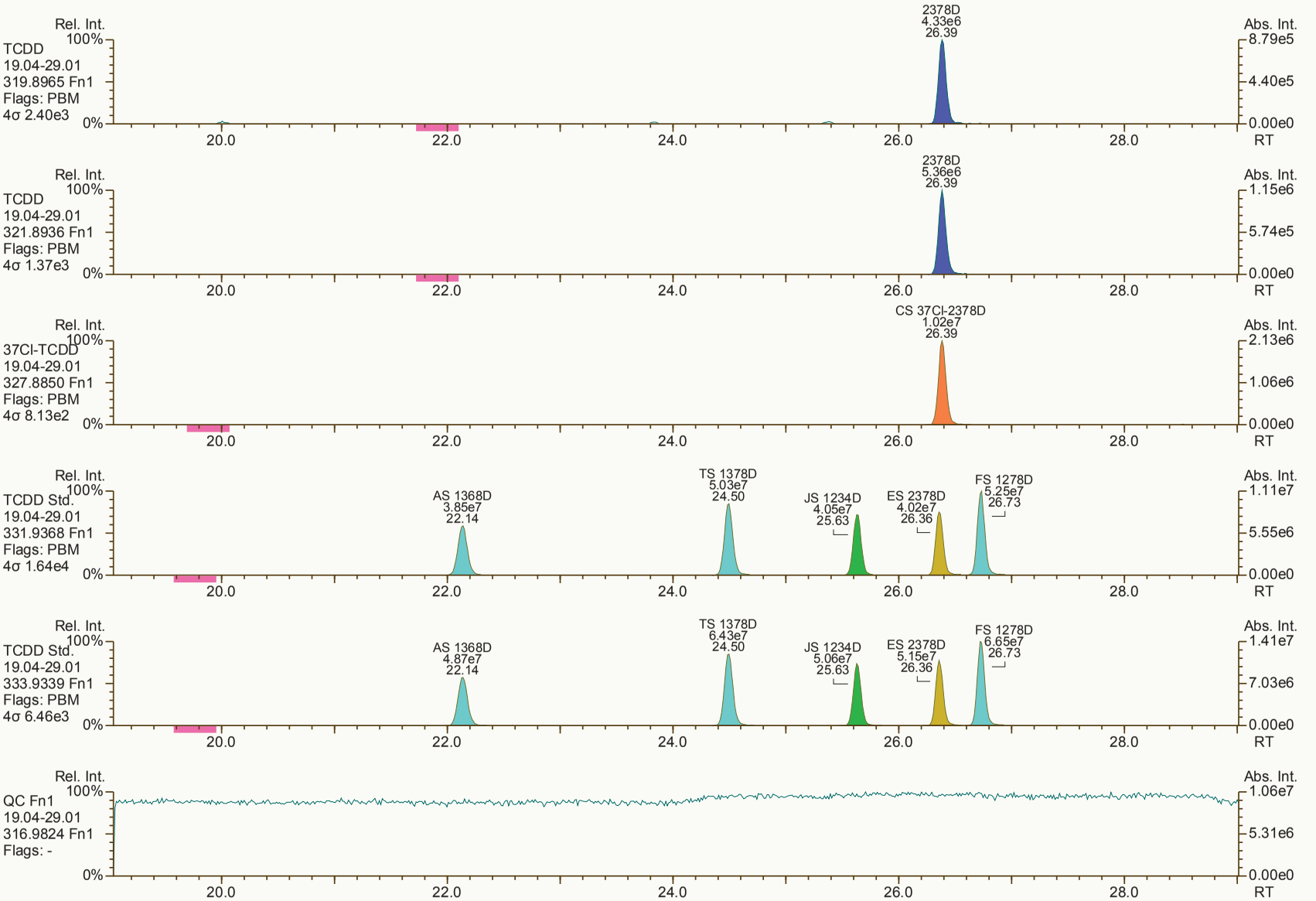
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161115C25 Analysis Date: 16-NOV-2016 07:53:32

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	94.6	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.06	7.9 - 12.7	Y

Processed: 16 Nov 2016 11:51 Analyst: al

SGS ID: CS3_161115_DF_CB | **Sample ID: SIL 15-104-2** | **Acq: 16-Nov-2016 07:53:32**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161115C25**



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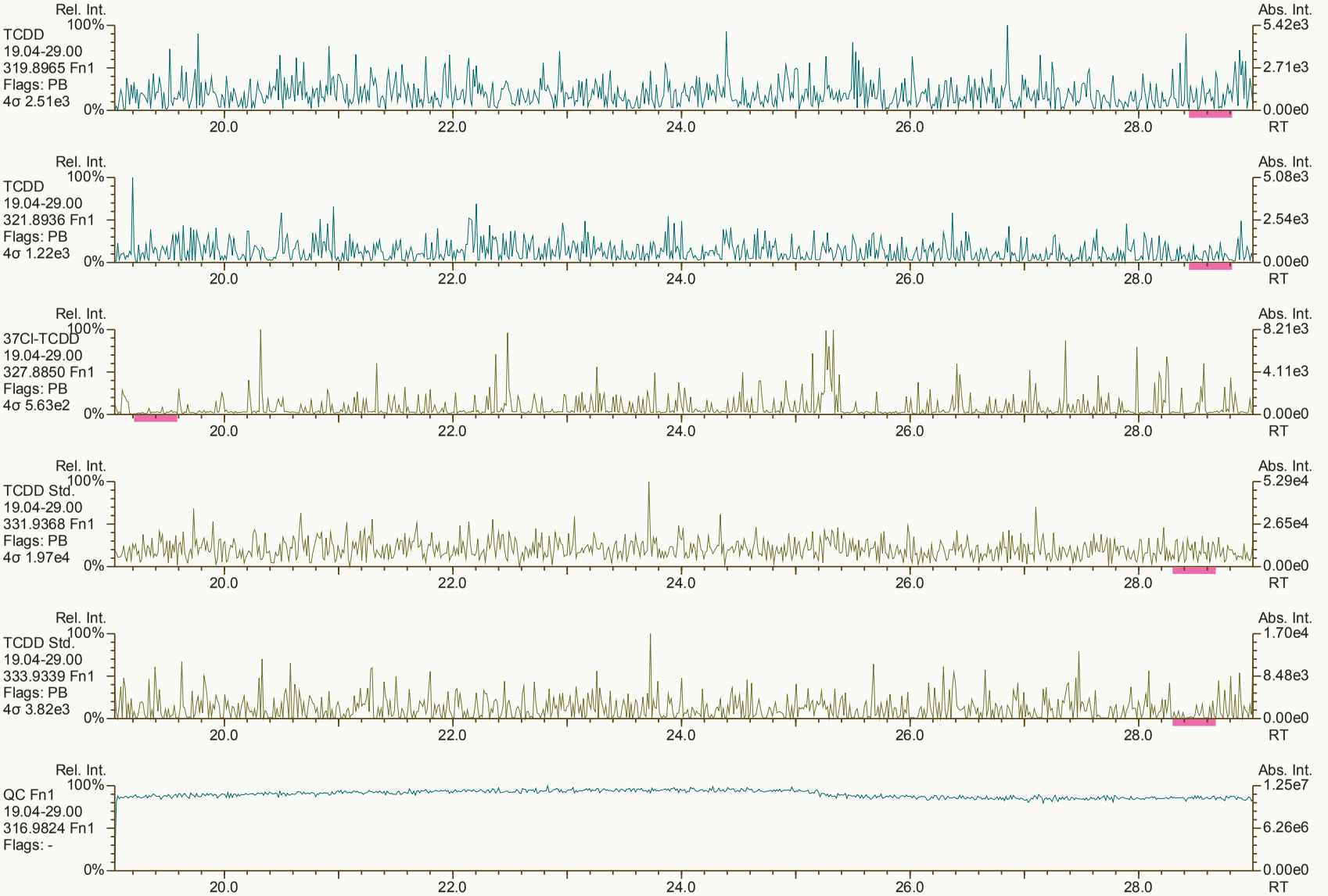
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 8178, 1658, 2444 scc: 445-271 *PKD: 16-Nov-2016 11:33 Printed: 16-Nov-2016 12:08 Page 1 of 1*

SGS ID: SBS_161115_DF_CF | **Sample ID: SIL 15-49-1** | **Acq: 16-Nov-2016 07:01:21**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 2** | **User: ARL Datafile: 161115C24**



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SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 2498, 7636, 9920 scc: 571-870 | *PKD: 16-Nov-2016 11:47 Printed: 16-Nov-2016 12:50 Page 1 of 1*

Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, November 16, 2016 00:57:48 Eastern Standard Time

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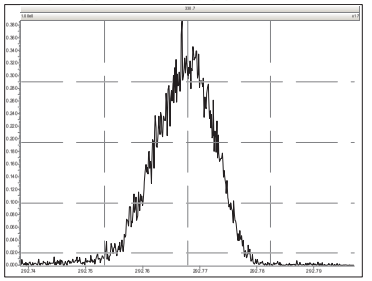
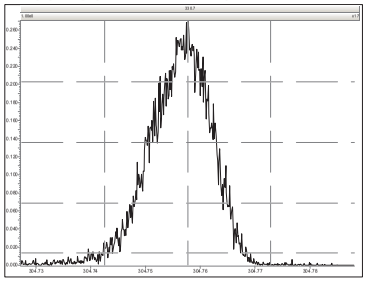
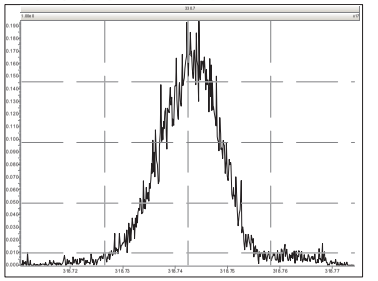


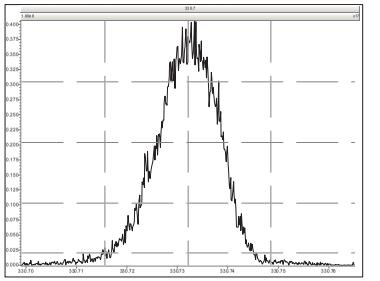
M 304.9824 R 12226



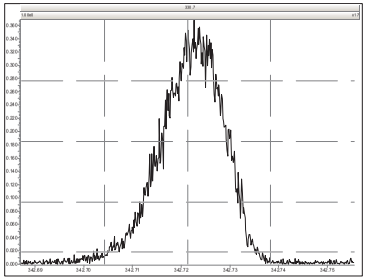
M 318.9792 R 11991



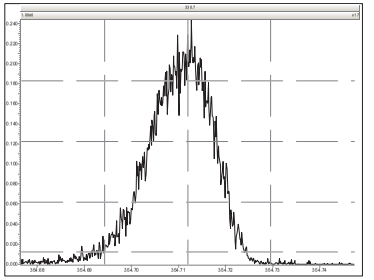
M 330.9792 R 11968



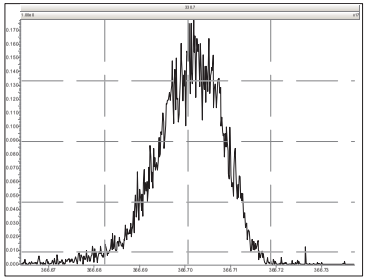
M 342.9792 R 11672



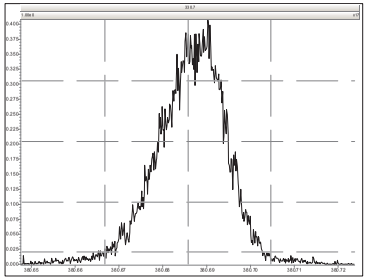
M 354.9792 R 11415



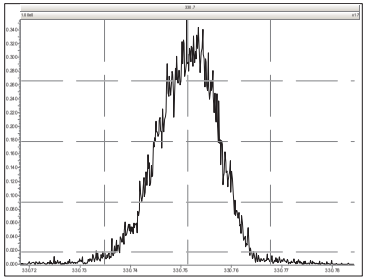
M 366.9792 R 11302



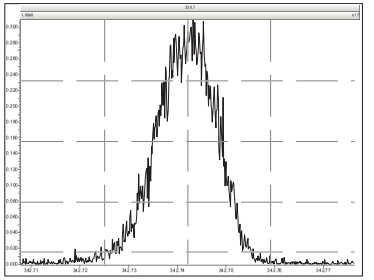
M 380.9760 R 11188



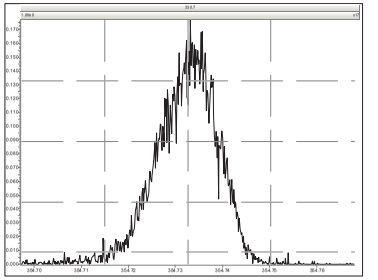
M 330.9792 R 12165



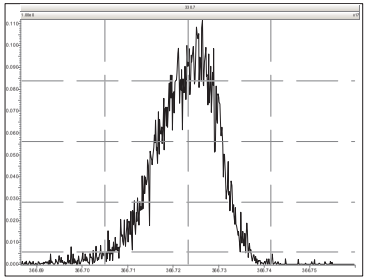
M 342.9792 R 12293



M 354.9792 R 12921



M 366.9792 R 13578



Resolution Check Report **MassLynx 4.1** Page 2 of 4

Printed: Wednesday, November 16, 2016 00:57:48 Eastern Standard Time

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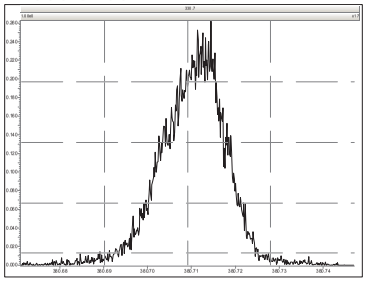
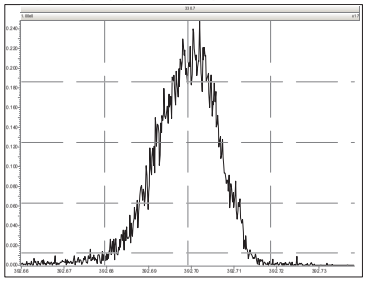
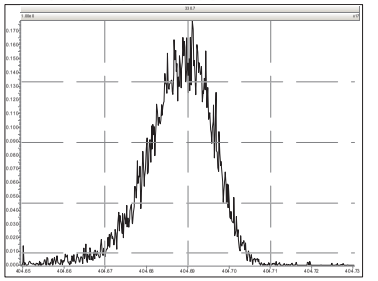


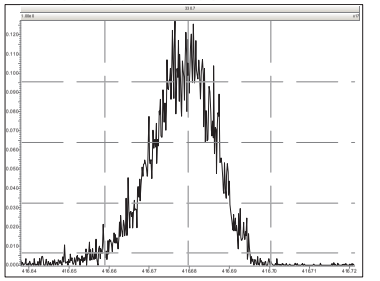
M 392.9760 R 12201



M 404.9760 R 11991



M 416.9760 R 11532



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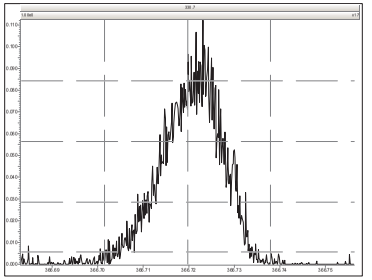

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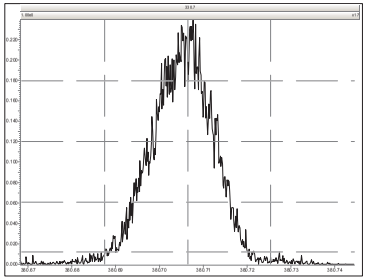

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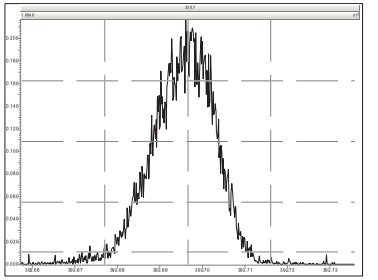

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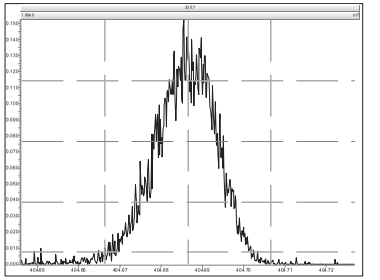
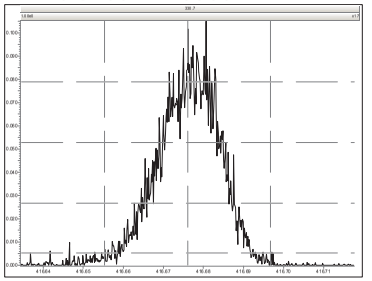
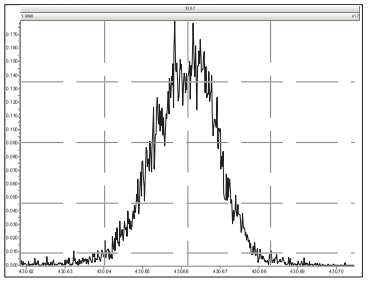


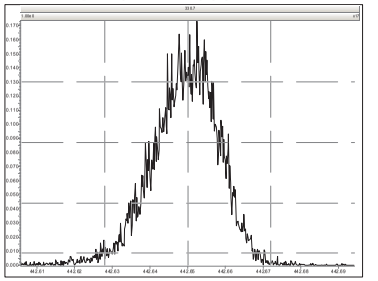
M 416.9760 R 13006



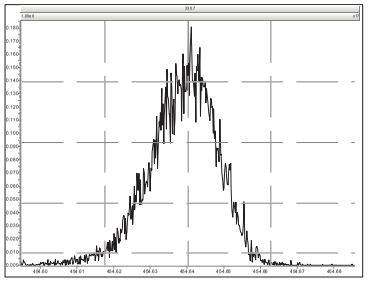
M 430.9728 R 11831



M 442.9728 R 11655



M 454.9728 R 11961



Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, November 16, 2016 00:57:48 Eastern Standard Time

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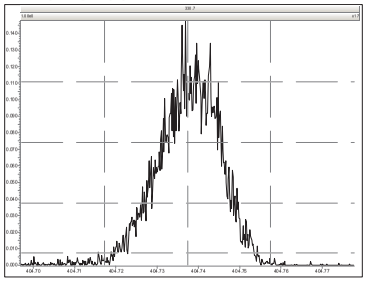

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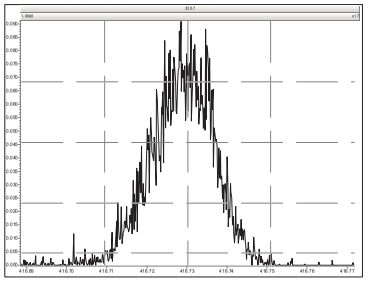

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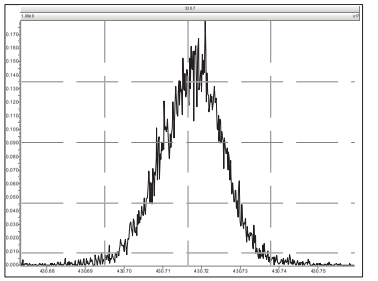

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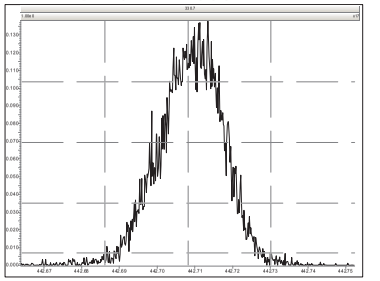

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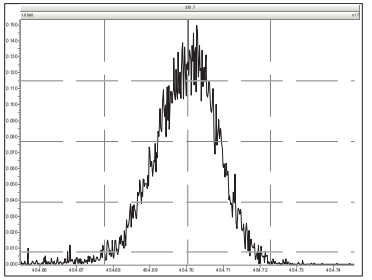
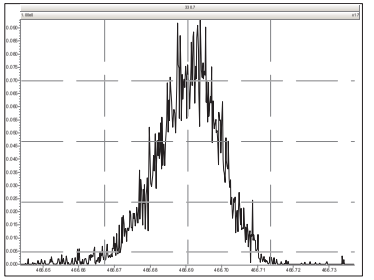
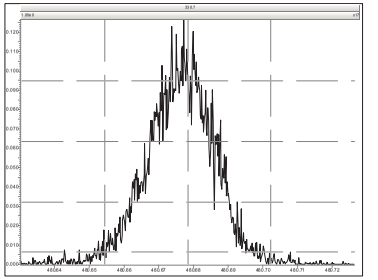


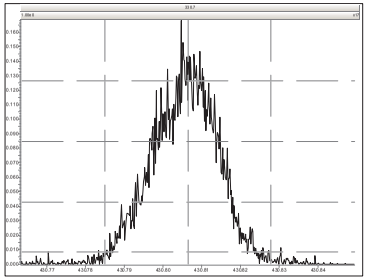
M 466.9728 R 11720



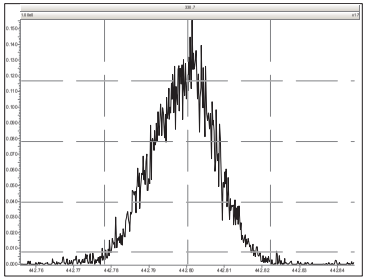
M 480.9696 R 11608



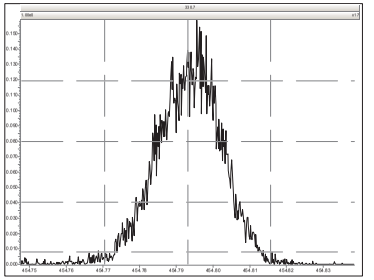
M 430.9728 R 11714



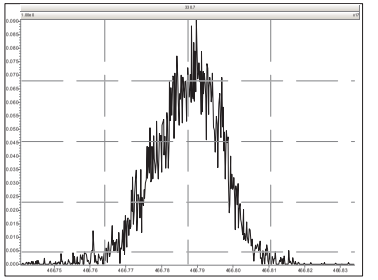
M 442.9728 R 11891



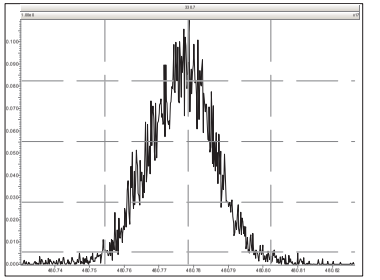
M 454.9728 R 11135



M 466.9728 R 12437



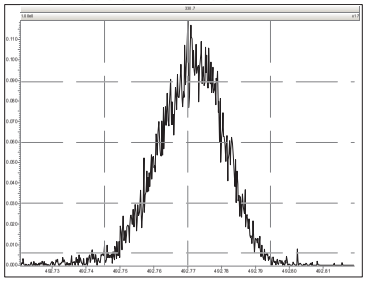
M 480.9696 R 11522



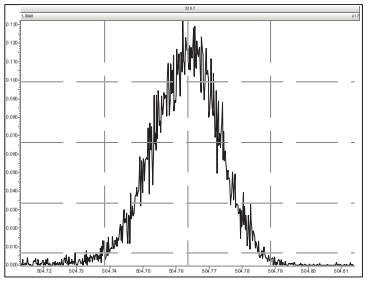
Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, November 16, 2016 00:57:48 Eastern Standard Time

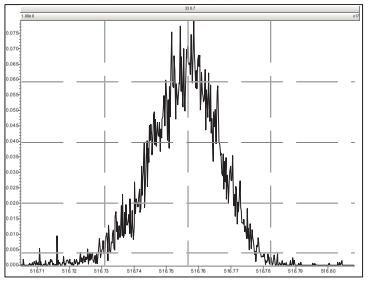
M 492.9696 R 11580



M 504.9696 R 11290



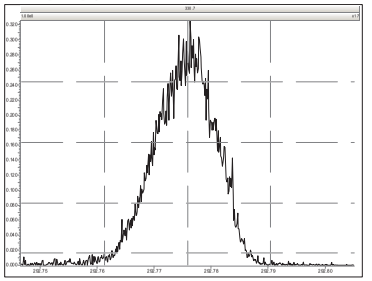
M 516.9697 R 11580



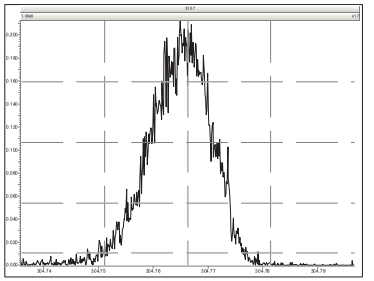
Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, November 16, 2016 08:53:41 Eastern Standard Time

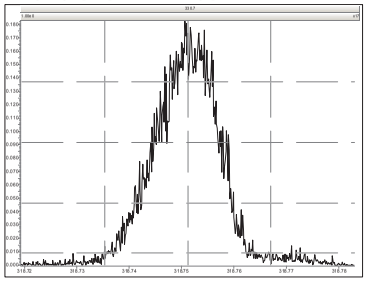
M 292.9824 R 12594



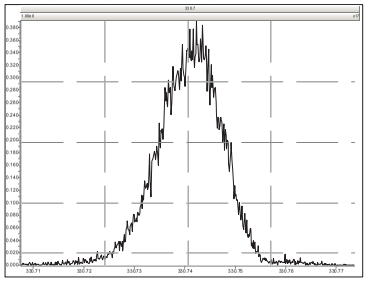
M 304.9824 R 12136



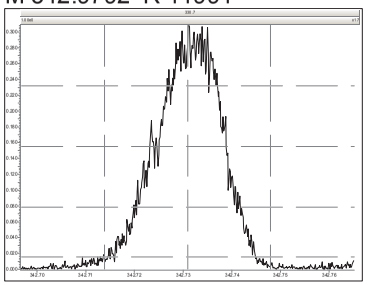
M 318.9792 R 12594



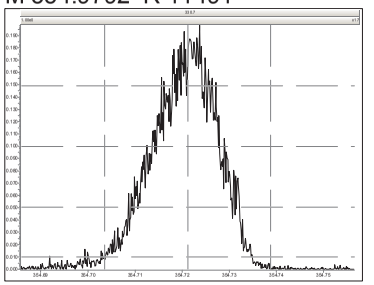
M 330.9792 R 11467



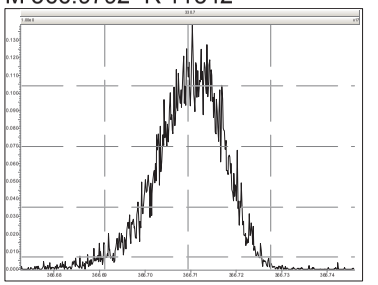
M 342.9792 R 11991



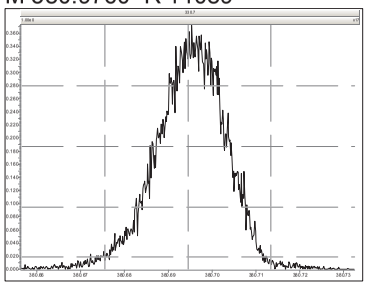
M 354.9792 R 11491



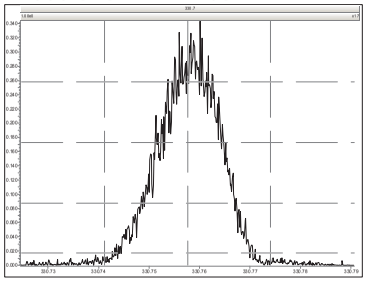
M 366.9792 R 11342



M 380.9760 R 11089



M 330.9792 R 12269



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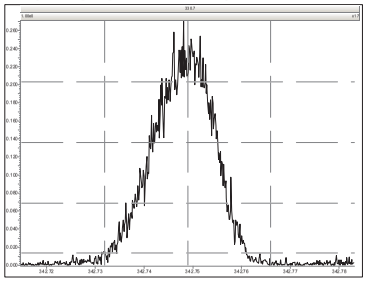

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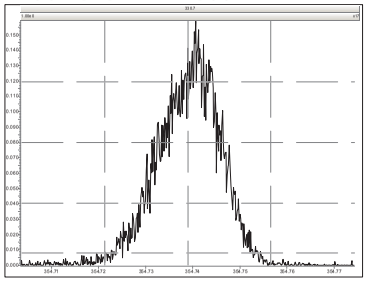
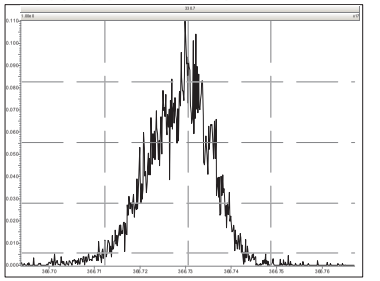


M 366.9792 R 12445



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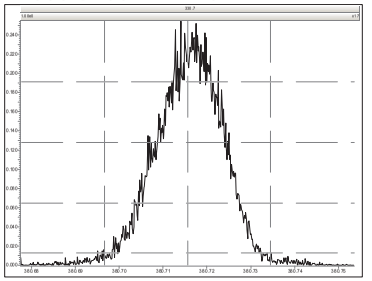
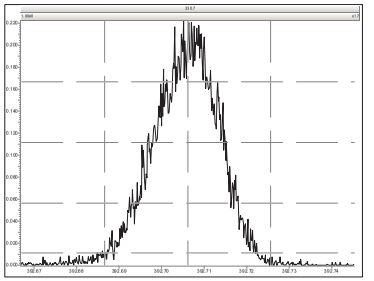
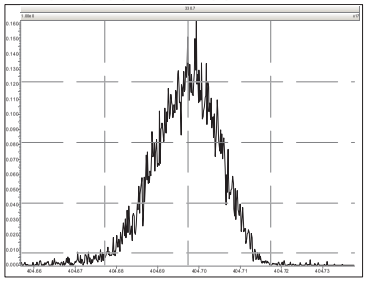
M 380.9760 R 11237



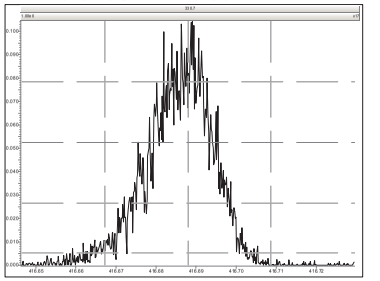
M 392.9760 R 11654



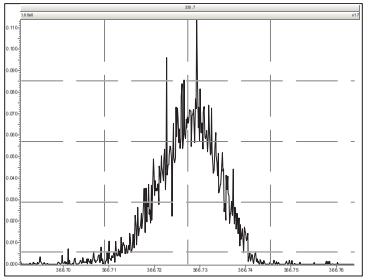
M 404.9760 R 12165



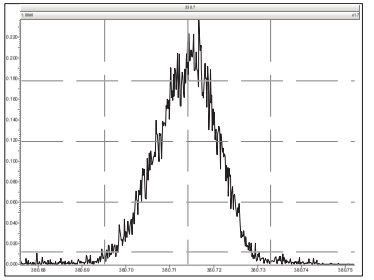
M 416.9760 R 12756



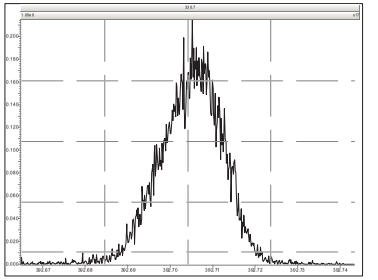
M 366.9792 R 13337



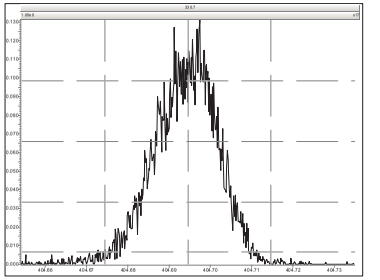
M 380.9760 R 12081



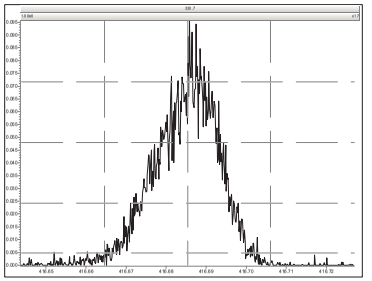
M 392.9760 R 12499



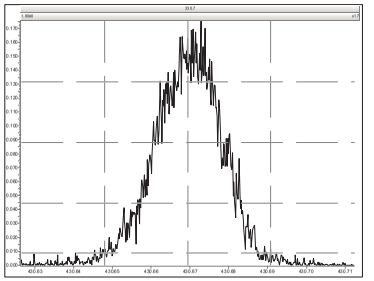
M 404.9760 R 12820



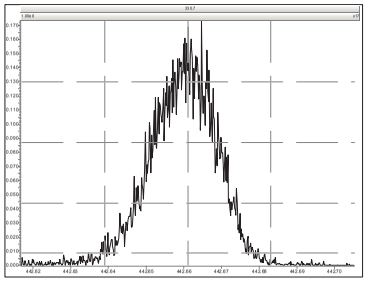
M 416.9760 R 12867



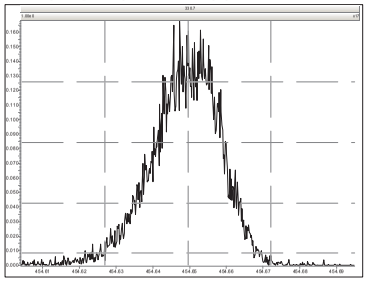
M 430.9728 R 11917



M 442.9728 R 11798



M 454.9728 R 11286



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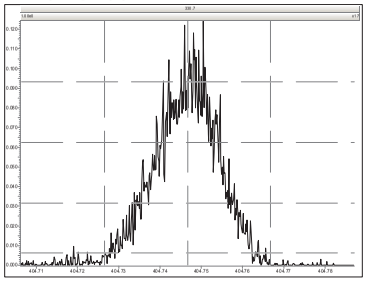
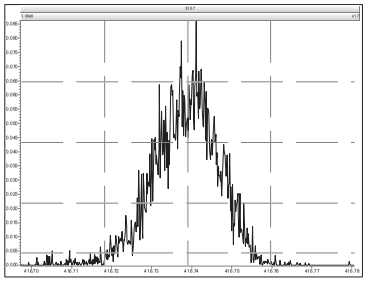
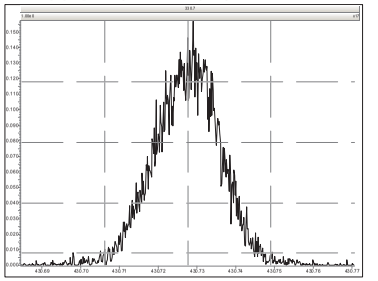
M 404.9760 R 12711



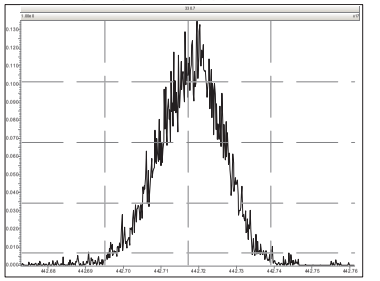
M 416.9760 R 12255



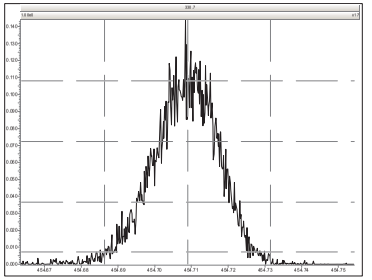
M 430.9728 R 11848



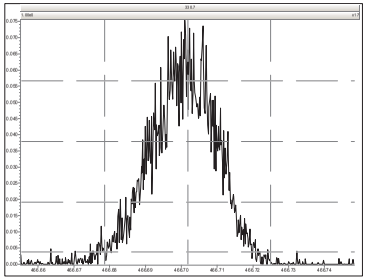
M 442.9728 R 11869



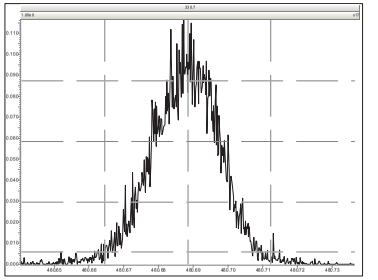
M 454.9728 R 11831



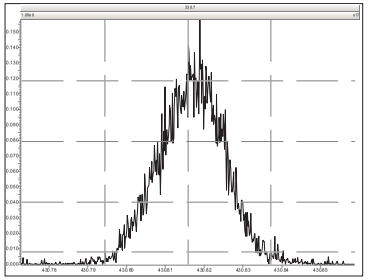
M 466.9728 R 11798



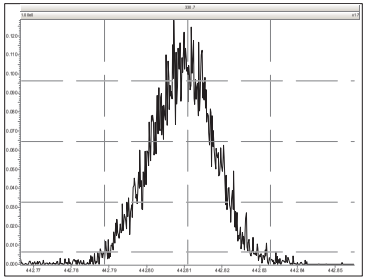
M 480.9696 R 12136



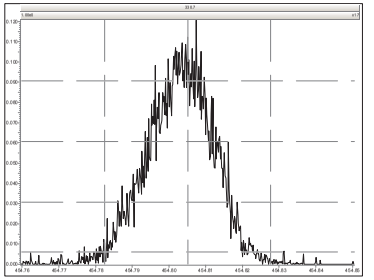
M 430.9728 R 11709



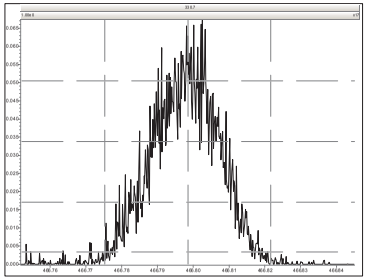
M 442.9728 R 11536



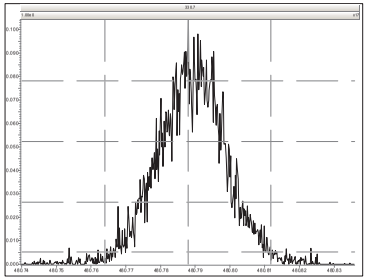
M 454.9728 R 12628



M 466.9728 R 11911



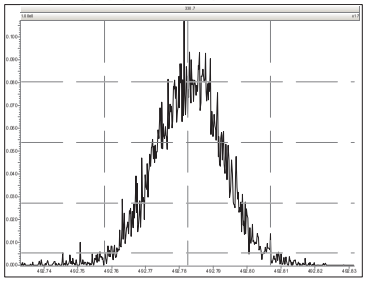
M 480.9696 R 11665



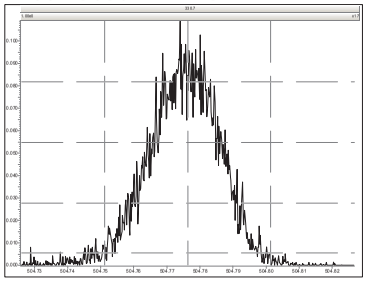
Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, November 16, 2016 08:53:41 Eastern Standard Time

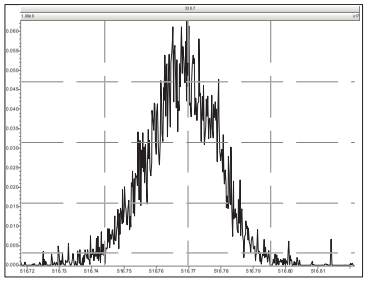
M 492.9696 R 11467



M 504.9696 R 11494



M 516.9697 R 12416



Dioxin/Furan ICAL Summary | **SGS Environmental Services** | **Processed: 7 Jan 2016 10:52**

ICAL: HRMS3_DF_12212015_06JAN2016
Data Acquired: 06-Jan-2016

Name	Mean	% RSD	160106C05 0.25 pg/uL CS0	160106C06 0.5 pg/uL CS1	160106C07 2.0 pg/uL CS2	160106C08 10 pg/uL CS3	160106C09 40 pg/uL CS4	160106C10 200 pg/uL CS5	160106C11 500 pg/uL CS6
2378-TCDD	1.19	3.3%	1.24	1.23	1.18	1.16	1.19	1.17	1.13
12378-PeCDD	1.02	2.9%	1.01	1.05	1.06	0.97	1.02	1.01	0.99
123478-HxCDD	1.08	2.9%	1.10	1.13	1.11	1.05	1.07	1.08	1.04
123678-HxCDD	1.05	5.1%	1.07	0.98	1.13	1.00	1.09	1.02	1.05
123789-HxCDD	0.99	5.5%	1.06	0.99	1.07	0.93	0.98	0.96	0.96
1234678-HpCDD	1.02	3.2%	1.06	1.02	1.06	1.00	1.03	1.00	0.97
OCDD	1.09	2.8%	1.11	1.11	1.14	1.05	1.10	1.08	1.06
2378-TCDF	1.09	4.8%	1.05	1.13	1.17	1.03	1.11	1.06	1.05
12378-PeCDF	1.03	2.6%	1.05	1.02	1.06	0.98	1.05	1.03	1.03
23478-PeCDF	1.02	3.4%	1.00	1.03	1.09	0.97	1.03	1.02	1.02
123478-HxCDF	1.29	4.7%	1.37	1.36	1.33	1.21	1.28	1.24	1.27
123678-HxCDF	1.17	3.3%	1.17	1.22	1.22	1.12	1.19	1.14	1.15
234678-HxCDF	1.18	3.2%	1.23	1.19	1.20	1.11	1.18	1.19	1.18
123789-HxCDF	1.18	4.5%	1.20	1.24	1.25	1.10	1.15	1.16	1.16
1234678-HpCDF	1.38	3.2%	1.38	1.46	1.40	1.34	1.37	1.36	1.33
1234789-HpCDF	1.30	4.6%	1.24	1.37	1.39	1.26	1.30	1.26	1.27
OCDF	1.03	4.6%	0.97	1.05	1.12	1.01	1.05	1.03	1.01
ES 2378-TCDD	1.06	4.2%	1.02	1.07	1.03	1.07	1.02	1.07	1.15
ES 12378-PeCDD	0.99	6.4%	0.97	0.92	1.00	0.96	0.98	1.01	1.12
ES 123478-HxCDD	1.09	6.0%	1.10	1.11	0.96	1.11	1.08	1.08	1.17
ES 123678-HxCDD	1.10	5.6%	1.06	1.13	0.99	1.16	1.06	1.12	1.14
ES 123789-HxCDD	1.24	6.7%	1.25	1.27	1.07	1.31	1.22	1.26	1.32
ES 1234678-HpCDD	0.93	5.4%	1.01	0.89	0.87	0.91	0.92	0.97	0.97
ES OCDD	0.71	6.7%	0.70	0.70	0.63	0.72	0.70	0.73	0.79
ES 2378-TCDF	1.02	3.5%	1.00	1.06	0.97	1.04	1.00	1.02	1.07
ES 12378-PeCDF	0.96	4.6%	0.99	0.95	0.92	0.95	0.91	1.03	1.00
ES 23478-PeCDF	0.95	3.2%	0.95	0.94	0.92	0.93	0.92	0.98	1.00
ES 123478-HxCDF	1.32	4.3%	1.31	1.32	1.21	1.34	1.33	1.34	1.40
ES 123678-HxCDF	1.51	5.2%	1.48	1.54	1.36	1.53	1.50	1.55	1.61
ES 234678-HxCDF	1.38	4.8%	1.38	1.43	1.26	1.43	1.35	1.37	1.46
ES 123789-HxCDF	1.25	5.9%	1.22	1.28	1.11	1.31	1.23	1.29	1.33
ES 1234678-HpCDF	1.03	5.0%	1.05	1.00	0.93	1.04	1.01	1.07	1.07
ES 1234789-HpCDF	0.87	5.5%	0.93	0.84	0.79	0.85	0.89	0.90	0.91
ES OCDF	0.92	8.6%	0.89	0.90	0.80	0.91	0.92	0.97	1.06

APPROVED
By Heather Distel at 2:41 pm, Jan 07, 2016

Dioxin/Furan ICAL Summary — SGS Environmental Services — Processed: 7 Jan 2016 10:52

ICAL: HRMS3_DF_12212015_06JAN2016
Data Acquired: 18-Jun-2009

Name	Mean	% RSD	160106C05 0.25 pg/uL CS0	160106C06 0.5 pg/uL CS1	160106C07 2.0 pg/uL CS2	160106C08 10 pg/uL CS3	160106C09 40 pg/uL CS4	160106C10 200 pg/uL CS5	160106C11 500 pg/uL CS6
CS 37Cl-2378-TCDD	1.24	4.2%	-	1.32	1.25	1.23	1.17	1.23	-
CS 12347-PeCDD	0.94	5.3%	0.99	0.85	0.98	0.92	0.92	0.93	0.97
CS 12346-PeCDF	0.92	4.3%	0.97	0.87	0.91	0.91	0.90	0.98	0.92
CS 123469-HxCDF	1.38	3.0%	1.44	1.40	1.33	1.43	1.37	1.36	1.35
CS 1234689-HpCDF	0.88	5.9%	0.97	0.85	0.84	0.90	0.90	0.88	0.82
SS 37Cl-2378-TCDD	1.18	3.4%	-	1.23	1.21	1.15	1.15	1.15	-
SS 12347-PeCDD	0.94	5.4%	1.03	0.92	0.99	0.95	0.94	0.91	0.87
SS 12346-PeCDF	0.96	3.2%	0.99	0.92	0.98	0.96	0.99	0.95	0.92
SS 123469-HxCDF	0.92	5.4%	0.97	0.91	0.98	0.93	0.91	0.88	0.84
SS 1234689-HpCDF	0.86	6.5%	0.92	0.85	0.91	0.87	0.89	0.82	0.76
AS 1368-TCDD	1.05	2.5%	1.05	0.99	1.08	1.06	1.06	1.05	1.06
AS 1368-TCDF	1.40	4.0%	1.39	1.40	1.33	1.50	1.36	1.44	1.37
OCDD-a	0.07	4.5%	-	-	0.06	0.07	0.07	0.07	0.07
OCDF-a	0.06	7.9%	-	-	0.06	0.07	0.07	0.06	0.06
Totals									
Total TCDD	1.19	3.3%	1.24	1.23	1.18	1.16	1.19	1.17	1.13
Total PeCDD	1.02	2.9%	1.01	1.05	1.06	0.97	1.02	1.01	0.99
Total HxCDD	1.04	3.7%	1.08	1.03	1.10	0.99	1.05	1.02	1.02
Total HpCDD	1.02	3.2%	1.06	1.02	1.06	1.00	1.03	1.00	0.97
Total TCDF	1.09	4.8%	1.05	1.13	1.17	1.03	1.11	1.06	1.05
Total PeCDF	1.03	2.8%	1.03	1.03	1.07	0.98	1.04	1.02	1.02
Total HxCDF	1.21	3.6%	1.24	1.25	1.25	1.13	1.20	1.18	1.19
Total HpCDF	1.34	3.7%	1.31	1.42	1.40	1.30	1.34	1.31	1.30
FS 1278-TCDD	1.28	2.8%	1.30	1.29	1.32	1.30	1.31	1.23	1.24
FS 12478-PeCDD	1.11	5.3%	1.19	1.14	1.13	1.12	1.08	1.11	1.00
FS 123468-HxCDD	1.36	6.5%	1.41	1.35	1.48	1.38	1.39	1.27	1.22
FS 1234679-HpCDD	1.30	7.1%	1.31	1.36	1.31	1.42	1.35	1.21	1.15
TS 1378-TCDD	1.21	3.9%	1.23	1.16	1.29	1.18	1.24	1.19	1.17

8290B ICALs

Ax	HRMS3_DF_01172014_29APR2014	HRMS3_03022015_21APR15	HRMS_DF_12212015_06JAN16	RSD	Mean	sd	PD from Mean
2,3,7,8-TCDD	1.22	1.16	1.19	2.5	1.19	0.03	0%
1,2,3,7,8-PeCDD	1.07	1.03	1.02	2.6	1.04	0.03	-2%
1,2,3,4,7,8-HxCDD	1.14	1.10	1.08	2.8	1.11	0.03	-2%
1,2,3,6,7,8-HxCDD	1.16	1.11	1.05	5.1	1.11	0.06	-5%
1,2,3,7,8,9-HxCDD	1.08	1.04	0.99	4.3	1.04	0.04	-4%
1,2,3,4,6,7,8-HpCDD	1.10	1.05	1.02	3.6	1.06	0.04	-3%
OCDD	1.19	1.14	1.09	4.4	1.14	0.05	-4%
2,3,7,8-TCDF	1.17	1.07	1.09	4.7	1.11	0.05	-2%
1,2,3,7,8-PeCDF	1.08	1.04	1.03	2.5	1.05	0.03	-2%
2,3,4,7,8-PeCDF	1.07	1.03	1.02	2.2	1.04	0.02	-2%
1,2,3,4,7,8-HxCDF	1.35	1.34	1.29	2.2	1.33	0.03	-2%
1,2,3,6,7,8-HxCDF	1.22	1.21	1.17	2.2	1.20	0.03	-3%
2,3,4,6,7,8-HxCDF	1.25	1.22	1.18	2.7	1.22	0.03	-3%
1,2,3,7,8,9-HxCDF	1.23	1.21	1.18	1.8	1.21	0.02	-2%
1,2,3,4,6,7,8-HpCDF	1.42	1.45	1.38	2.6	1.41	0.04	-3%
1,2,3,4,7,8,9-HpCDF	1.35	1.38	1.30	2.9	1.34	0.04	-3%
OCDF	1.12	1.10	1.03	4.3	1.09	0.05	-5%
ES							
2,3,7,8-TCDD	1.07	1.04	1.06	1.1	1.06	0.01	0%
1,2,3,7,8-PeCDD	0.98	0.88	0.99	6.3	0.95	0.06	5%
1,2,3,4,7,8-HxCDD	1.06	1.03	1.09	2.6	1.06	0.03	3%
1,2,3,6,7,8-HxCDD	1.01	1.02	1.10	4.5	1.04	0.05	5%
1,2,3,7,8,9-HxCDD	1.15	1.19	1.24	3.8	1.19	0.05	4%
1,2,3,4,6,7,8-HpCDD	0.90	0.94	0.93	2.6	0.92	0.02	1%
OCDD	0.69	0.67	0.71	3.2	0.69	0.02	3%
2,3,7,8-TCDF	1.04	1.05	1.02	1.3	1.04	0.01	-1%
1,2,3,7,8-PeCDF	0.94	0.89	0.96	4.1	0.93	0.04	3%
2,3,4,7,8-PeCDF	0.94	0.87	0.95	4.3	0.92	0.04	3%
1,2,3,4,7,8-HxCDF	1.40	1.28	1.32	4.5	1.33	0.06	-1%
1,2,3,6,7,8-HxCDF	1.68	1.49	1.51	6.9	1.56	0.11	-3%
2,3,4,6,7,8-HxCDF	1.46	1.38	1.38	3.3	1.41	0.05	-2%
1,2,3,7,8,9-HxCDF	1.32	1.25	1.25	3.4	1.27	0.04	-2%
1,2,3,4,6,7,8-HpCDF	1.04	1.04	1.03	0.9	1.04	0.01	-1%
1,2,3,4,7,8,9-HpCDF	0.87	0.89	0.87	1.4	0.88	0.01	-1%
OCDF	0.96	0.89	0.92	3.8	0.92	0.04	0%

D/F ICAL	Conc.					
Individual Native Standards	CS 0	CS 1	CS 2	CS 3	CS 4	CS 5
2378 TCDD	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
2378 TCDF	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12378 PeCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
12378 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
23478 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
234678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234789 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
OCDD	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
OCDF	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
Extraction Standards						
2378 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
2378 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
23478 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
234678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234789 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
OCDD 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
OCDF 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
Cleanup/Sampling standards						
2378 37Cl4		0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12347 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12346 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123469 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234689 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Alternate Standard						
1368 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1368 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Injection standards						
1234 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123467 HxCDD 13C12	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul

Working Standards

ES

2378 TCDD 13C12	10 pg/ul
2378 TCDF 13C12	10 pg/ul
12378 PeCDD 13C12	10 pg/ul
12378 PeCDF 13C12	10 pg/ul
23478 PeCDF 13C12	10 pg/ul
123478 HxCDD 13C12	10 pg/ul
123678 HxCDD 13C12	10 pg/ul
123789 HxCDD 13C12	10 pg/ul
123478 HxCDF 13C12	10 pg/ul
123678 HxCDF 13C12	10 pg/ul
123789 HxCDF 13C12	10 pg/ul
234678 HxCDF 13C12	10 pg/ul
1234678 HpCDD 13C12	10 pg/ul
1234678 HpCDF 13C12	10 pg/ul
1234789 HpCDF 13C12	10 pg/ul
OCDD 13C12	10 pg/ul
OCDF 13C12	10 pg/ul

Ax

2378 TCDD	1 pg/ul
2378 TCDF	1 pg/ul
12378 PeCDD	1 pg/ul
12378 PeCDF	1 pg/ul
23478 PeCDF	1 pg/ul
123478 HxCDD	1 pg/ul
123678 HxCDD	1 pg/ul
123789 HxCDD	1 pg/ul
123478 HxCDF	1 pg/ul
123678 HxCDF	1 pg/ul
123789 HxCDF	1 pg/ul
234678 HxCDF	1 pg/ul
1234678 HpCDD	1 pg/ul
1234678 HpCDF	1 pg/ul
1234789 HpCDF	1 pg/ul
OCDD	1 pg/ul
OCDF	1 pg/ul

CS/SS

2378 37Cl4	4 pg/ul
12347 PeCDD 13C12	10 pg/ul
12346 PeCDF 13C12	10 pg/ul
123469 HxCDF 13C12	10 pg/ul
1234689 HpCDF 13C12	10 pg/ul

AS

1368 TCDD 13C12	10 pg/ul
1368 TCDF 13C12	10 pg/ul

JS

1234 TCDD 13C12	10 pg/ul
1234 TCDF 13C12	10 pg/ul
123467 HxCDD 13C12	5 pg/ul

FS

1278 TCDD 13C12	100 pg/ul
12478 PeCDD 13C12	100 pg/ul
123468 HxCDD 13C12	100 pg/ul
1234679 HpCDD 13C12	100 pg/ul

TS

1378 TCDD 13C12	100 pg/ul

CS6
500 pg/ul
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50 pg/ul

SGS Environmental Services — Run Log **Project: HRMS3_DF_12212015_06JAN2016**

Instrument: HRMS3 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
3	160106C03	71	SBS_160106_CA	1.00	SIL 15-49-1	ARL	152-729	06-Jan-2016	17:12:51
5	160106C05	72	CS0_160106_CA	1.00	SIL 15-105-2	ARL	695-693	06-Jan-2016	19:02:30
6	160106C06	73	CS1_160106_CA	1.00	SIL 15-105-1	ARL	311-800	06-Jan-2016	19:55:05
7	160106C07	74	CS2_160106_CA	1.00	SIL 15-104-3	ARL	134-724	06-Jan-2016	20:47:39
8	160106C08	75	CS3_160106_CA	1.00	SIL 15-104-2	ARL	110-238	06-Jan-2016	21:40:12
9	160106C09	76	CS4_160106_CA	1.00	SIL 15-104-1	ARL	873-132	06-Jan-2016	22:32:46
10	160106C10	77	CS5_160106_CA	1.00	SIL 15-103-4	ARL	040-020	06-Jan-2016	23:25:20
11	160106C11	78	CS6_160106_CA	1.00	SIL 15-105-3	ARL	804-666	07-Jan-2016	00:17:55

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:02 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS0_160106_CA | **UTP: 07-Jan-2016 10:52:21 ARL** | **Checkcode: 695-693-QXR**

Sample ID: SIL 15-105-2 | **Report: 07 Jan 2016 11:08 AL** | **Datafile: 160106C05**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.43	1.81E+05	0.78	Y	1.19	1.24	4%
12378-PeCDD	32.22	6.95E+05	1.50	Y	1.02	1.01	-1%
123478-HxCDD	36.33	6.19E+05	1.34	Y	1.08	1.10	2%
123678-HxCDD	36.45	5.81E+05	1.21	Y	1.05	1.07	2%
123789-HxCDD	36.74	6.81E+05	1.26	Y	0.99	1.06	7%
1234678-HpCDD	40.60	5.47E+05	1.10	Y	1.02	1.06	4%
OCDD	45.87	7.96E+05	0.97	Y	1.09	1.11	1%
2378-TCDF	25.46	2.25E+05	0.87	Y	1.09	1.05	-4%
12378-PeCDF	30.66	1.11E+06	1.51	Y	1.03	1.05	2%
23478-PeCDF	31.85	1.03E+06	1.52	Y	1.02	1.00	-2%
123478-HxCDF	35.30	9.13E+05	1.16	Y	1.29	1.37	6%
123678-HxCDF	35.45	8.84E+05	1.31	Y	1.17	1.17	-1%
234678-HxCDF	36.14	8.64E+05	1.25	Y	1.18	1.23	4%
123789-HxCDF	37.12	7.50E+05	1.17	Y	1.18	1.20	2%
1234678-HpCDF	39.02	7.41E+05	1.02	Y	1.38	1.38	0%
1234789-HpCDF	41.39	5.93E+05	1.06	Y	1.30	1.24	-4%
OCDF	46.17	8.87E+05	0.98	Y	1.03	0.97	-6%
ES 2378-TCDD	26.40	5.83E+07	0.83	Y	1.06	1.02	-4%
ES 12378-PeCDD	32.21	5.53E+07	1.56	Y	0.99	0.97	-3%
ES 123478-HxCDD	36.32	4.50E+07	1.26	Y	1.09	1.10	1%
ES 123678-HxCDD	36.43	4.33E+07	1.27	Y	1.10	1.06	-3%
ES 123789-HxCDD	36.73	5.12E+07	1.23	Y	1.24	1.25	1%
ES 1234678-HpCDD	40.58	4.13E+07	1.07	Y	0.93	1.01	8%
ES OCDD	45.85	5.76E+07	0.88	Y	0.71	0.70	-1%
ES 2378-TCDF	25.44	8.59E+07	0.80	Y	1.02	1.00	-2%
ES 12378-PeCDF	30.64	8.47E+07	1.57	Y	0.96	0.99	2%
ES 23478-PeCDF	31.83	8.20E+07	1.59	Y	0.95	0.95	1%
ES 123478-HxCDF	35.28	5.34E+07	0.53	Y	1.32	1.31	-1%
ES 123678-HxCDF	35.43	6.07E+07	0.54	Y	1.51	1.48	-2%
ES 234678-HxCDF	36.12	5.63E+07	0.54	Y	1.38	1.38	0%
ES 123789-HxCDF	37.10	4.99E+07	0.52	Y	1.25	1.22	-3%
ES 1234678-HpCDF	39.01	4.31E+07	0.44	Y	1.03	1.05	3%
ES 1234789-HpCDF	41.37	3.82E+07	0.46	Y	0.87	0.93	7%
ES OCDF	46.16	7.31E+07	0.91	Y	0.92	0.89	-3%

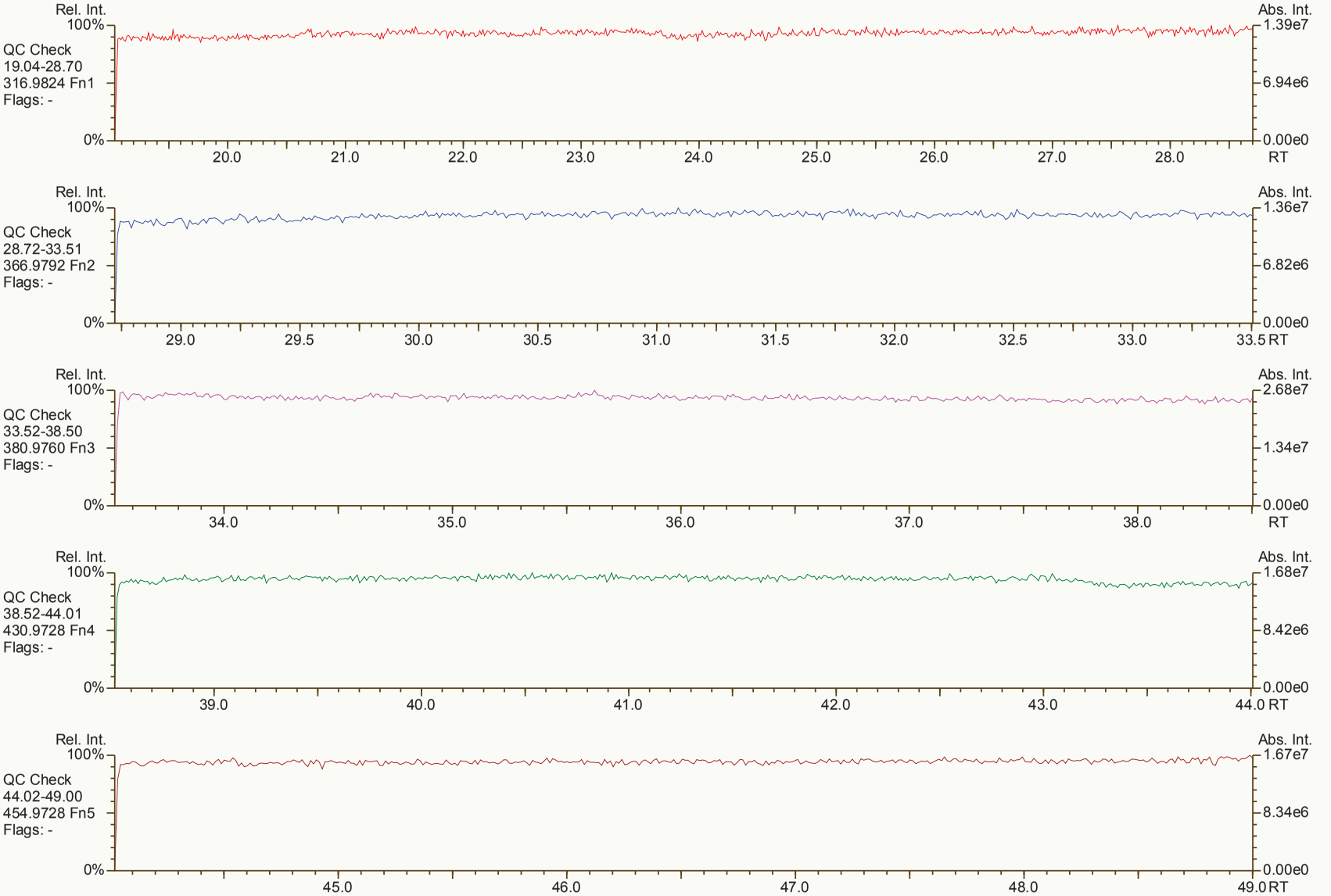
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:02 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS0_160106_CA | **UTP: 07-Jan-2016 10:52:21 ARL** | **Checkcode: 695-693**

Sample ID: SIL 15-105-2 | **Report: 07 Jan 2016 11:08 AL** | **Datafile: 160106C05**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.69	5.71E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.92	8.59E+07	0.79	Y	-	-	-
JS 123467-HxCDD	36.62	2.04E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	Not Fnd		n/a	-			
CS 12347-PeCDD	31.67	5.67E+07	1.57	Y	0.94	0.99	6%
CS 12346-PeCDF	30.08	8.37E+07	1.60	Y	0.92	0.97	5%
CS 123469-HxCDF	35.75	5.87E+07	0.53	Y	1.38	1.44	4%
CS 1234689-HpCDF	39.66	3.98E+07	0.46	Y	0.88	0.97	11%
SS 37Cl-2378-TCDD	Not Fnd		n/a	-			
SS 12347-PeCDD	31.67	5.67E+07	1.57	Y	0.94	1.03	9%
SS 12346-PeCDF	30.08	8.37E+07	1.60	Y	0.96	0.99	3%
SS 123469-HxCDF	35.75	5.87E+07	0.53	Y	0.92	0.97	6%
SS 1234689-HpCDF	39.66	3.98E+07	0.46	Y	0.86	0.92	7%
AS 1368-TCDD	22.25	6.02E+07	0.79	Y	1.05	1.05	0%
AS 1368-TCDF	20.13	1.20E+08	0.79	Y	1.40	1.39	-1%
FS 1278-TCDD	26.77	7.60E+07	0.80	Y	1.28	1.30	1%
FS 12478-PeCDD	30.90	6.60E+07	1.58	Y	1.11	1.19	8%
FS 123468-HxCDD	35.22	6.33E+07	1.24	Y	1.36	1.41	4%
FS 1234679-HpCDD	39.45	5.39E+07	1.08	Y	1.30	1.31	0%
TS 1378-TCDD	24.56	7.15E+07	0.82	Y	1.21	1.23	2%
OCDD-a	Not Fnd				0.07		
OCDF-a	Not Fnd				0.06		

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

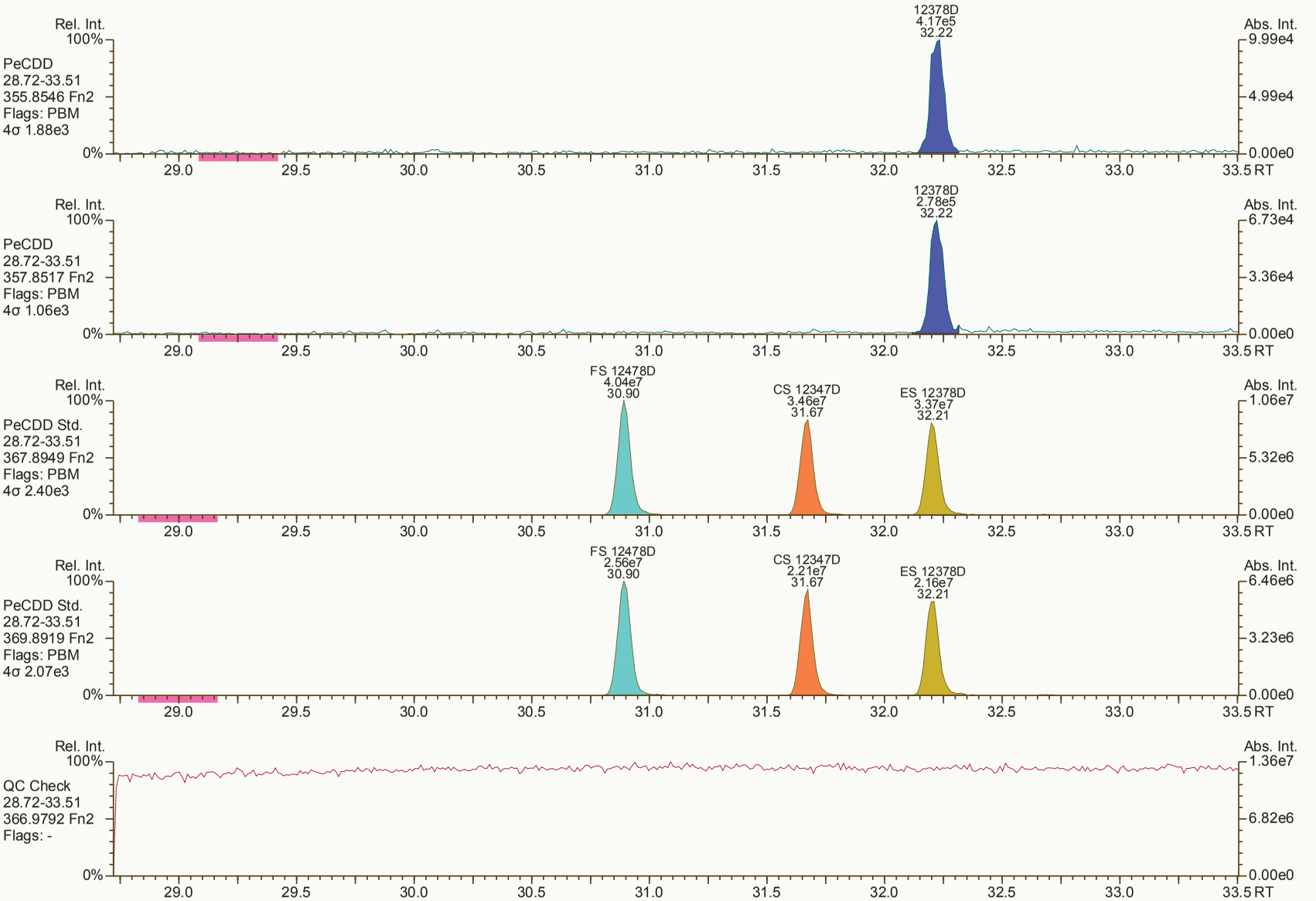


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 695-693 | *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

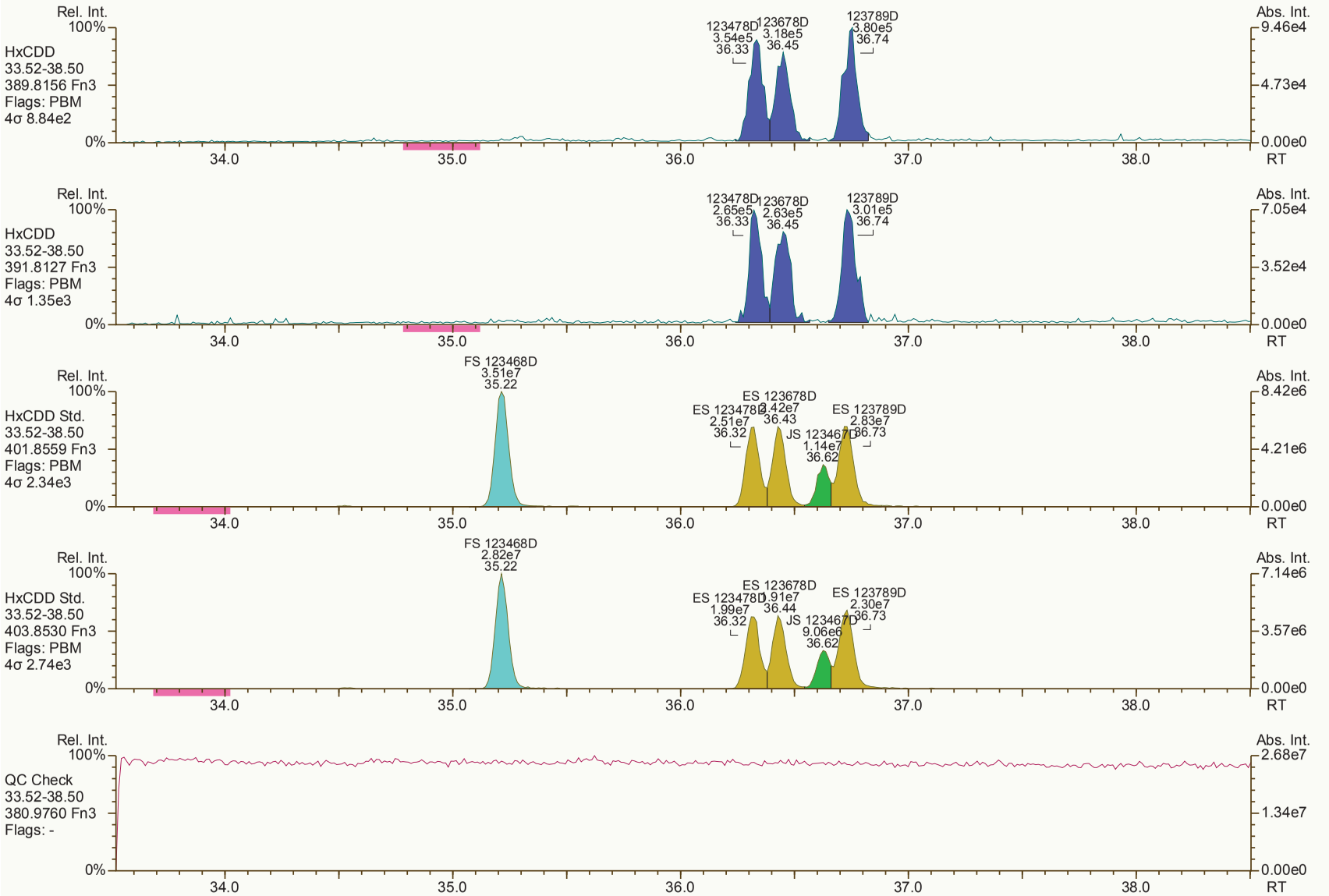
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5992, 7894, 7420 scc: 695-693 *Revised: 07-Jan-2016 09:35 (ARL) Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



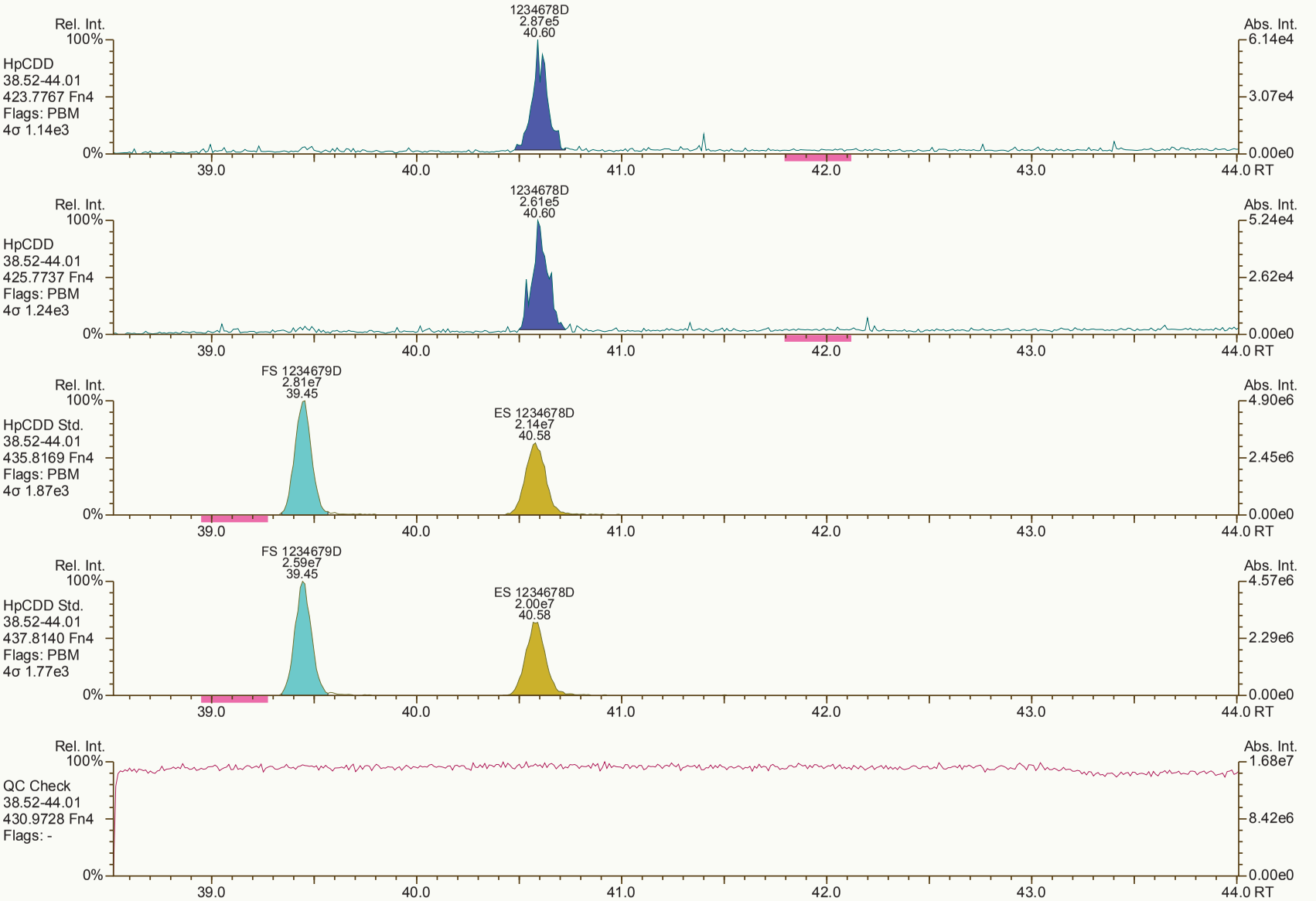
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1398, 3531 scc: 695-693 *Revised: 07-Jan-2016 10:52 (ARL) Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9222, 7274 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 4 of 12*

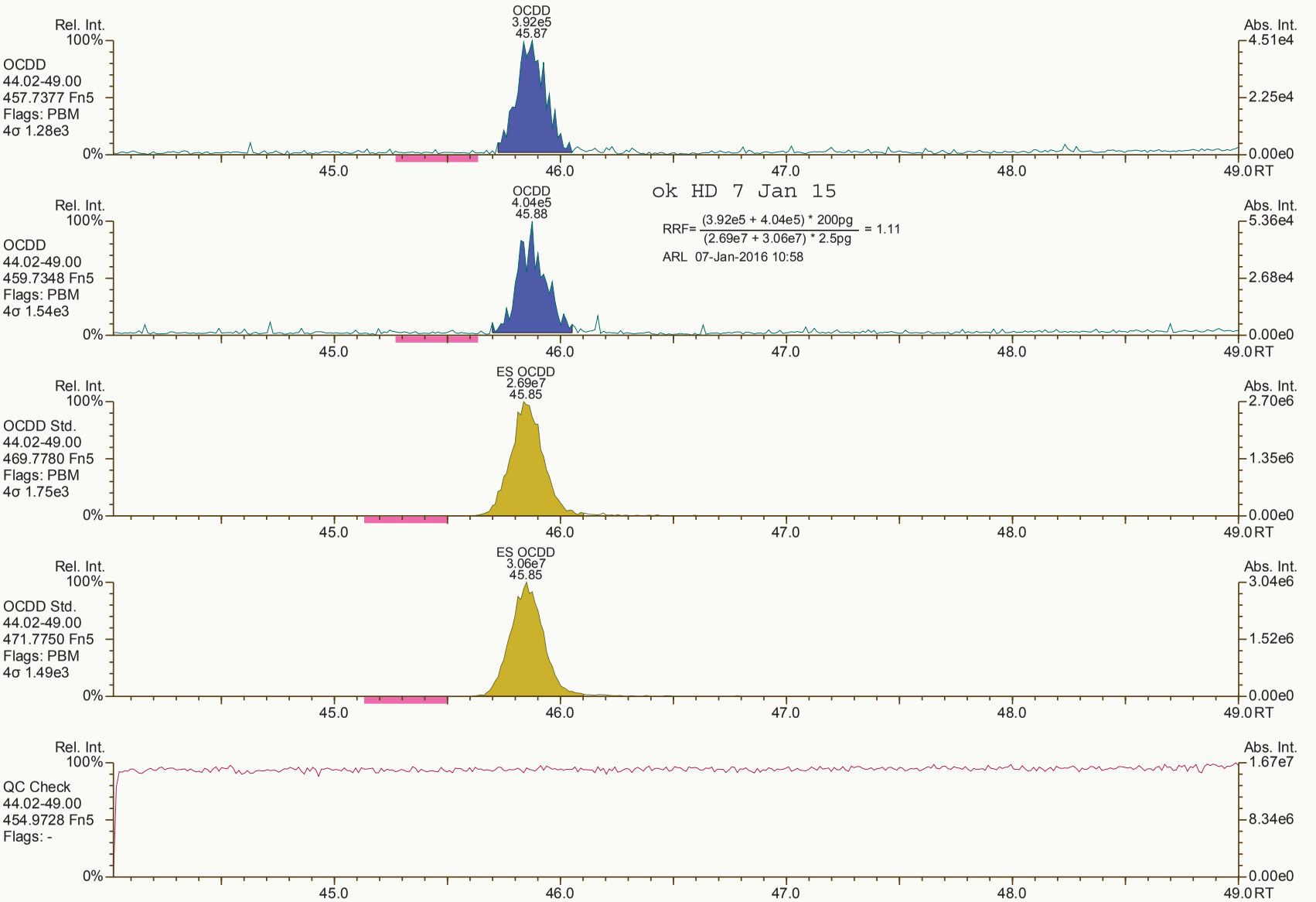
SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1521, 6632 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0871, 8309 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 6 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

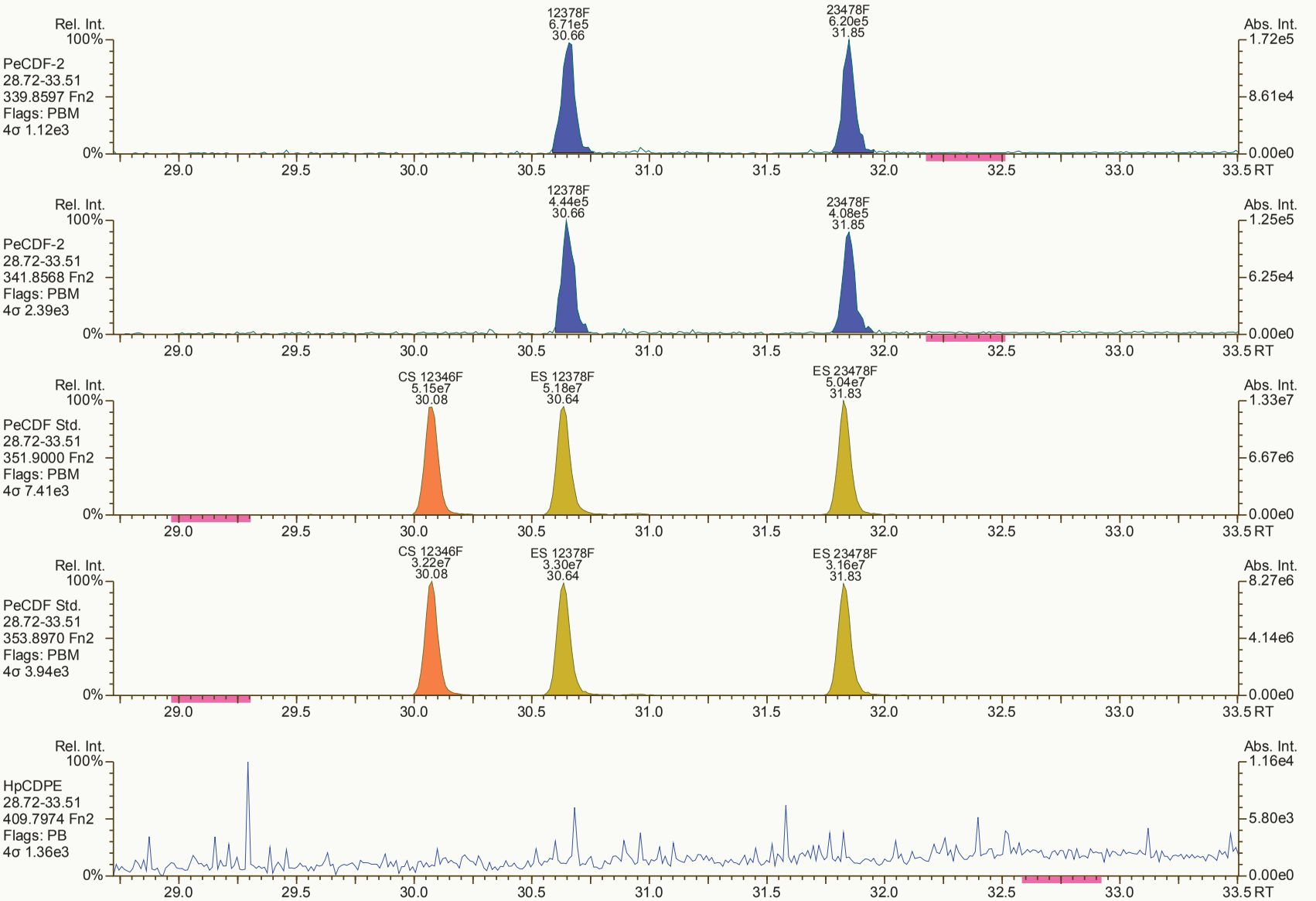
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1187, 6280, 8512 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 7 of 12*

SGS ID: CS0_160106_CA **Sample ID: SIL 15-105-2** **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** **User: ARL Datafile: 160106C05**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4185 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 8 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

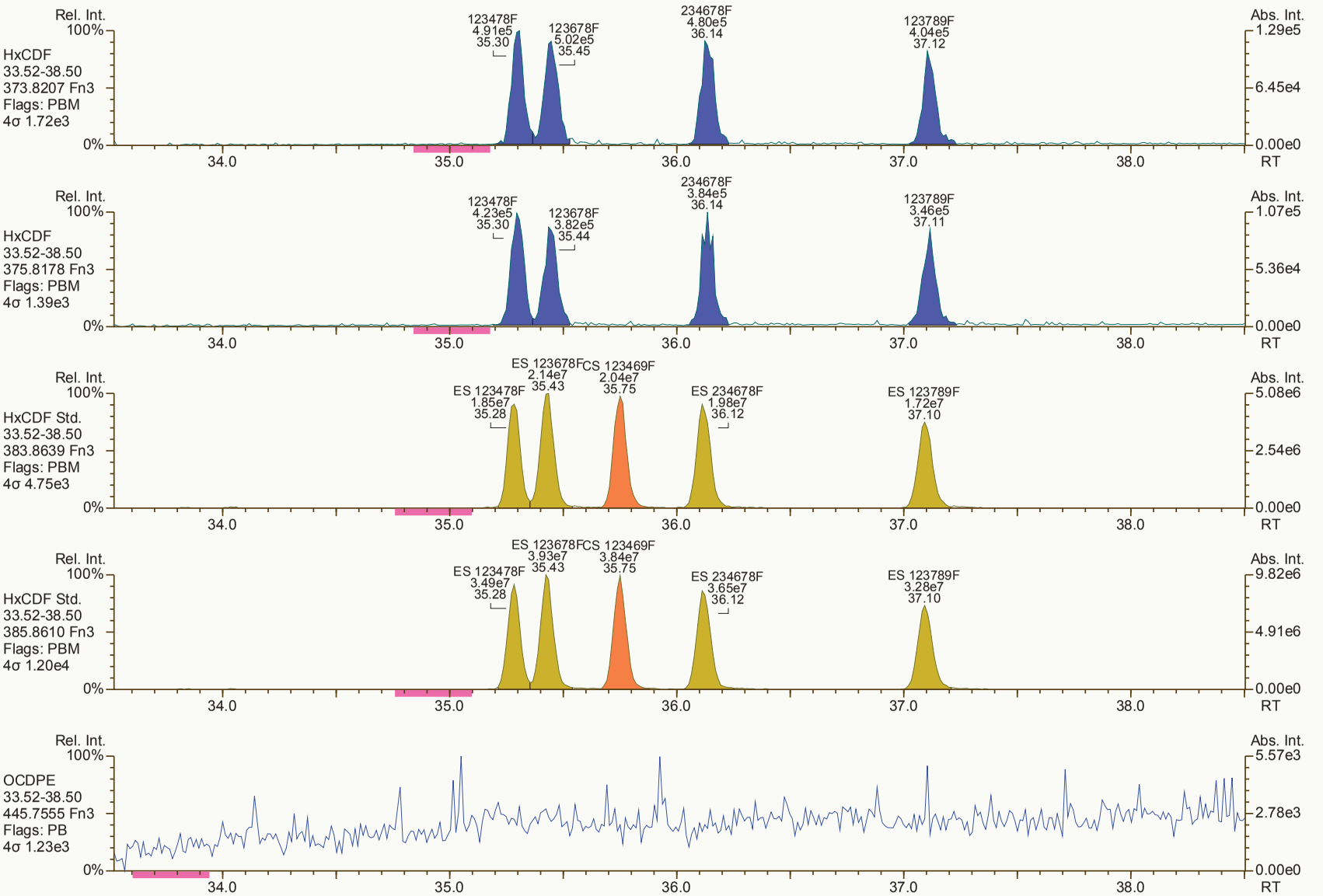
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

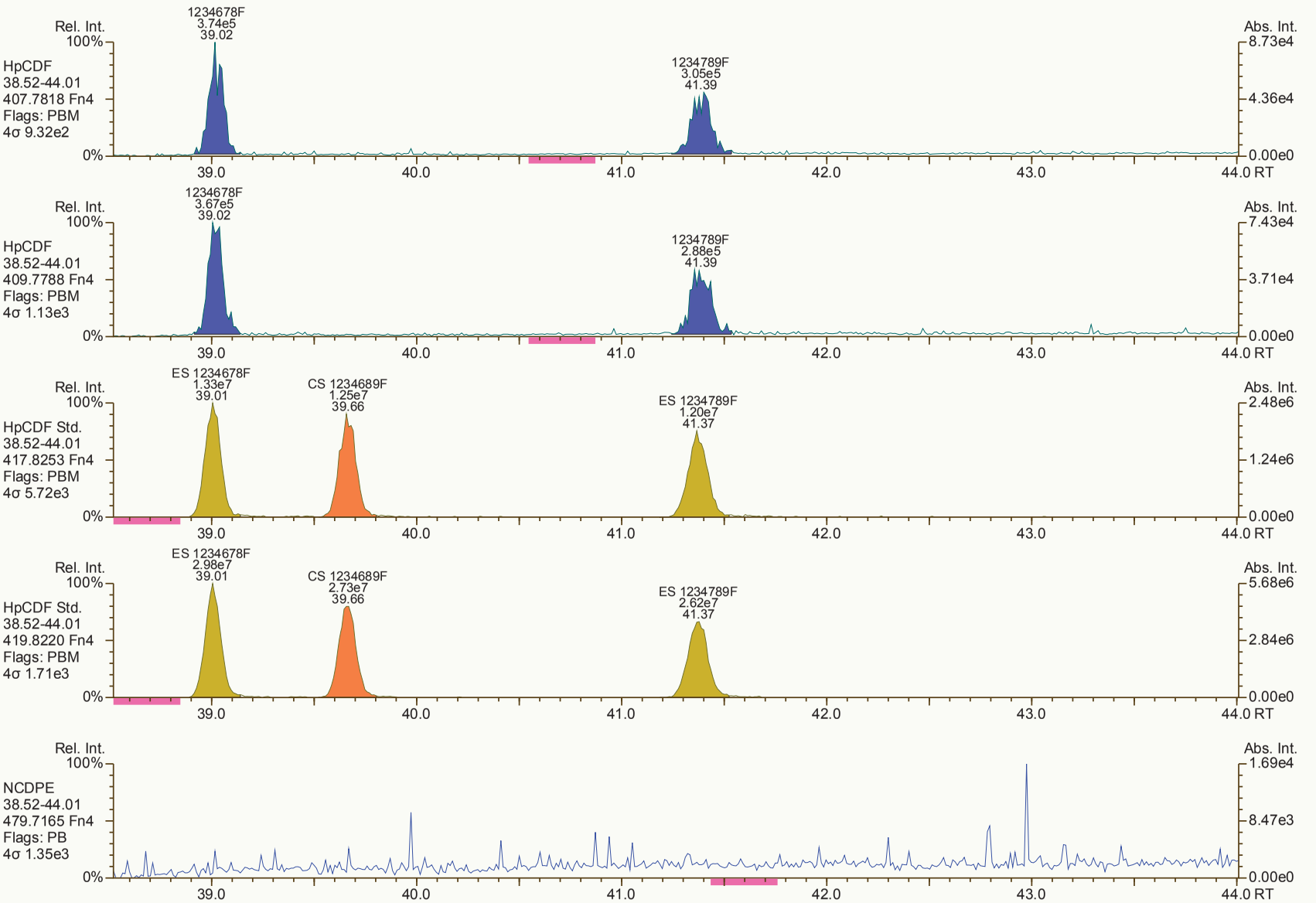
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0699, 4697, 4389 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 9 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0144, 5495, 9016 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 10 of 12*

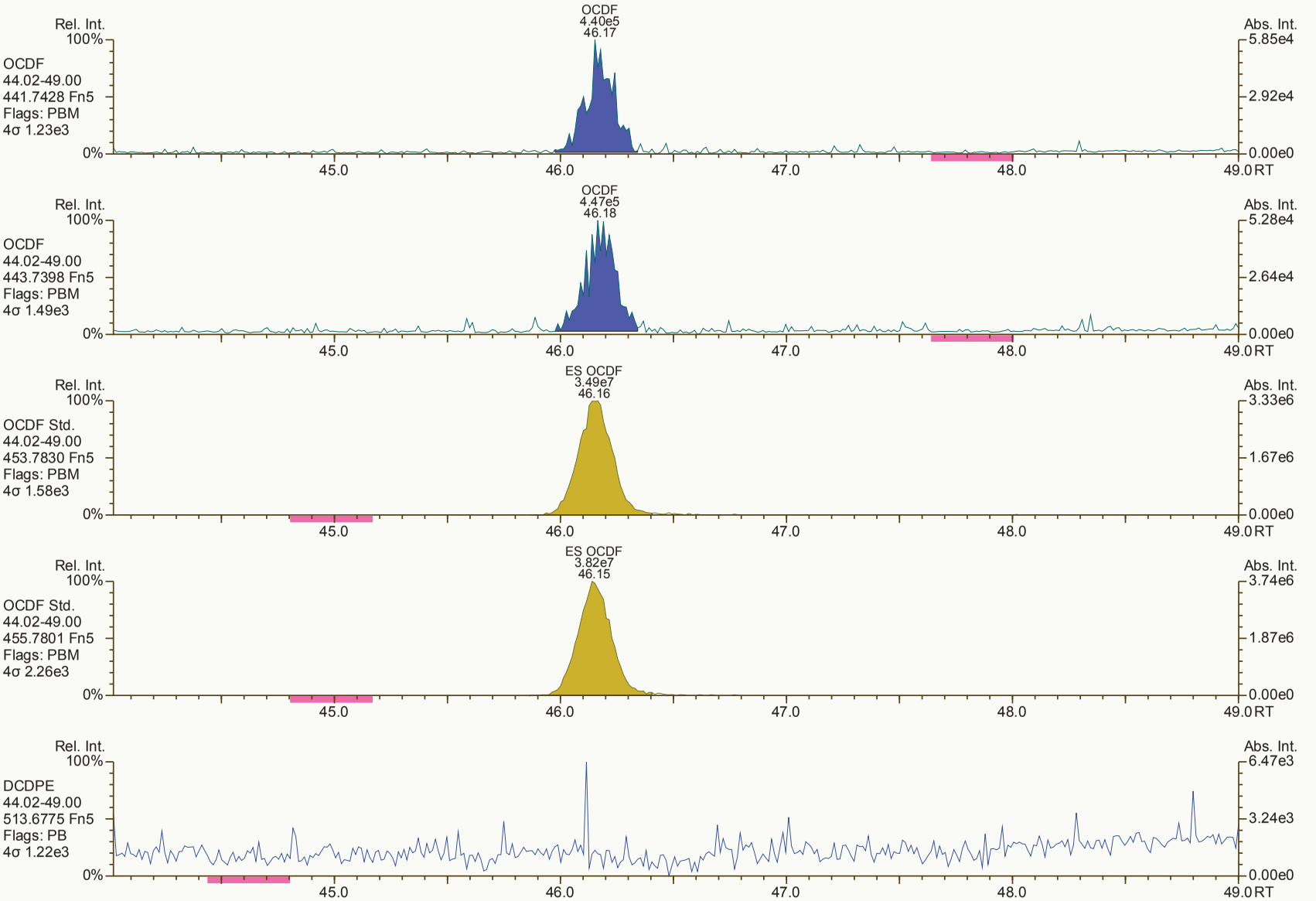
SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6360, 8290, 8128 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 11 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6417, 1191, 3831 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:55 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS1_160106_CA | **UTP: 07-Jan-2016 10:52:22 ARL** | **Checkcode: 311-800-WDV**

Sample ID: SIL 15-105-1 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C06**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.42	3.50E+05	0.82	Y	1.19	1.23	4%
12378-PeCDD	32.23	1.28E+06	1.56	Y	1.02	1.05	3%
123478-HxCDD	36.33	1.24E+06	1.27	Y	1.08	1.13	4%
123678-HxCDD	36.45	1.10E+06	1.30	Y	1.05	0.98	-6%
123789-HxCDD	36.75	1.25E+06	1.23	Y	0.99	0.99	0%
1234678-HpCDD	40.64	9.02E+05	1.02	Y	1.02	1.02	0%
OCDD	45.85	1.55E+06	0.92	Y	1.09	1.11	2%
2378-TCDF	25.45	4.70E+05	0.85	Y	1.09	1.13	4%
12378-PeCDF	30.66	1.90E+06	1.55	Y	1.03	1.02	-1%
23478-PeCDF	31.86	1.89E+06	1.46	Y	1.02	1.03	1%
123478-HxCDF	35.31	1.78E+06	1.22	Y	1.29	1.36	5%
123678-HxCDF	35.45	1.86E+06	1.31	Y	1.17	1.22	4%
234678-HxCDF	36.12	1.68E+06	1.26	Y	1.18	1.19	1%
123789-HxCDF	37.10	1.58E+06	1.21	Y	1.18	1.24	5%
1234678-HpCDF	38.99	1.45E+06	1.10	Y	1.38	1.46	6%
1234789-HpCDF	41.42	1.14E+06	1.07	Y	1.30	1.37	6%
OCDF	46.09	1.88E+06	0.82	Y	1.03	1.05	2%
ES 2378-TCDD	26.40	5.67E+07	0.80	Y	1.06	1.07	1%
ES 12378-PeCDD	32.21	4.88E+07	1.57	Y	0.99	0.92	-7%
ES 123478-HxCDD	36.31	4.41E+07	1.27	Y	1.09	1.11	2%
ES 123678-HxCDD	36.43	4.47E+07	1.26	Y	1.10	1.13	3%
ES 123789-HxCDD	36.73	5.04E+07	1.26	Y	1.24	1.27	2%
ES 1234678-HpCDD	40.62	3.52E+07	1.14	Y	0.93	0.89	-5%
ES OCDD	45.84	5.58E+07	0.90	Y	0.71	0.70	-1%
ES 2378-TCDF	25.43	8.34E+07	0.79	Y	1.02	1.06	4%
ES 12378-PeCDF	30.65	7.43E+07	1.59	Y	0.96	0.95	-2%
ES 23478-PeCDF	31.84	7.36E+07	1.57	Y	0.95	0.94	-1%
ES 123478-HxCDF	35.29	5.23E+07	0.54	Y	1.32	1.32	0%
ES 123678-HxCDF	35.43	6.10E+07	0.53	Y	1.51	1.54	2%
ES 234678-HxCDF	36.11	5.65E+07	0.52	Y	1.38	1.43	3%
ES 123789-HxCDF	37.09	5.08E+07	0.54	Y	1.25	1.28	2%
ES 1234678-HpCDF	38.98	3.96E+07	0.46	Y	1.03	1.00	-3%
ES 1234789-HpCDF	41.41	3.33E+07	0.45	Y	0.87	0.84	-4%
ES OCDF	46.07	7.13E+07	0.92	Y	0.92	0.90	-2%

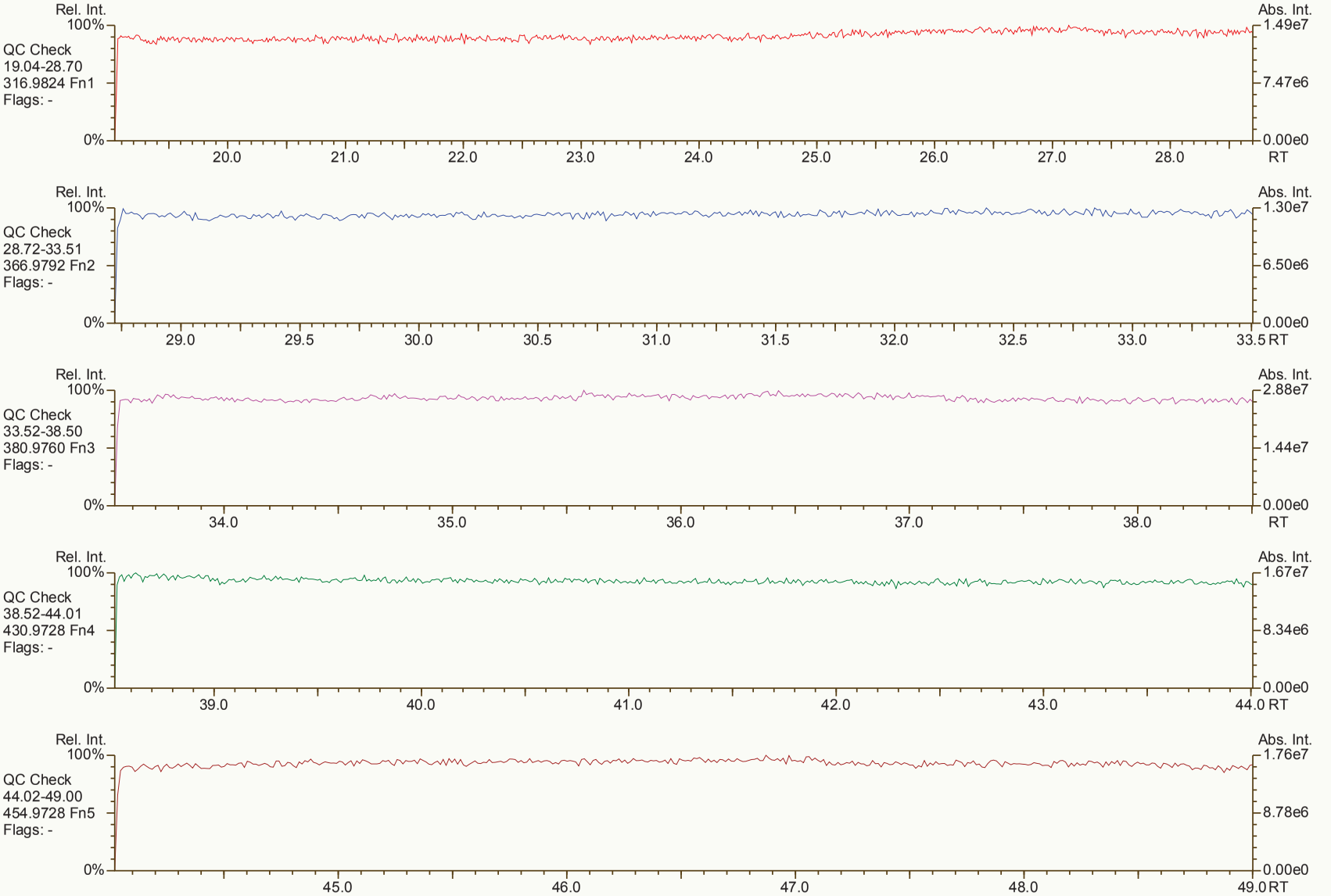
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:55 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS1_160106_CA | **UTP: 07-Jan-2016 10:52:22 ARL** | **Checkcode: 311-800**

Sample ID: SIL 15-105-1 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C06**

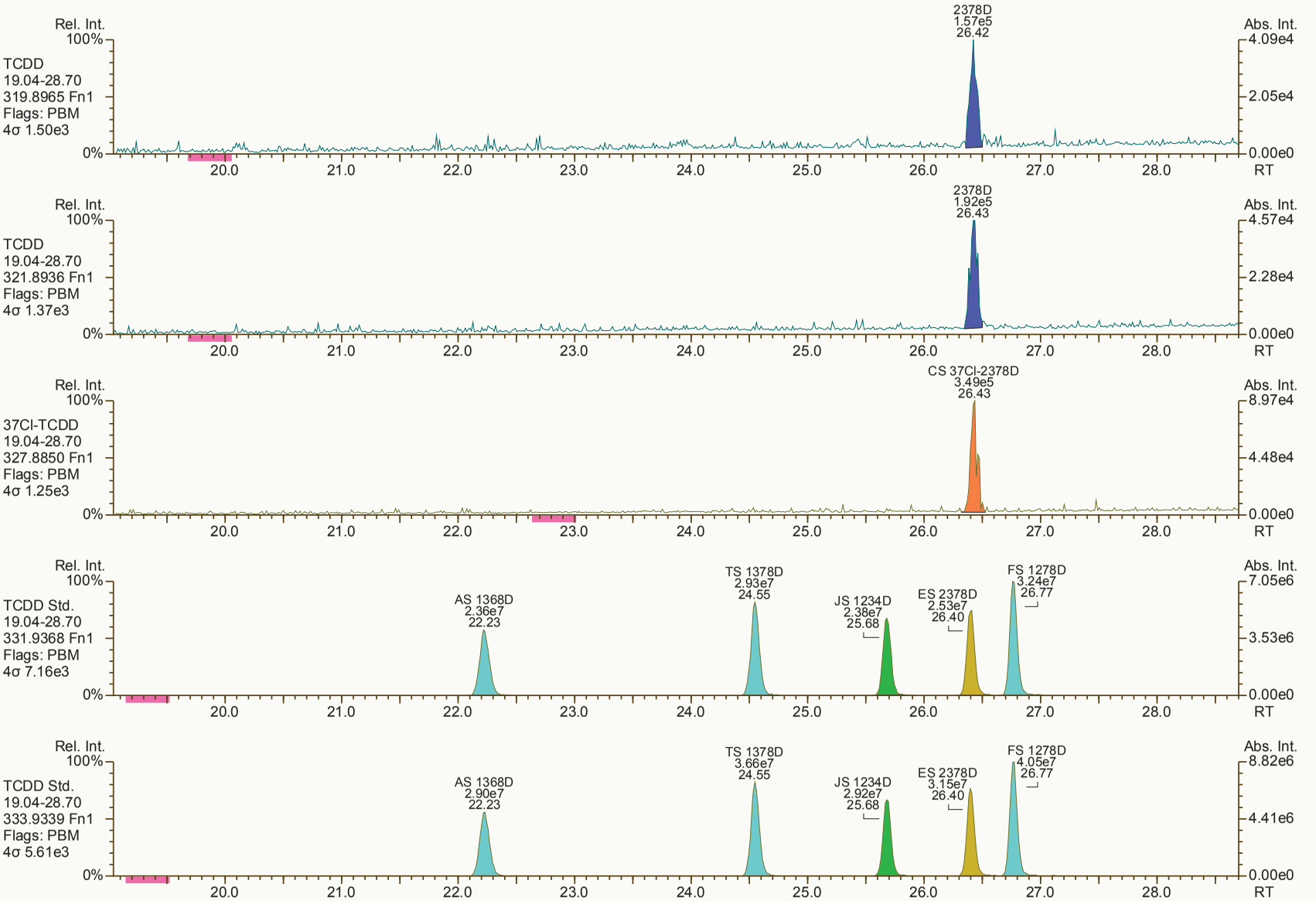
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.68	5.30E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.91	7.84E+07	0.79	Y	-	-	-
JS 123467-HxCDD	36.62	1.98E+07	1.22	Y	-	-	-
CS 37Cl-2378-TCDD	26.43	3.49E+05	n/a	-	1.24	1.32	6%
CS 12347-PeCDD	31.68	4.51E+07	1.58	Y	0.94	0.85	-9%
CS 12346-PeCDF	30.08	6.86E+07	1.61	Y	0.92	0.87	-5%
CS 123469-HxCDF	35.74	5.54E+07	0.54	Y	1.38	1.40	1%
CS 1234689-HpCDF	39.66	3.36E+07	0.46	Y	0.88	0.85	-4%
SS 37Cl-2378-TCDD	26.43	3.49E+05	n/a	-	1.18	1.23	4%
SS 12347-PeCDD	31.68	4.51E+07	1.58	Y	0.94	0.92	-2%
SS 12346-PeCDF	30.08	6.86E+07	1.61	Y	0.96	0.92	-4%
SS 123469-HxCDF	35.74	5.54E+07	0.54	Y	0.92	0.91	-1%
SS 1234689-HpCDF	39.66	3.36E+07	0.46	Y	0.86	0.85	-1%
AS 1368-TCDD	22.23	5.26E+07	0.81	Y	1.05	0.99	-5%
AS 1368-TCDF	20.12	1.10E+08	0.81	Y	1.40	1.40	0%
FS 1278-TCDD	26.77	7.30E+07	0.80	Y	1.28	1.29	0%
FS 12478-PeCDD	30.90	5.58E+07	1.56	Y	1.11	1.14	3%
FS 123468-HxCDD	35.22	5.96E+07	1.27	Y	1.36	1.35	0%
FS 1234679-HpCDD	39.42	4.78E+07	1.06	Y	1.30	1.36	4%
TS 1378-TCDD	24.55	6.59E+07	0.80	Y	1.21	1.16	-4%
OCDD-a	Not Fnd				0.07		
OCDF-a	Not Fnd				0.06		

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



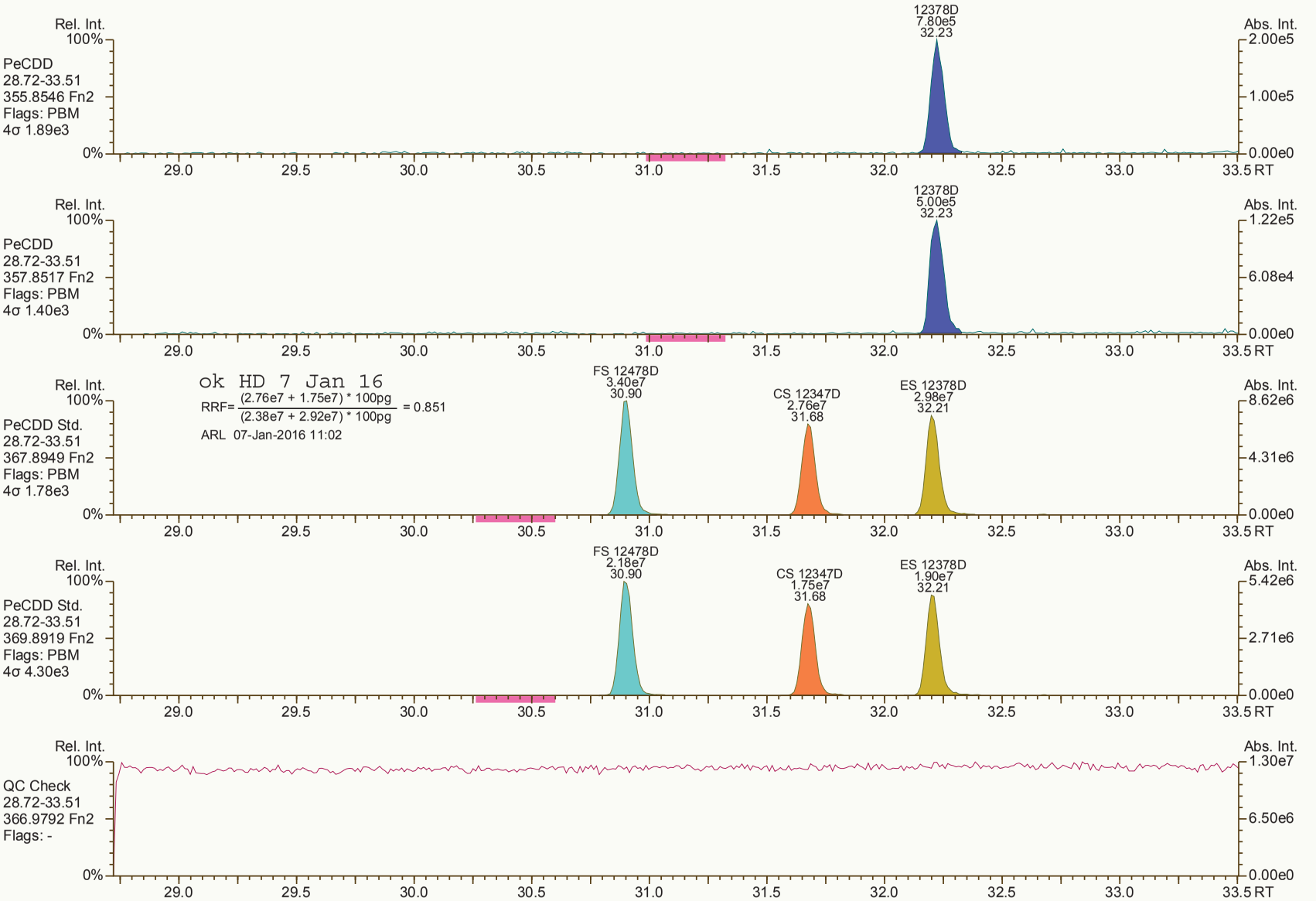
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 311-800 | *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) — *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2821, 1397, 4479 scc: 311-800 — *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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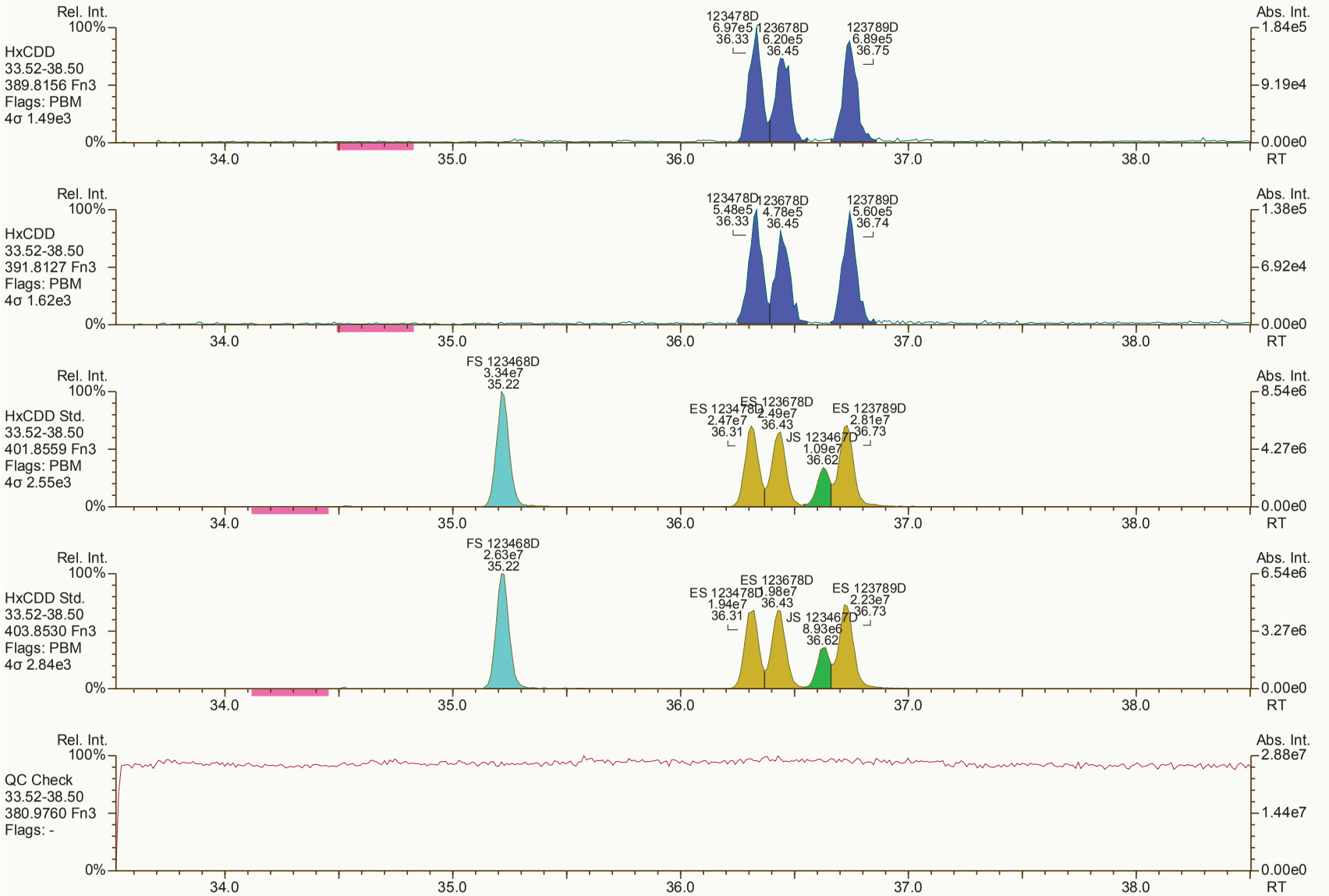
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2972, 5261 scc: 311-800 *Revised: 07-Jan-2016 09:22 (ARL) Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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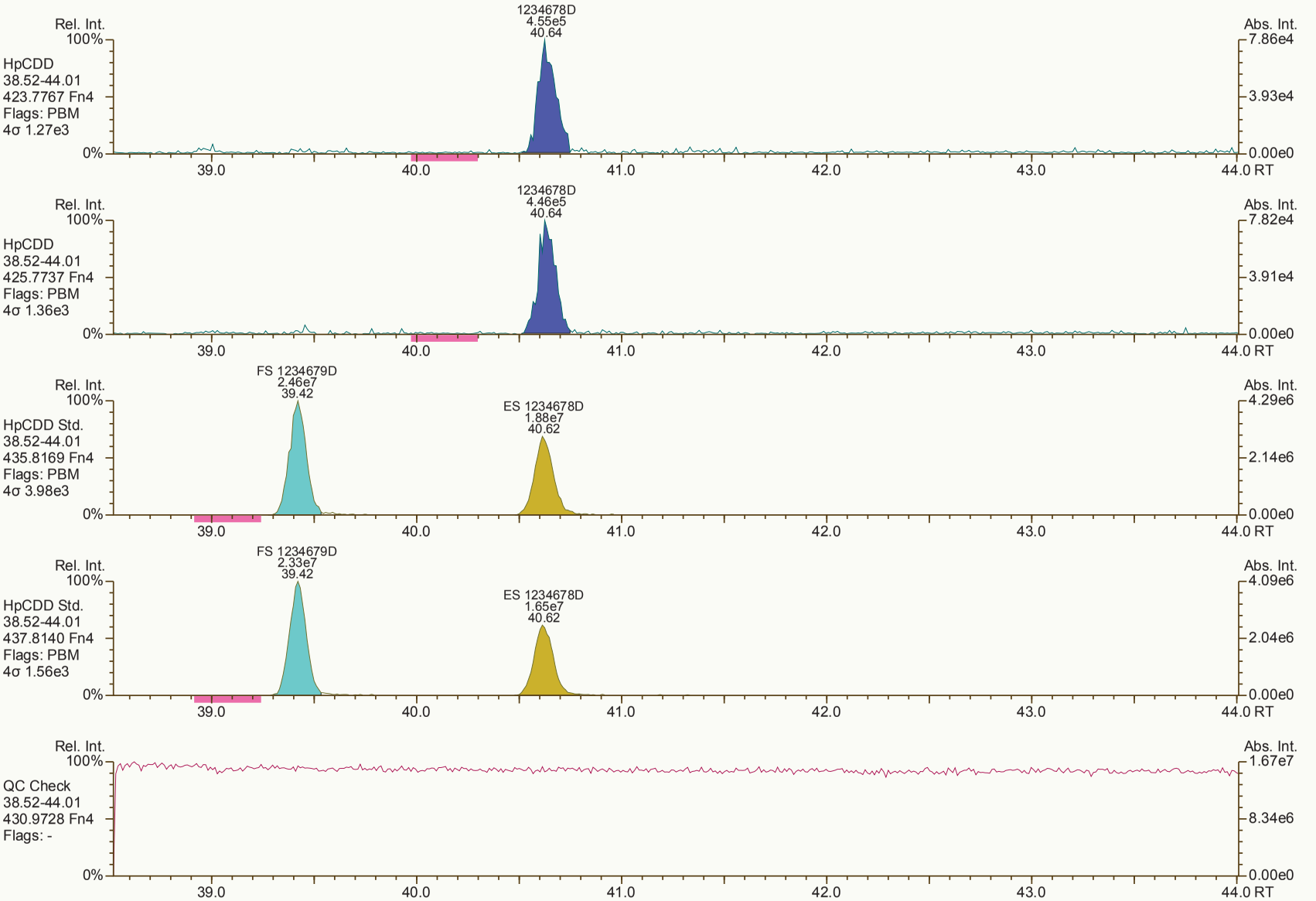
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6879, 7757 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 4 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9040, 2724 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1887, 4898 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 6 of 12*

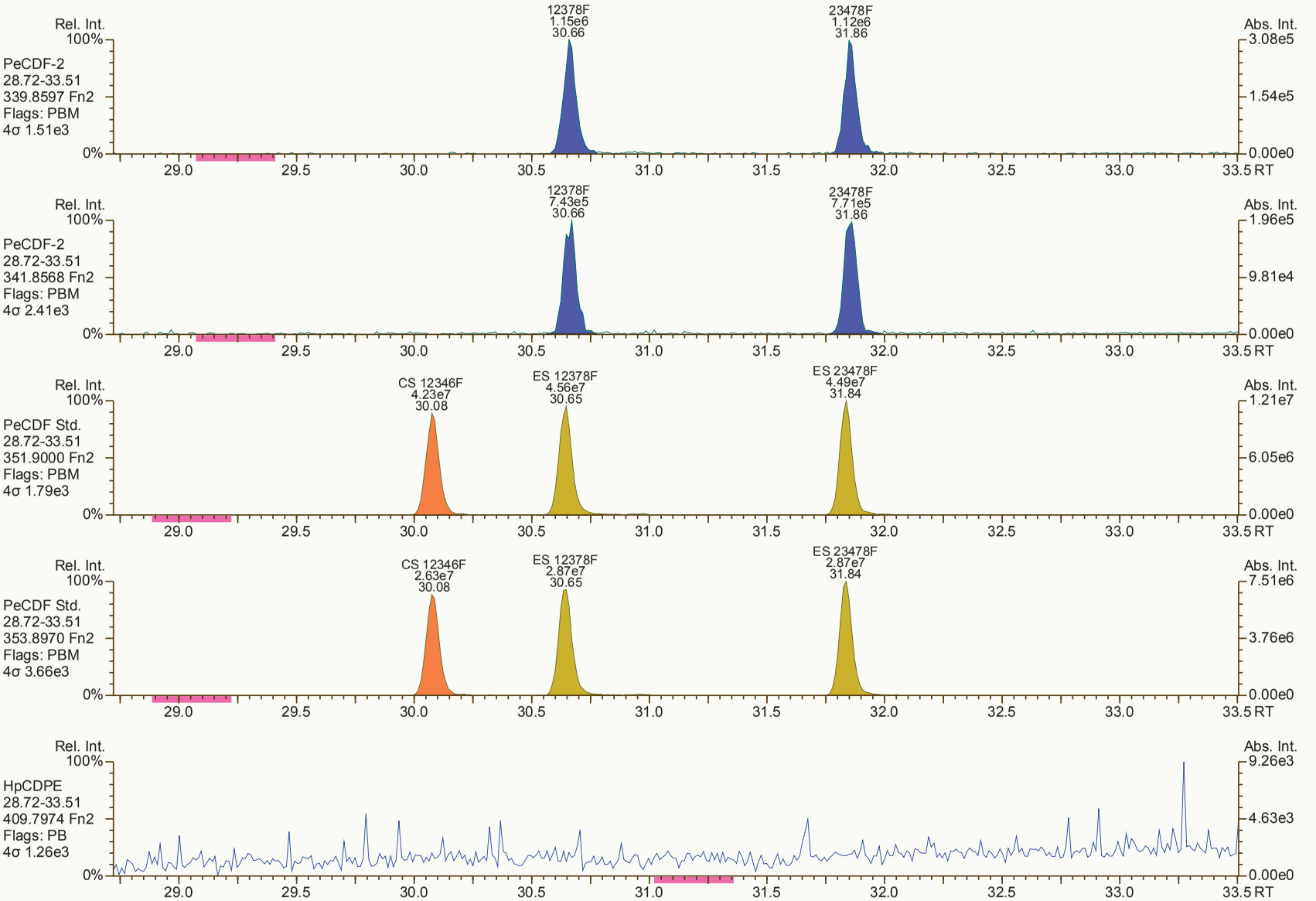
SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7240, 3263, 8391 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3476 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 8 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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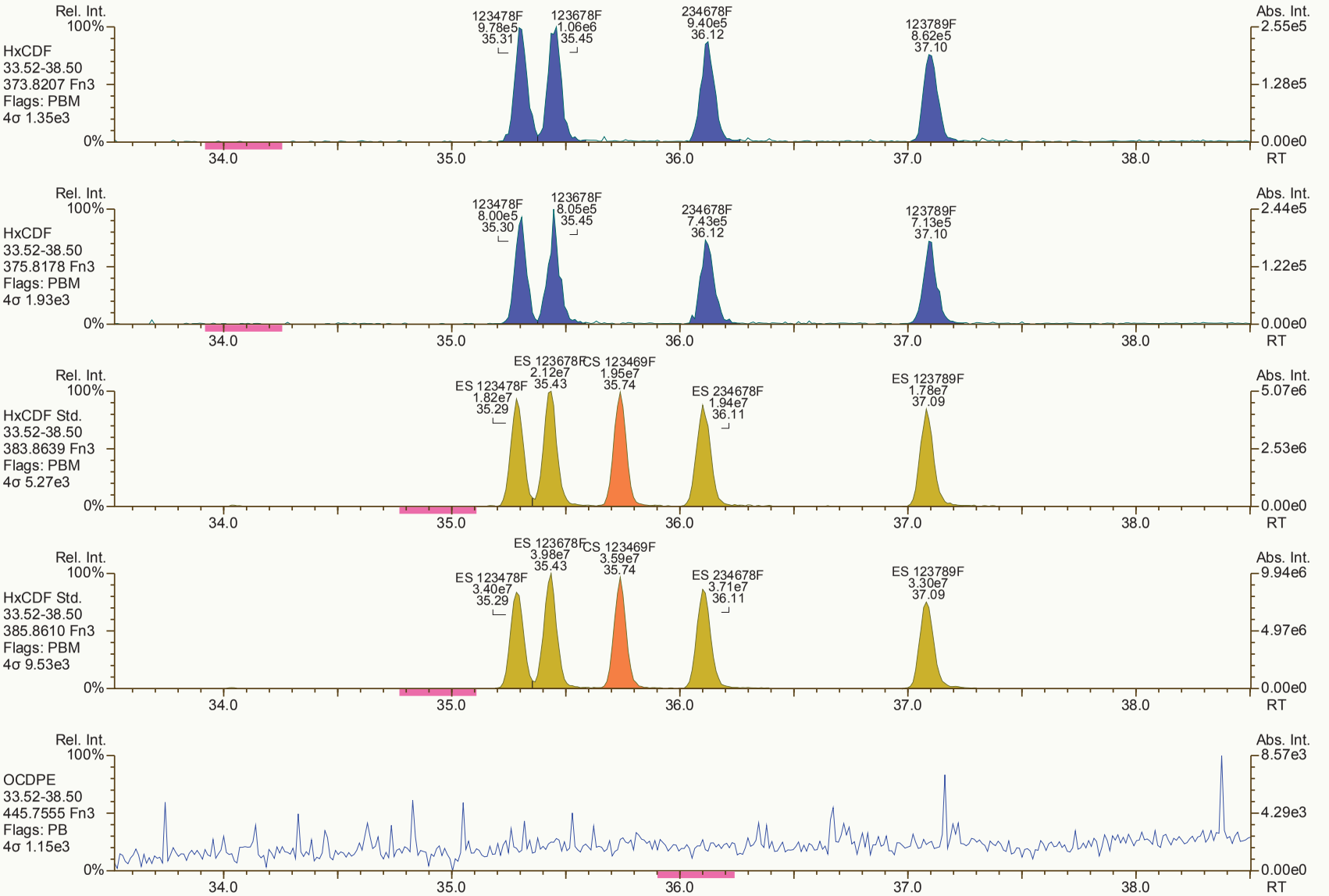
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1795, 7168, 2748 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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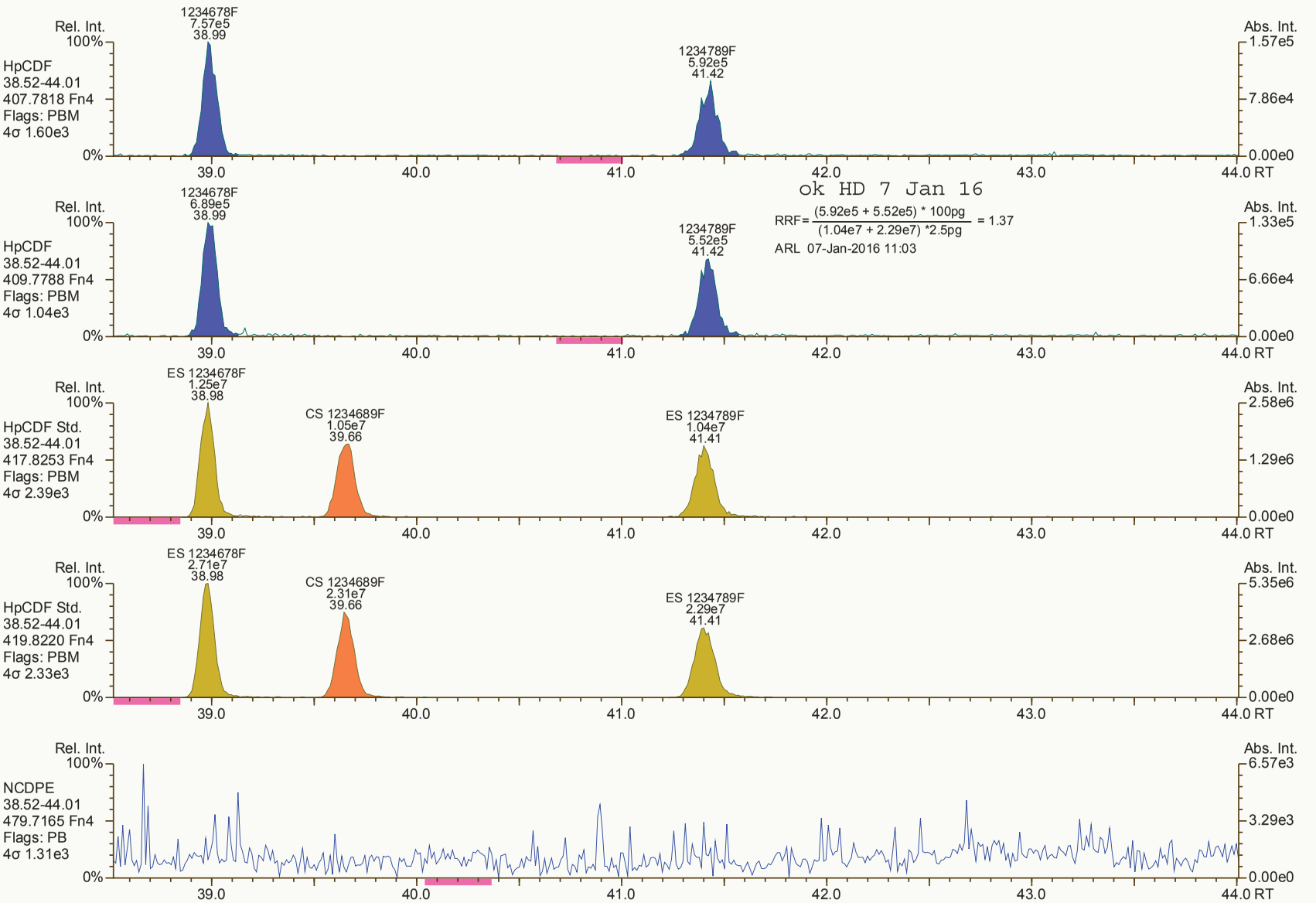
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1337, 1373, 7927 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

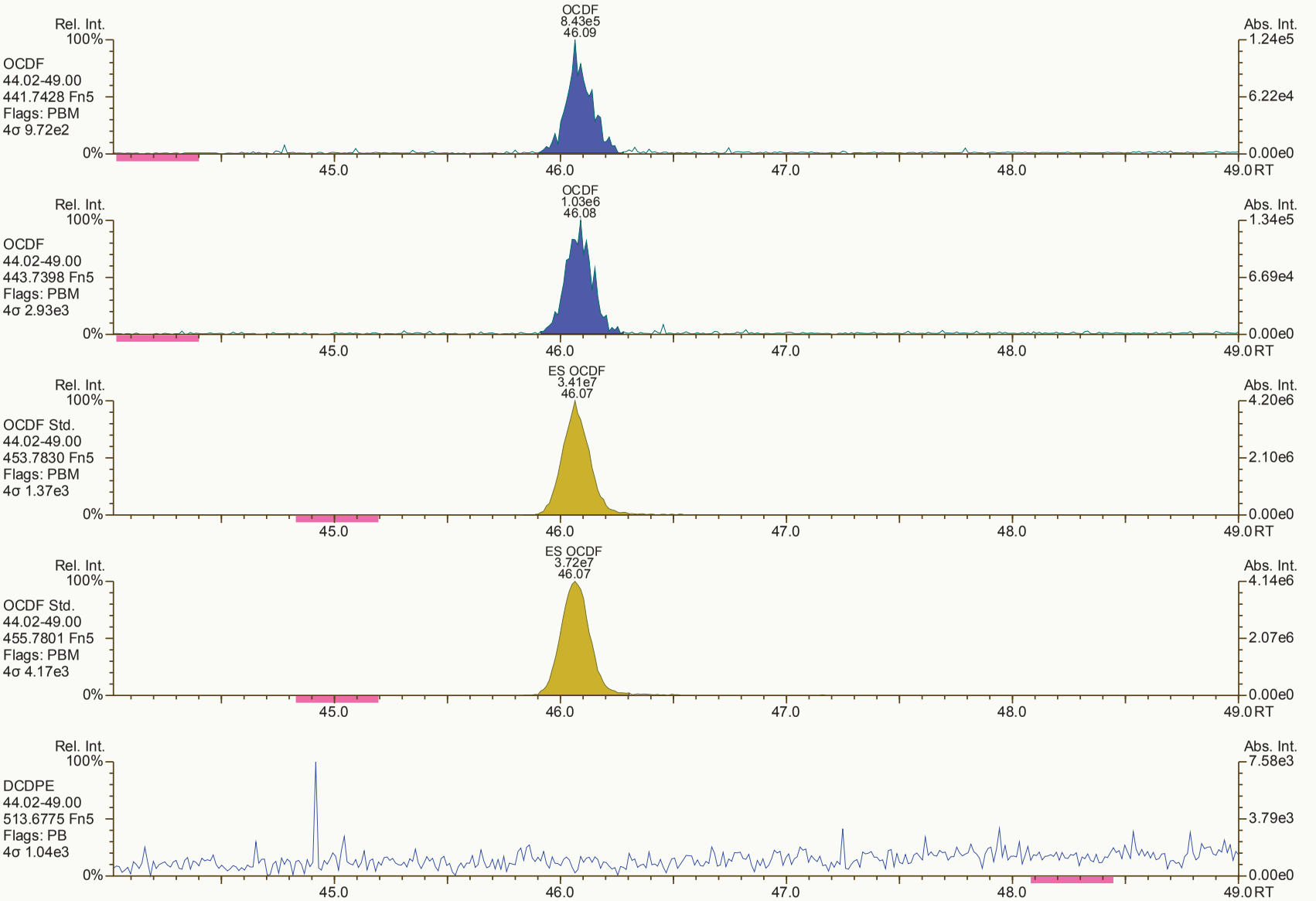


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8583, 8013, 6835 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9724, 8001, 2356 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 20:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS2_160106_CA | **UTP: 07-Jan-2016 10:52:23 ARL** | **Checkcode: 134-724-DJT**

Sample ID: SIL 15-104-3 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C07**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.43	1.45E+06	0.74	Y	1.19	1.18	0%
12378-PeCDD	32.23	6.24E+06	1.54	Y	1.02	1.06	4%
123478-HxCDD	36.32	5.05E+06	1.20	Y	1.08	1.11	2%
123678-HxCDD	36.43	5.31E+06	1.28	Y	1.05	1.13	8%
123789-HxCDD	36.73	5.46E+06	1.23	Y	0.99	1.07	8%
1234678-HpCDD	40.64	4.39E+06	1.01	Y	1.02	1.06	4%
OCDD	45.80	6.80E+06	0.94	Y	1.09	1.14	4%
2378-TCDF	25.47	2.14E+06	0.80	Y	1.09	1.17	8%
12378-PeCDF	30.66	9.16E+06	1.54	Y	1.03	1.06	3%
23478-PeCDF	31.85	9.38E+06	1.51	Y	1.02	1.09	6%
123478-HxCDF	35.30	7.63E+06	1.22	Y	1.29	1.33	3%
123678-HxCDF	35.44	7.85E+06	1.26	Y	1.17	1.22	4%
234678-HxCDF	36.13	7.20E+06	1.24	Y	1.18	1.20	2%
123789-HxCDF	37.10	6.62E+06	1.22	Y	1.18	1.25	6%
1234678-HpCDF	39.03	6.18E+06	1.00	Y	1.38	1.40	2%
1234789-HpCDF	41.37	5.24E+06	1.08	Y	1.30	1.39	7%
OCDF	46.12	8.51E+06	0.88	Y	1.03	1.12	8%
ES 2378-TCDD	26.41	6.12E+07	0.78	Y	1.06	1.03	-3%
ES 12378-PeCDD	32.21	5.91E+07	1.54	Y	0.99	1.00	0%
ES 123478-HxCDD	36.30	4.55E+07	1.29	Y	1.09	0.96	-12%
ES 123678-HxCDD	36.42	4.69E+07	1.26	Y	1.10	0.99	-10%
ES 123789-HxCDD	36.72	5.08E+07	1.25	Y	1.24	1.07	-14%
ES 1234678-HpCDD	40.62	4.15E+07	1.05	Y	0.93	0.87	-7%
ES OCDD	45.77	5.98E+07	0.91	Y	0.71	0.63	-11%
ES 2378-TCDF	25.45	9.13E+07	0.79	Y	1.02	0.97	-5%
ES 12378-PeCDF	30.65	8.64E+07	1.58	Y	0.96	0.92	-4%
ES 23478-PeCDF	31.83	8.63E+07	1.55	Y	0.95	0.92	-3%
ES 123478-HxCDF	35.28	5.75E+07	0.54	Y	1.32	1.21	-8%
ES 123678-HxCDF	35.42	6.45E+07	0.55	Y	1.51	1.36	-10%
ES 234678-HxCDF	36.11	5.99E+07	0.53	Y	1.38	1.26	-9%
ES 123789-HxCDF	37.09	5.28E+07	0.54	Y	1.25	1.11	-11%
ES 1234678-HpCDF	39.01	4.41E+07	0.47	Y	1.03	0.93	-9%
ES 1234789-HpCDF	41.35	3.76E+07	0.45	Y	0.87	0.79	-9%
ES OCDF	46.10	7.58E+07	0.90	Y	0.92	0.80	-13%

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 20:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS2_160106_CA | **UTP: 07-Jan-2016 10:52:23 ARL** | **Checkcode: 134-724**

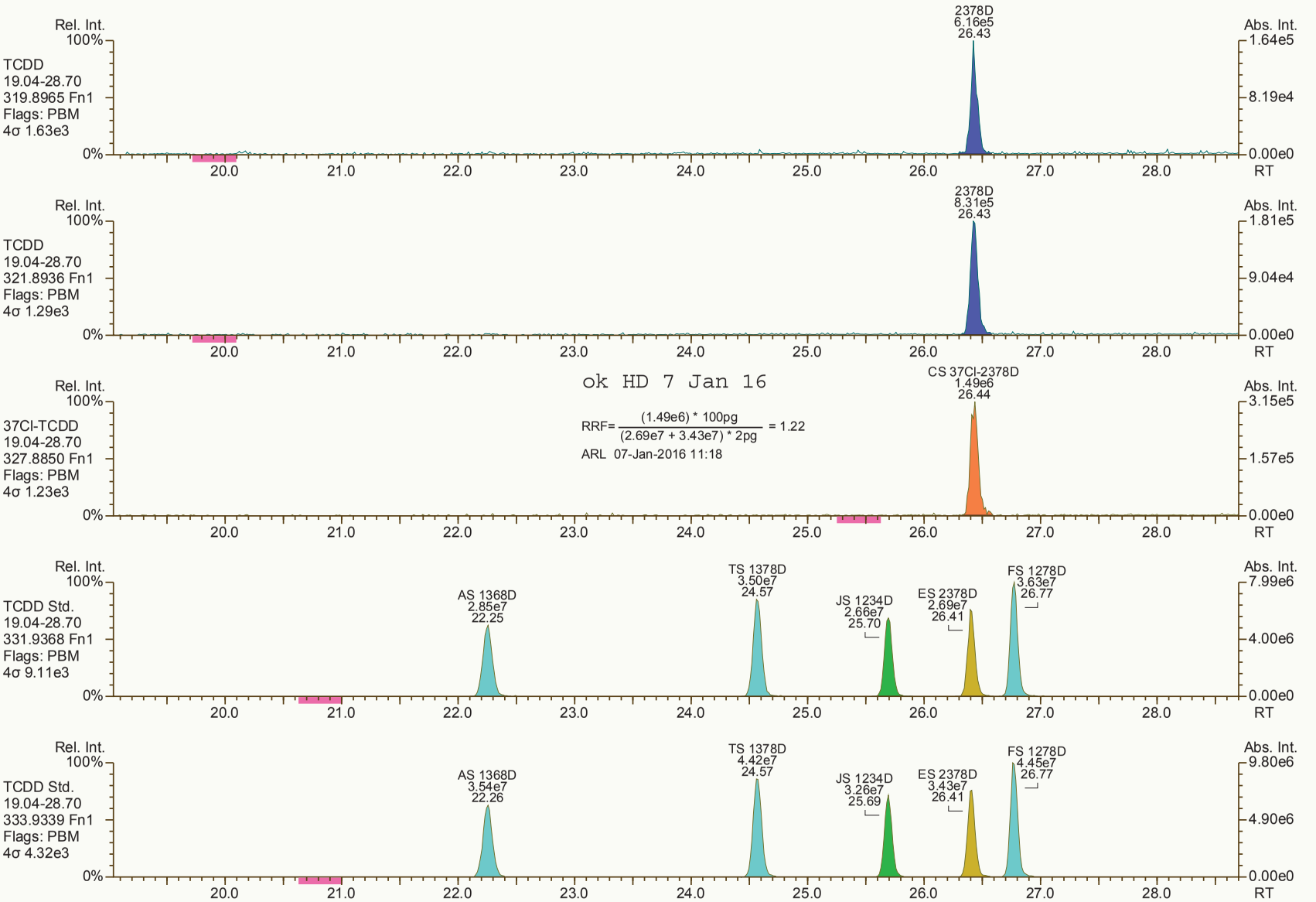
Sample ID: SIL 15-104-3 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C07**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.92E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.93	9.37E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.62	2.37E+07	1.29	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	1.49E+06	n/a	-	1.24	1.25	1%
CS 12347-PeCDD	31.68	5.83E+07	1.58	Y	0.94	0.98	5%
CS 12346-PeCDF	30.08	8.49E+07	1.58	Y	0.92	0.91	-2%
CS 123469-HxCDF	35.74	6.30E+07	0.53	Y	1.38	1.33	-4%
CS 1234689-HpCDF	39.67	4.00E+07	0.46	Y	0.88	0.84	-4%
SS 37Cl-2378-TCDD	26.44	1.49E+06	n/a	-	1.18	1.21	3%
SS 12347-PeCDD	31.68	5.83E+07	1.58	Y	0.94	0.99	4%
SS 12346-PeCDF	30.08	8.49E+07	1.58	Y	0.96	0.98	2%
SS 123469-HxCDF	35.74	6.30E+07	0.53	Y	0.92	0.98	7%
SS 1234689-HpCDF	39.67	4.00E+07	0.46	Y	0.86	0.91	6%
AS 1368-TCDD	22.25	6.39E+07	0.80	Y	1.05	1.08	3%
AS 1368-TCDF	20.14	1.25E+08	0.79	Y	1.40	1.33	-5%
FS 1278-TCDD	26.77	8.08E+07	0.81	Y	1.28	1.32	3%
FS 12478-PeCDD	30.90	6.65E+07	1.55	Y	1.11	1.13	1%
FS 123468-HxCDD	35.21	6.76E+07	1.23	Y	1.36	1.48	9%
FS 1234679-HpCDD	39.45	5.43E+07	1.06	Y	1.30	1.31	1%
TS 1378-TCDD	24.57	7.91E+07	0.79	Y	1.21	1.29	7%
OCDD-a	45.78	3.74E+05	2.29	Y	0.07	0.06	-7%
OCDF-a	46.11	4.27E+05	2.12	Y	0.06	0.06	-12%

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**

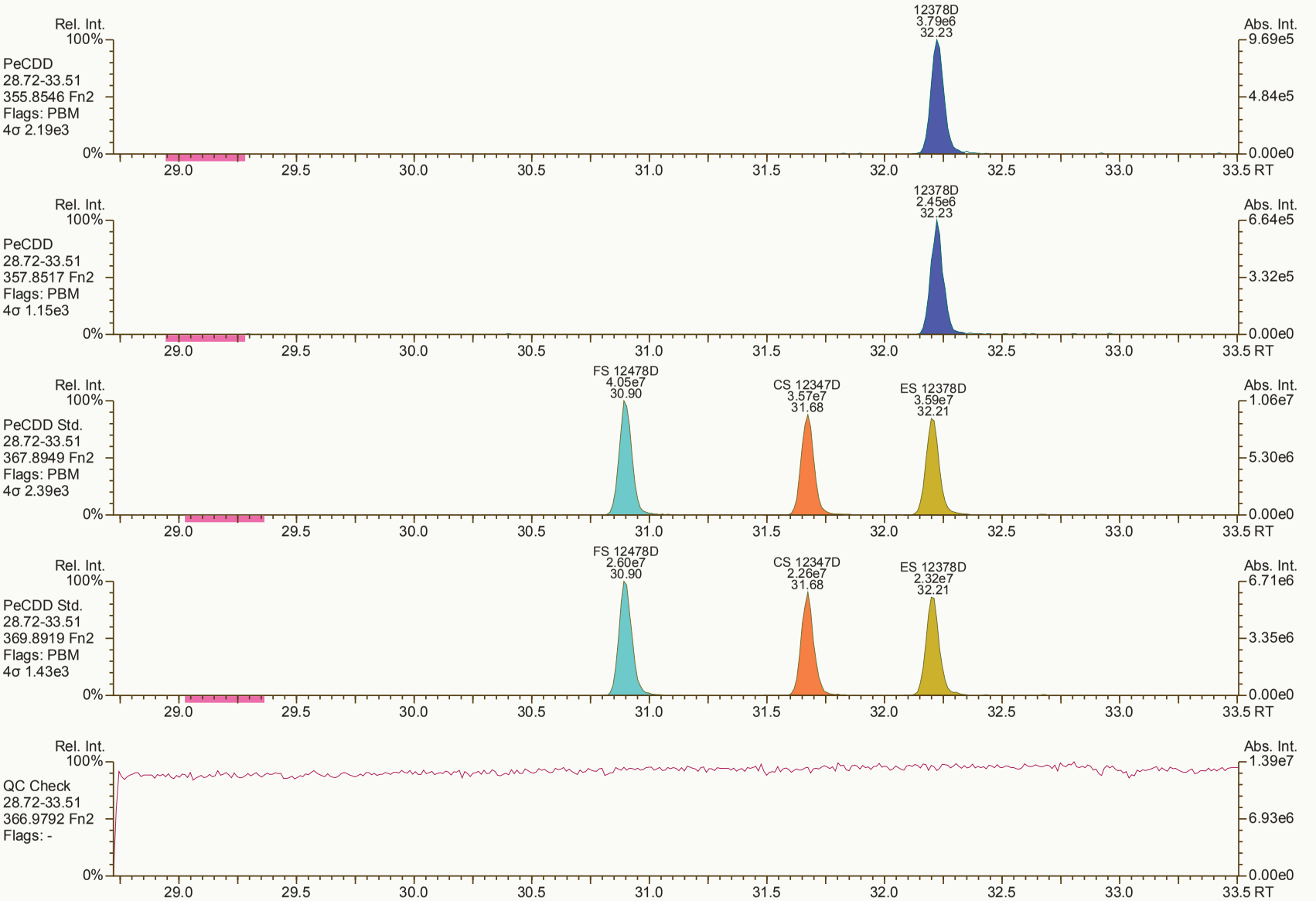
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 134-724 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



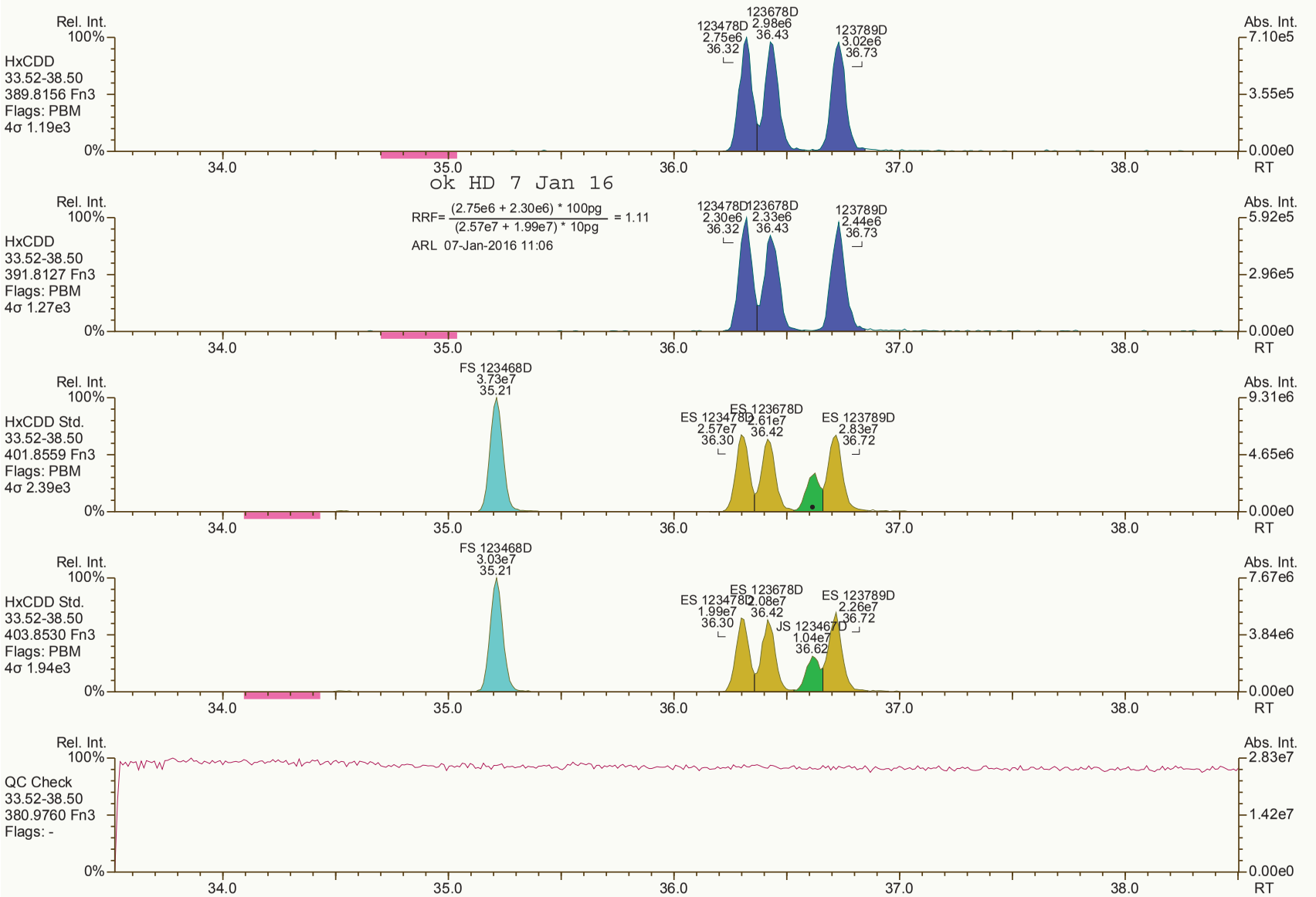
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2905, 4759, 5715 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 2 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



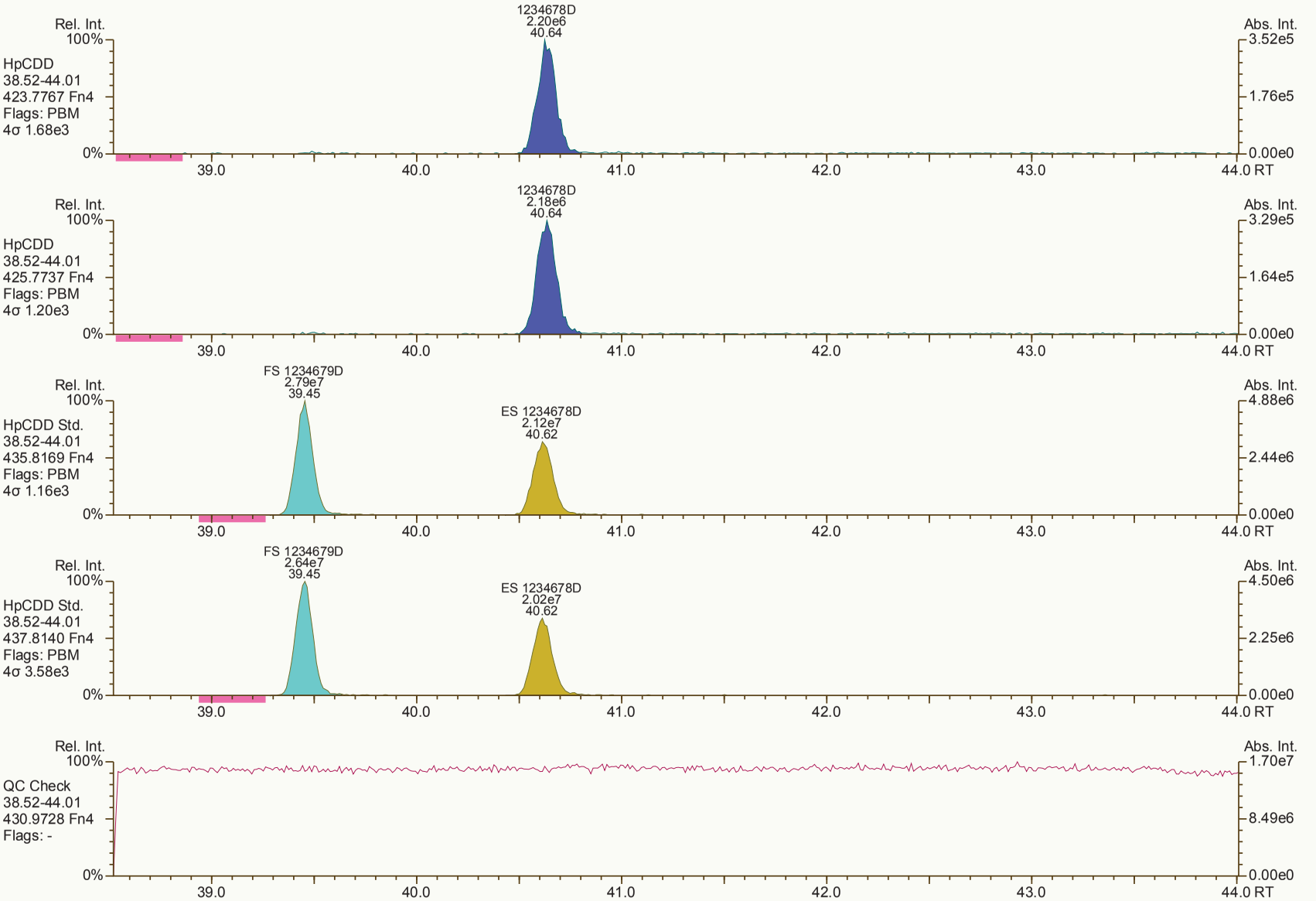
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5718, 9709 scc: 134-724 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0386, 5612 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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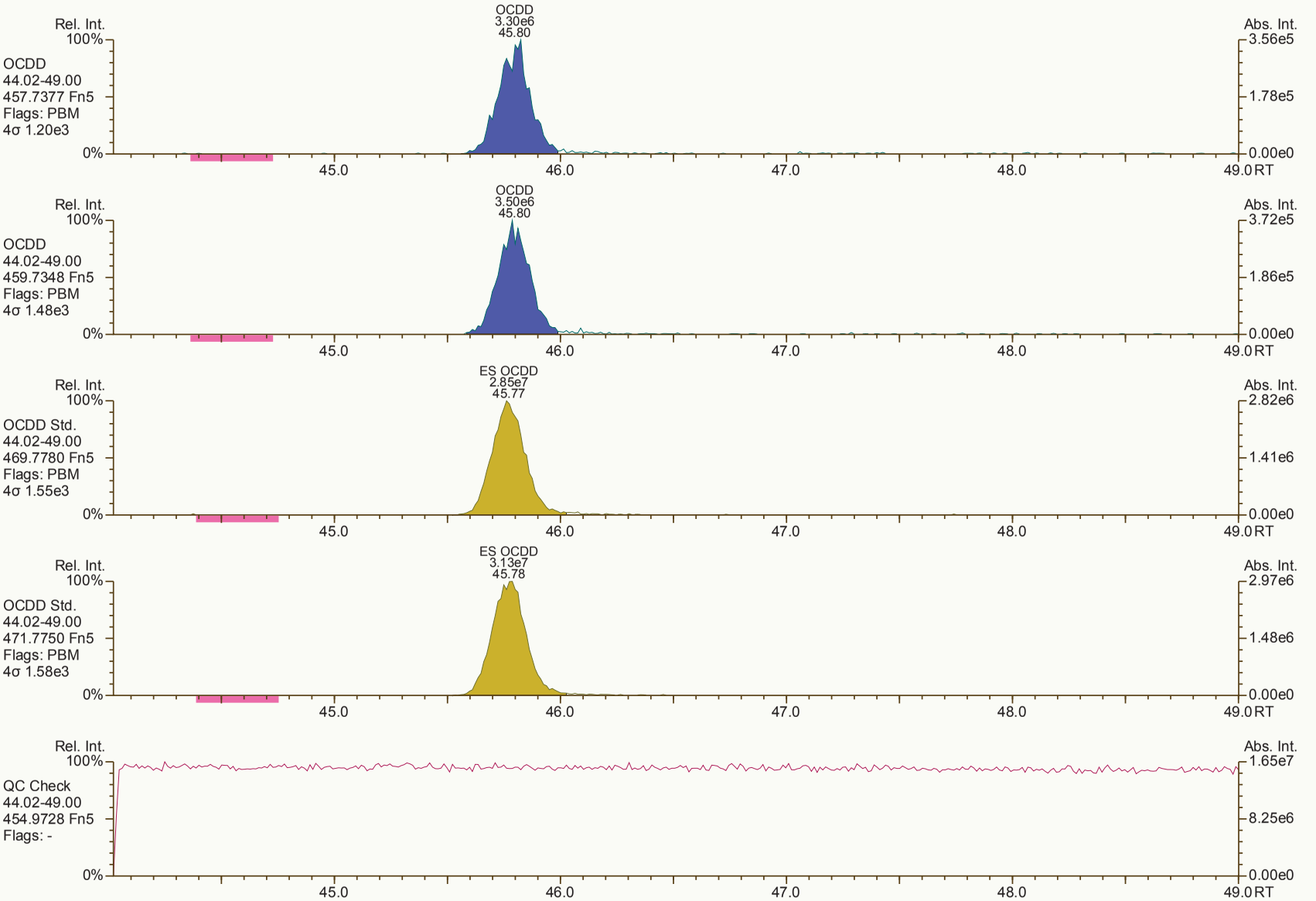
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3640, 4235 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 5 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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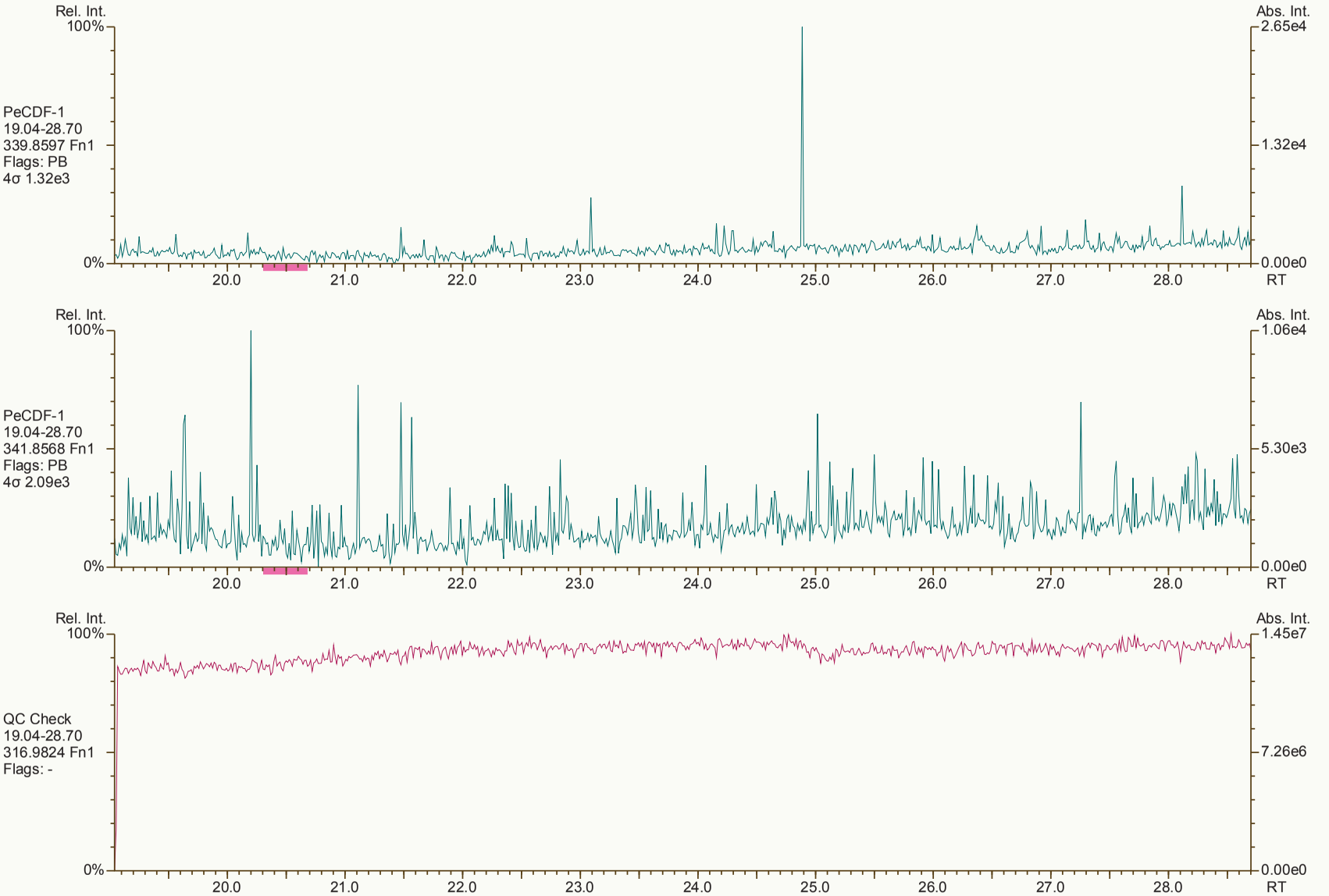
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7725, 5852 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 6 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7287, 2325, 5562 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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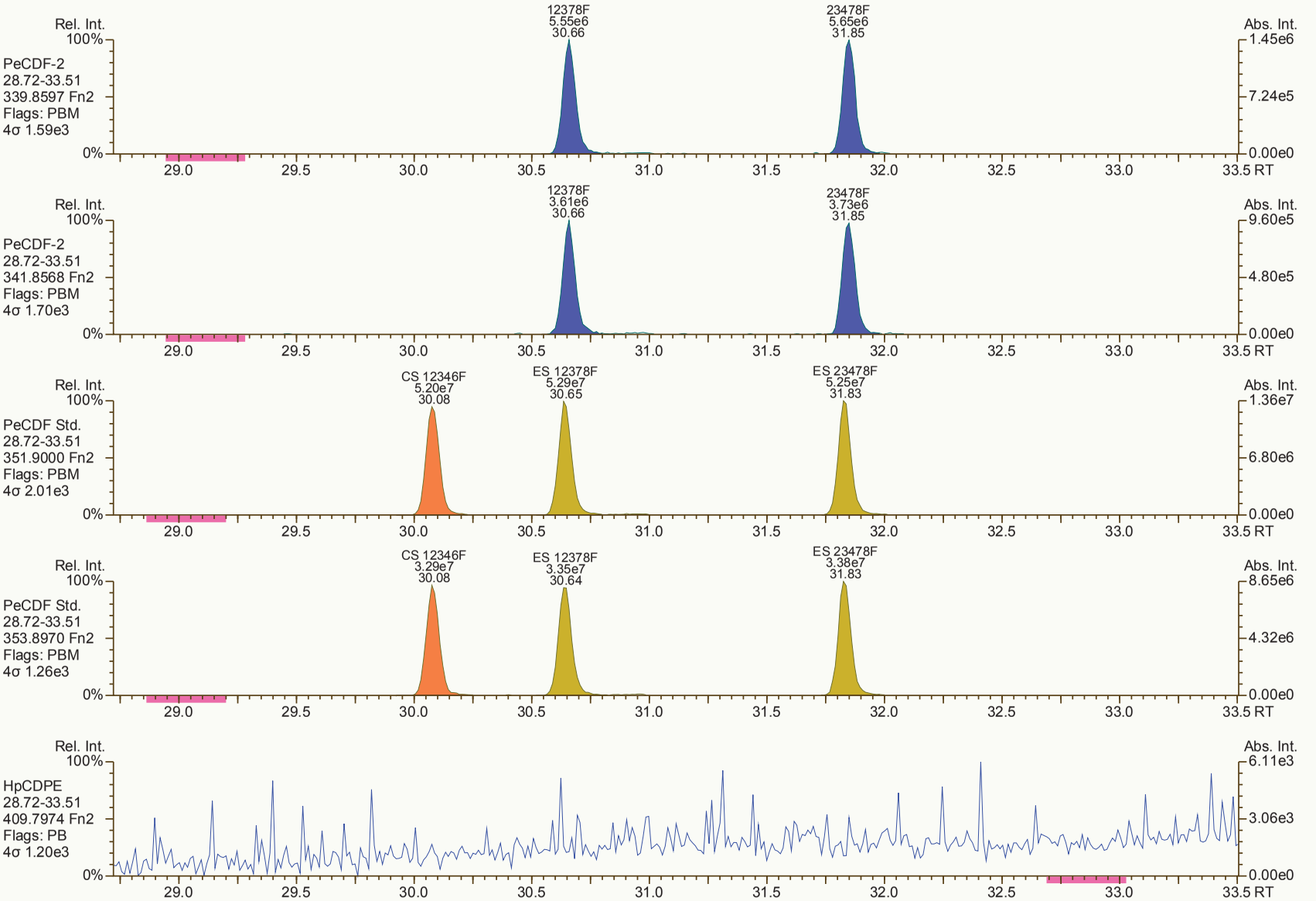
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1476 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 8 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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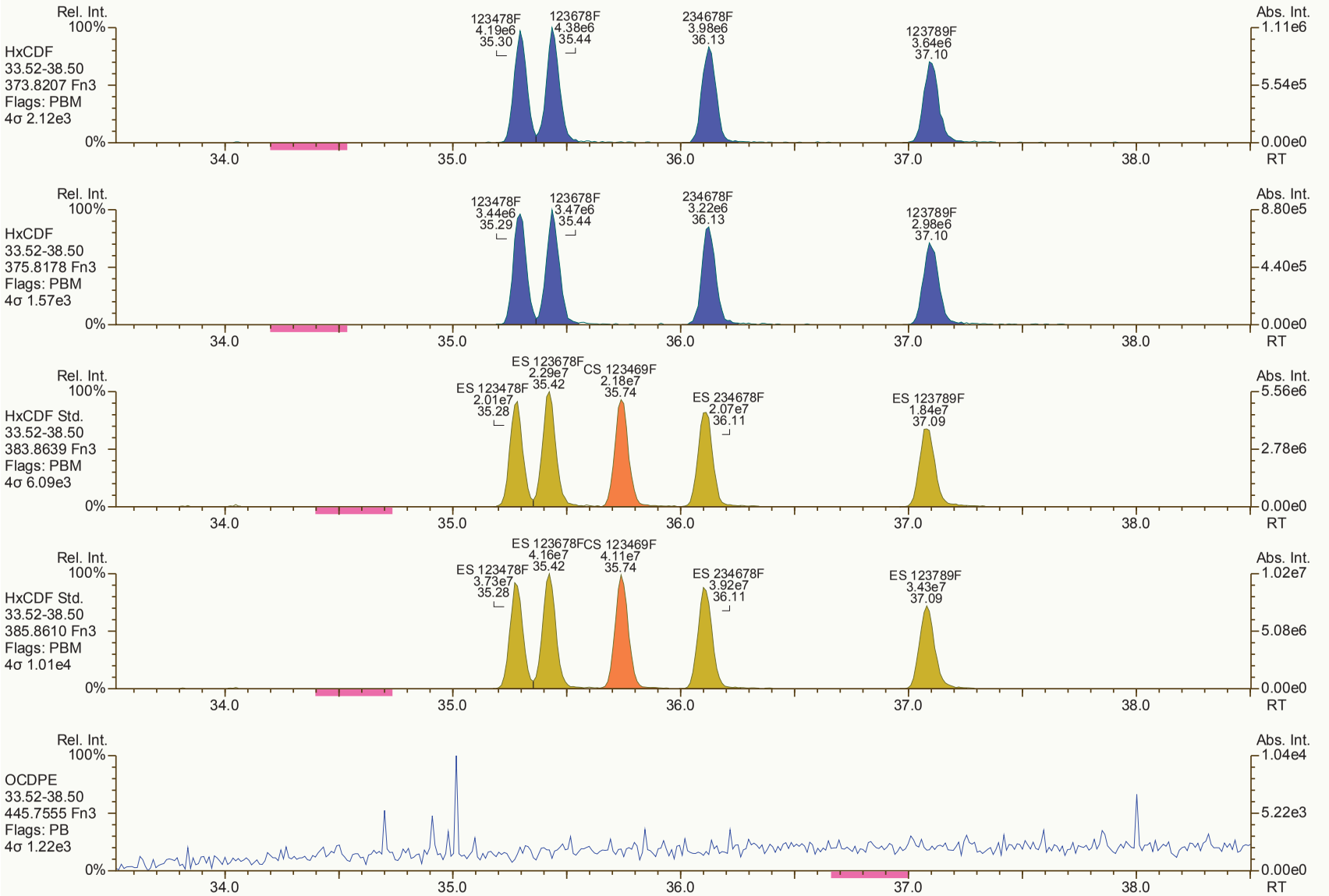
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3679, 9082, 0535 scc: 134-724 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**

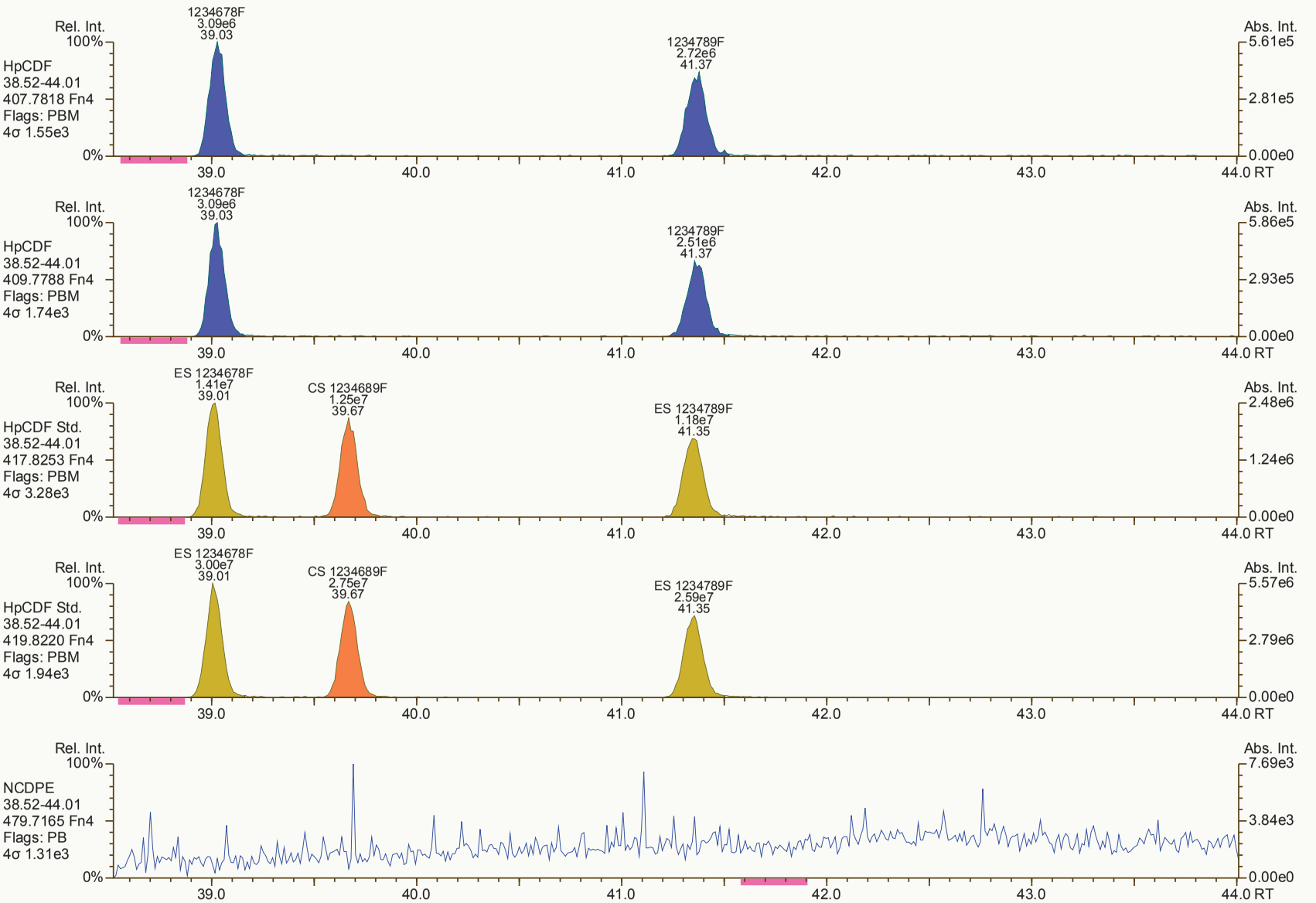


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3517, 7109, 3684 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**

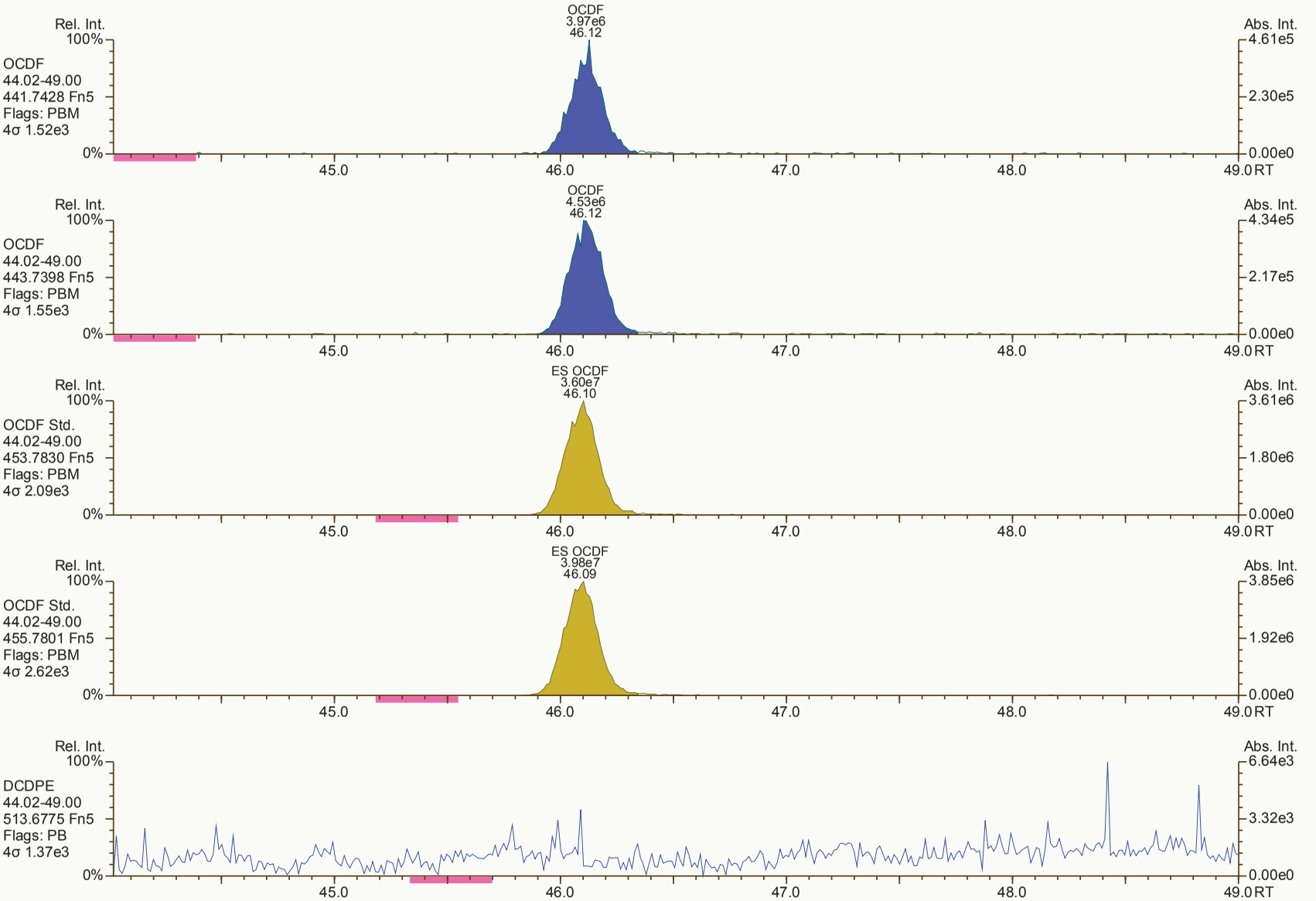
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4548, 1451, 0200 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5710, 8759, 1968 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 21:40 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_160106_CA | **UTP: 07-Jan-2016 10:52:24 ARL** | **Checkcode: 110-238-BKZ**

Sample ID: SIL 15-104-2 | **Report: 07 Jan 2016 11:22 AL** | **Datafile: 160106C08**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	7.19E+06	0.79	Y	1.19	1.16	-2%
12378-PeCDD	32.23	2.70E+07	1.57	Y	1.02	0.97	-4%
123478-HxCDD	36.32	2.58E+07	1.28	Y	1.08	1.05	-3%
123678-HxCDD	36.44	2.57E+07	1.27	Y	1.05	1.00	-4%
123789-HxCDD	36.73	2.67E+07	1.25	Y	0.99	0.93	-7%
1234678-HpCDD	40.60	1.99E+07	1.05	Y	1.02	1.00	-2%
OCDD	45.89	3.31E+07	0.88	Y	1.09	1.05	-4%
2378-TCDF	25.47	9.32E+06	0.81	Y	1.09	1.03	-5%
12378-PeCDF	30.67	4.07E+07	1.54	Y	1.03	0.98	-5%
23478-PeCDF	31.86	3.94E+07	1.54	Y	1.02	0.97	-5%
123478-HxCDF	35.31	3.58E+07	1.22	Y	1.29	1.21	-7%
123678-HxCDF	35.46	3.77E+07	1.22	Y	1.17	1.12	-5%
234678-HxCDF	36.13	3.50E+07	1.24	Y	1.18	1.11	-6%
123789-HxCDF	37.10	3.19E+07	1.25	Y	1.18	1.10	-7%
1234678-HpCDF	39.02	3.06E+07	1.06	Y	1.38	1.34	-3%
1234789-HpCDF	41.40	2.35E+07	1.00	Y	1.30	1.26	-3%
OCDF	46.18	4.06E+07	0.92	Y	1.03	1.01	-2%
ES 2378-TCDD	26.41	6.19E+07	0.80	Y	1.06	1.07	1%
ES 12378-PeCDD	32.21	5.55E+07	1.59	Y	0.99	0.96	-3%
ES 123478-HxCDD	36.31	4.91E+07	1.25	Y	1.09	1.11	2%
ES 123678-HxCDD	36.42	5.12E+07	1.27	Y	1.10	1.16	6%
ES 123789-HxCDD	36.72	5.78E+07	1.30	Y	1.24	1.31	5%
ES 1234678-HpCDD	40.58	4.00E+07	1.05	Y	0.93	0.91	-3%
ES OCDD	45.87	6.33E+07	0.93	Y	0.71	0.72	1%
ES 2378-TCDF	25.45	9.07E+07	0.81	Y	1.02	1.04	1%
ES 12378-PeCDF	30.65	8.29E+07	1.59	Y	0.96	0.95	-2%
ES 23478-PeCDF	31.84	8.11E+07	1.58	Y	0.95	0.93	-2%
ES 123478-HxCDF	35.30	5.91E+07	0.54	Y	1.32	1.34	1%
ES 123678-HxCDF	35.44	6.74E+07	0.54	Y	1.51	1.53	1%
ES 234678-HxCDF	36.11	6.33E+07	0.54	Y	1.38	1.43	4%
ES 123789-HxCDF	37.09	5.79E+07	0.55	Y	1.25	1.31	5%
ES 1234678-HpCDF	39.00	4.57E+07	0.45	Y	1.03	1.04	1%
ES 1234789-HpCDF	41.38	3.74E+07	0.45	Y	0.87	0.85	-3%
ES OCDF	46.16	8.04E+07	0.92	Y	0.92	0.91	-1%

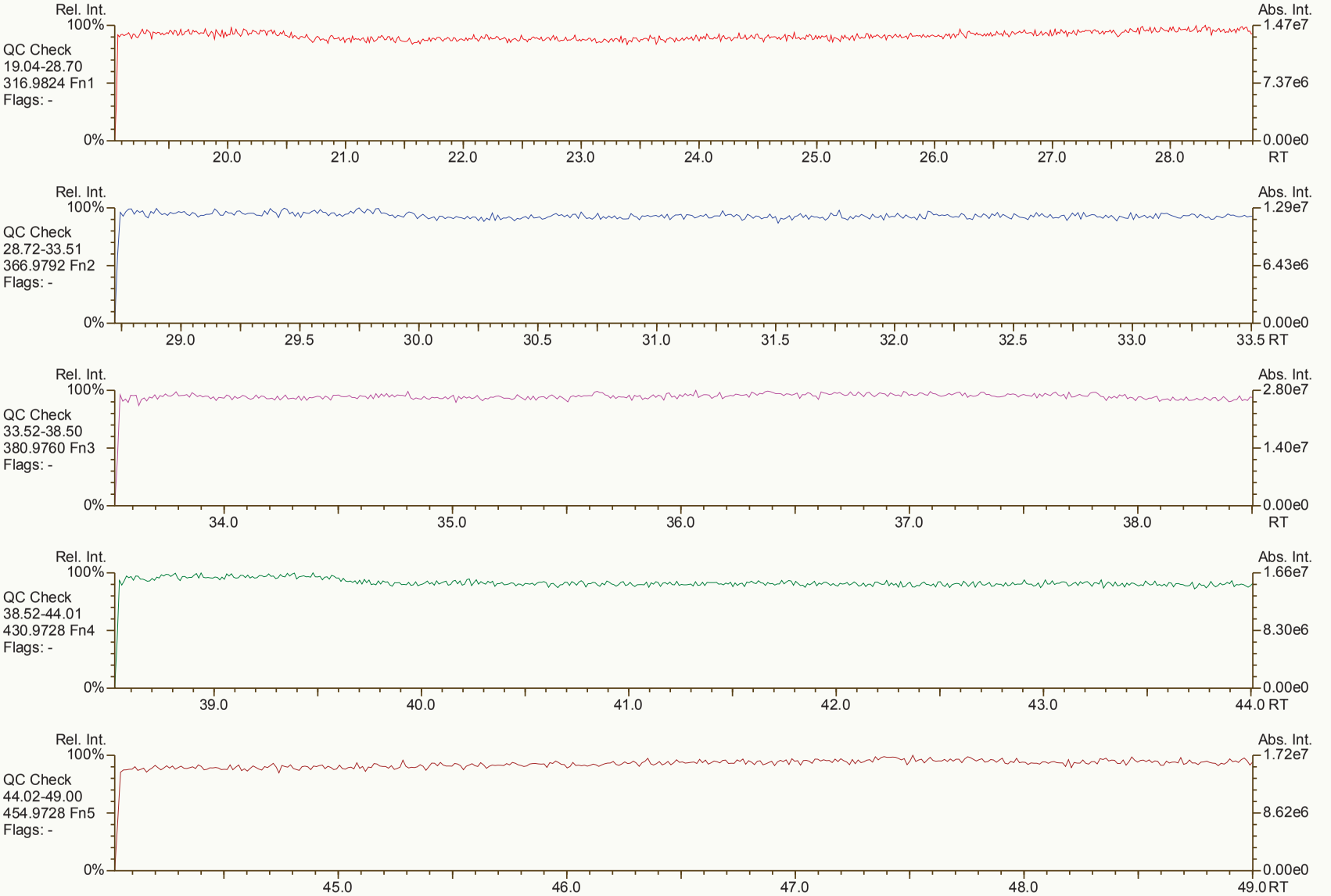
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 21:40 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_160106_CA | **UTP: 07-Jan-2016 10:52:24 ARL** | **Checkcode: 110-238**

Sample ID: SIL 15-104-2 | **Report: 07 Jan 2016 11:22 AL** | **Datafile: 160106C08**

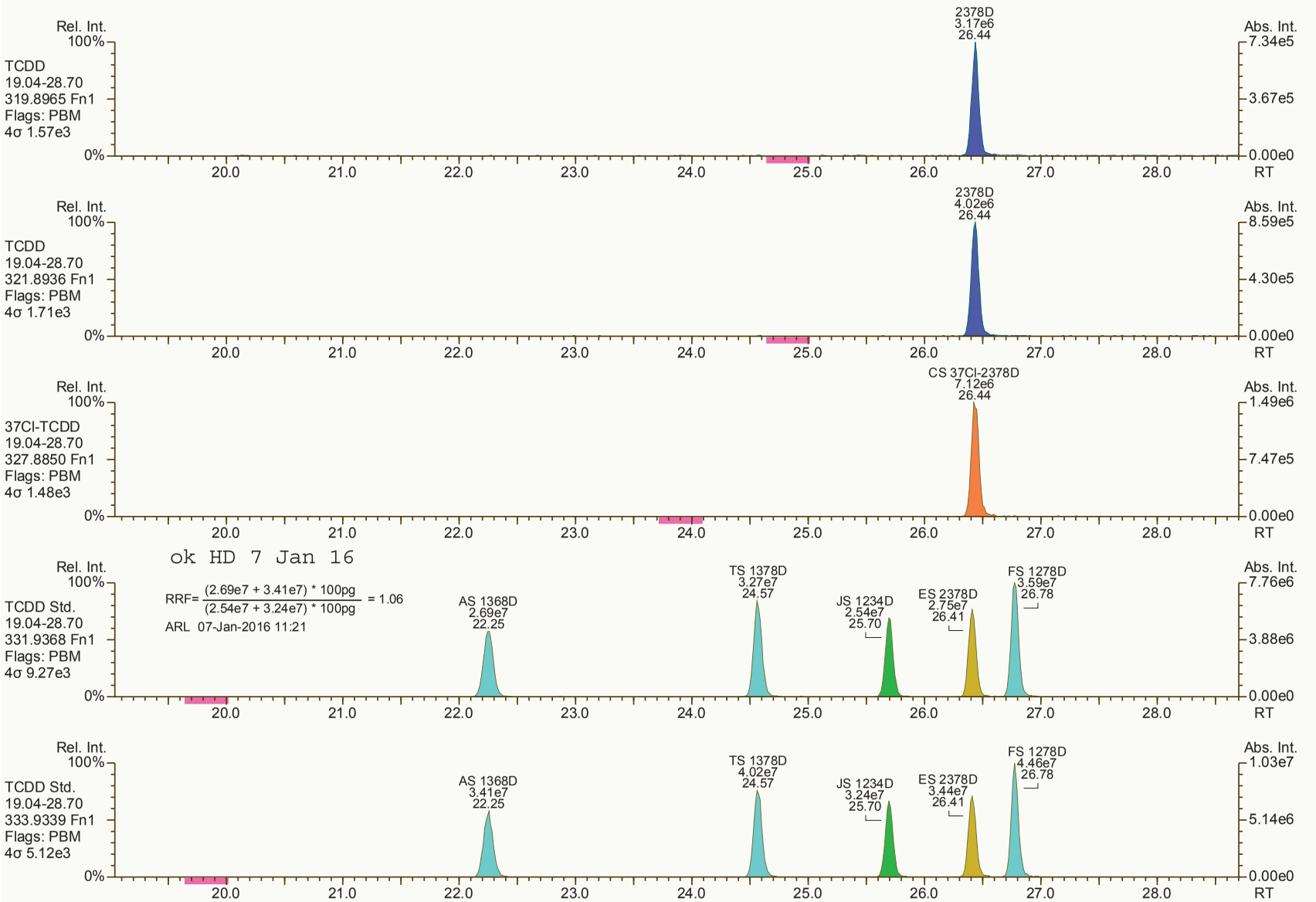
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.78E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.93	8.74E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.61	2.21E+07	1.23	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	7.12E+06	n/a	-	1.24	1.23	-1%
CS 12347-PeCDD	31.68	5.29E+07	1.60	Y	0.94	0.92	-2%
CS 12346-PeCDF	30.09	7.96E+07	1.58	Y	0.92	0.91	-1%
CS 123469-HxCDF	35.76	6.30E+07	0.52	Y	1.38	1.43	3%
CS 1234689-HpCDF	39.65	3.98E+07	0.47	Y	0.88	0.90	2%
SS 37Cl-2378-TCDD	26.44	7.12E+06	n/a	-	1.18	1.15	-2%
SS 12347-PeCDD	31.68	5.29E+07	1.60	Y	0.94	0.95	1%
SS 12346-PeCDF	30.09	7.96E+07	1.58	Y	0.96	0.96	0%
SS 123469-HxCDF	35.76	6.30E+07	0.52	Y	0.92	0.93	2%
SS 1234689-HpCDF	39.65	3.98E+07	0.47	Y	0.86	0.87	1%
AS 1368-TCDD	22.25	6.10E+07	0.79	Y	1.05	1.06	1%
AS 1368-TCDF	20.15	1.32E+08	0.80	Y	1.40	1.50	7%
FS 1278-TCDD	26.78	8.05E+07	0.80	Y	1.28	1.30	1%
FS 12478-PeCDD	30.91	6.20E+07	1.57	Y	1.11	1.12	1%
FS 123468-HxCDD	35.23	6.78E+07	1.27	Y	1.36	1.38	2%
FS 1234679-HpCDD	39.42	5.67E+07	1.05	Y	1.30	1.42	9%
TS 1378-TCDD	24.57	7.29E+07	0.81	Y	1.21	1.18	-2%
OCDD-a	45.88	2.14E+06	2.17	Y	0.07	0.07	1%
OCDF-a	46.18	2.74E+06	2.65	Y	0.06	0.07	7%

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



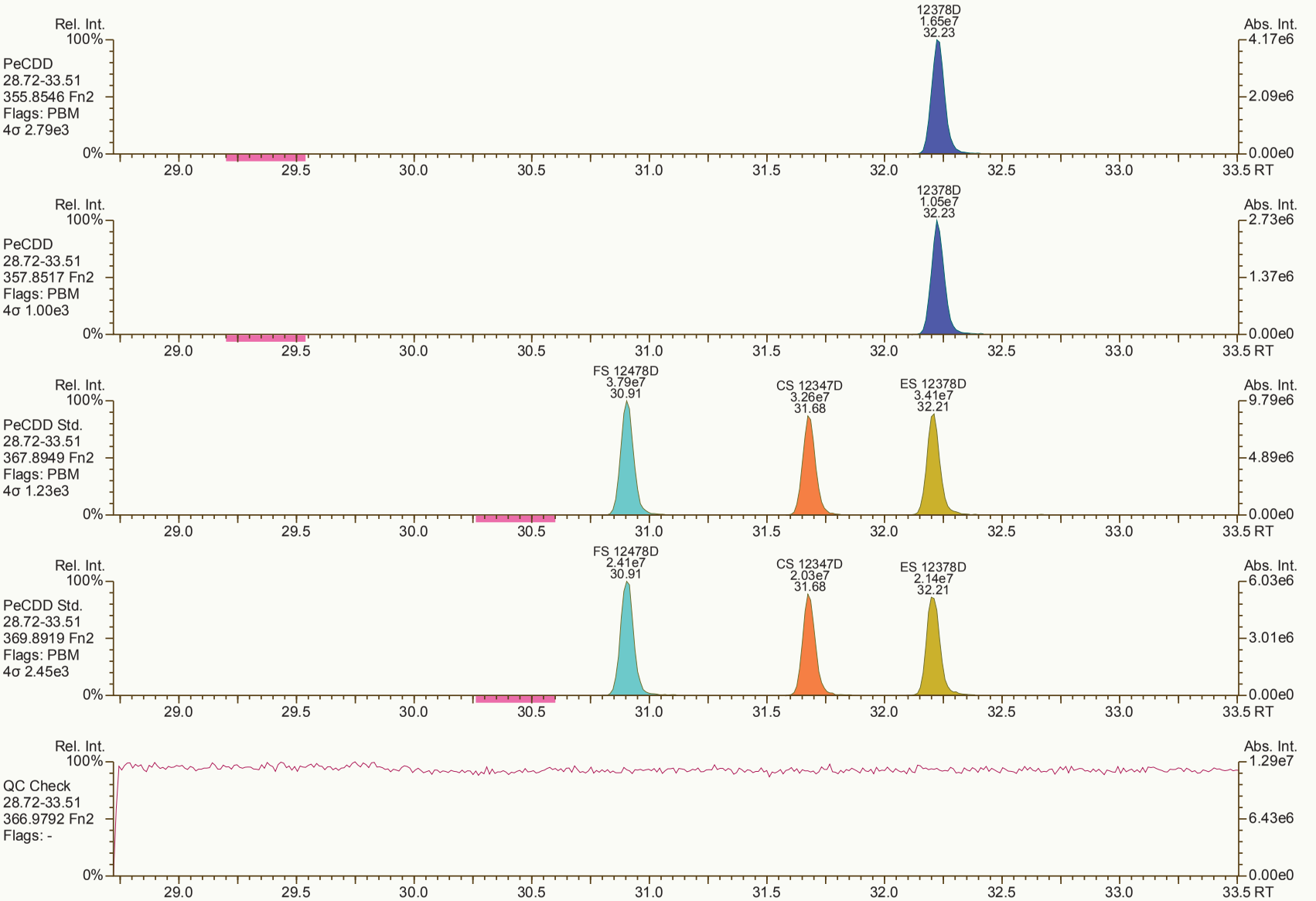
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 110-238 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



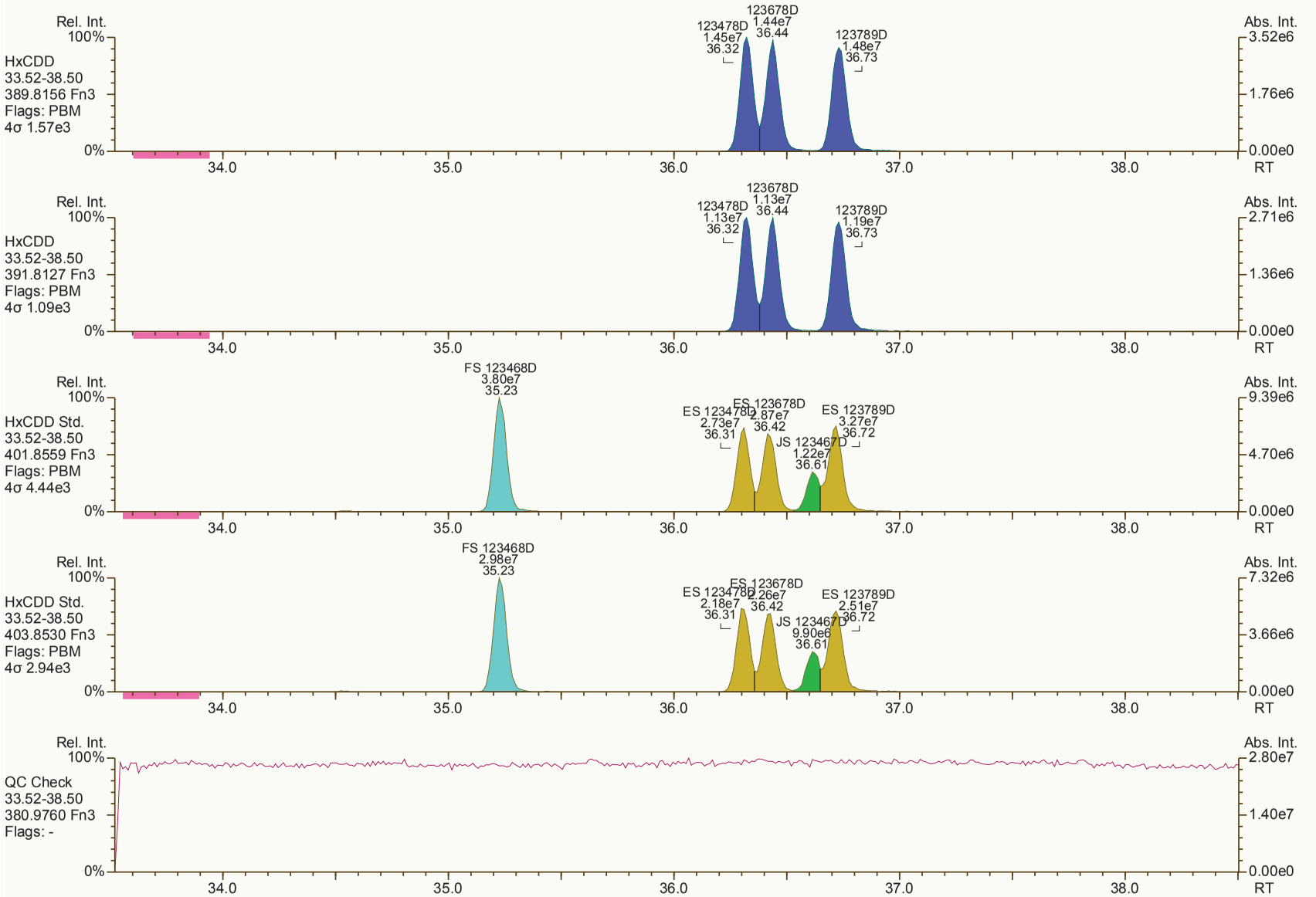
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6355, 3403, 7389 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 2 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



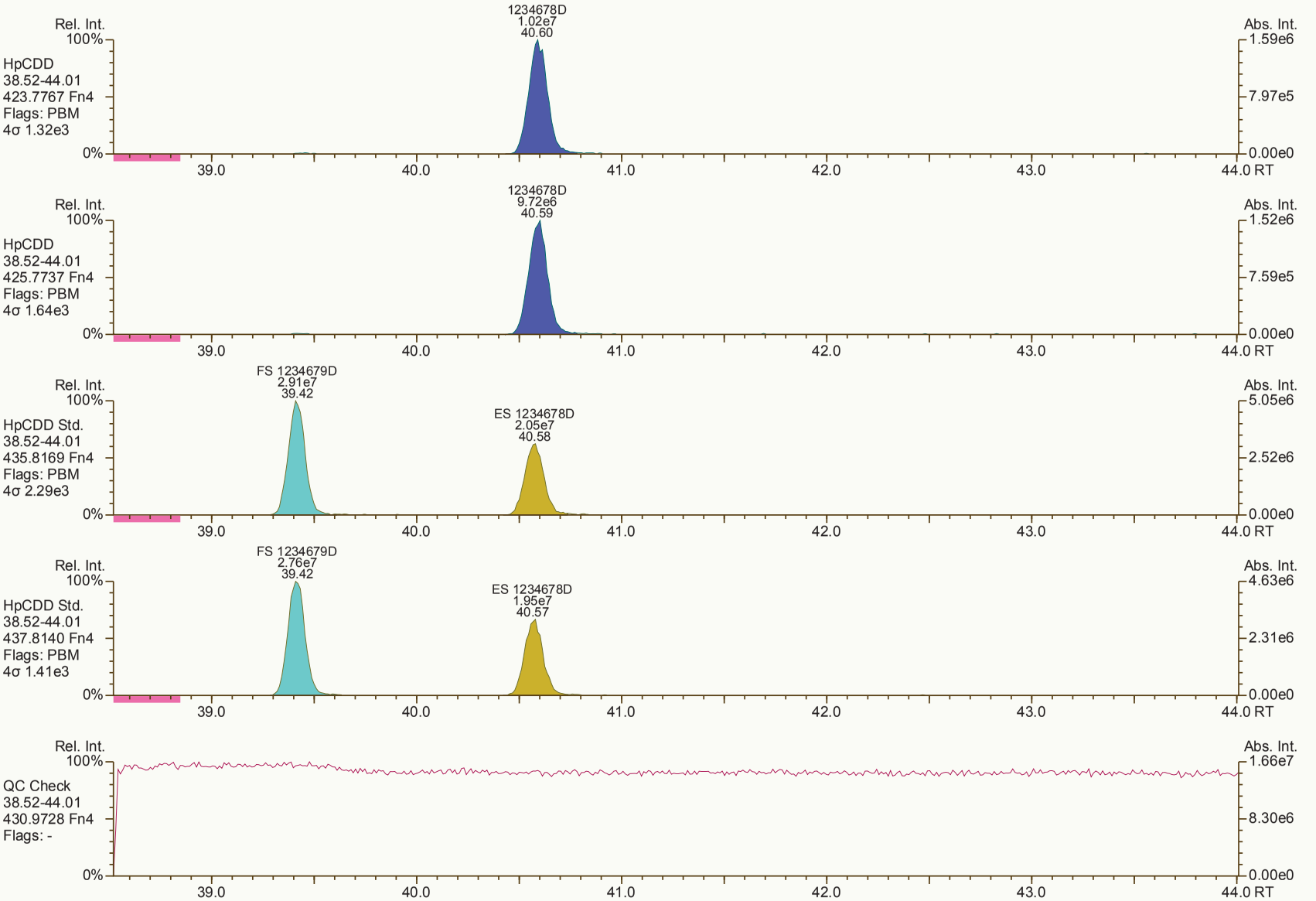
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7745, 0881 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



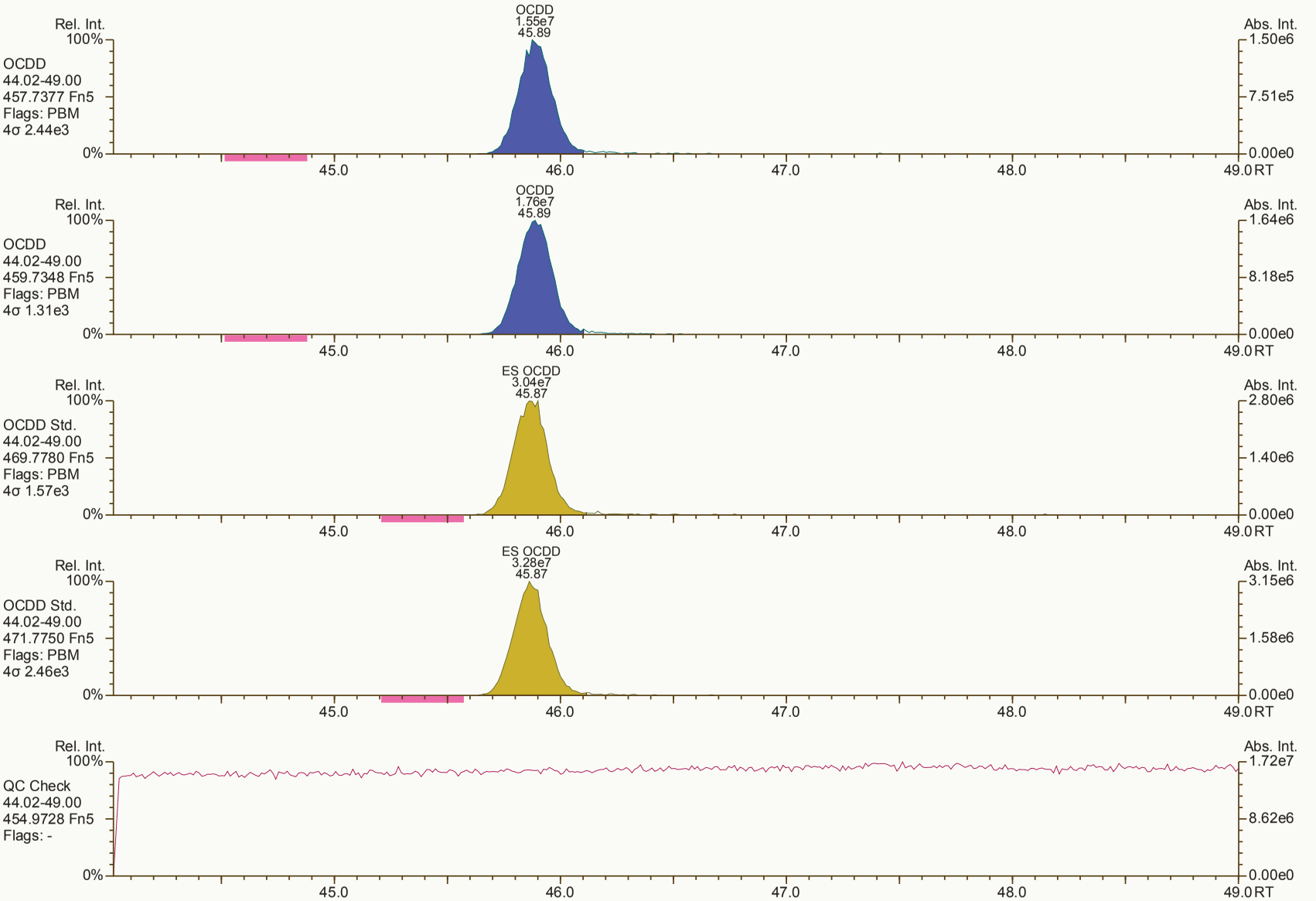
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6261, 9404 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



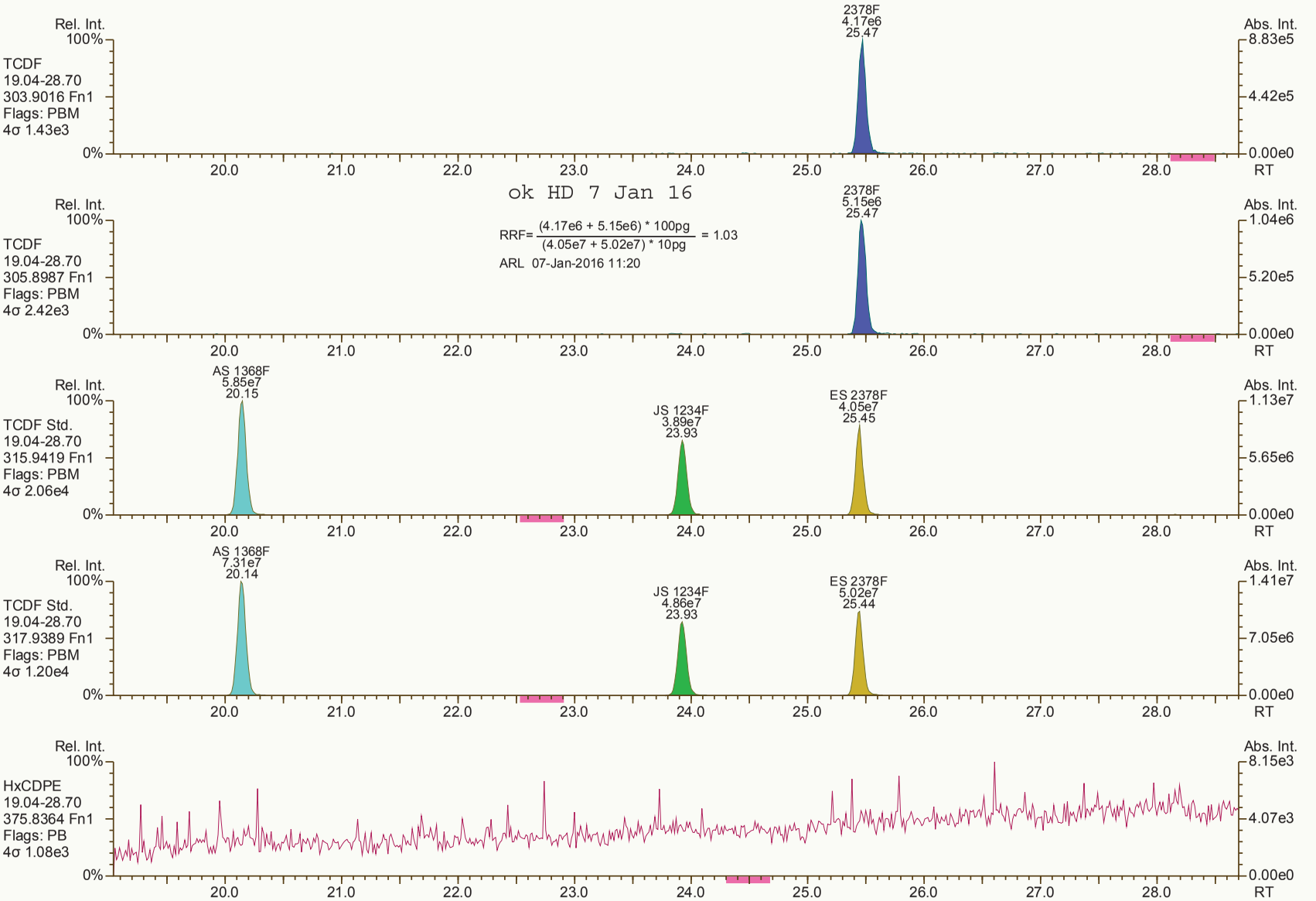
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5290, 8113 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 5 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6352, 8501 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 6 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



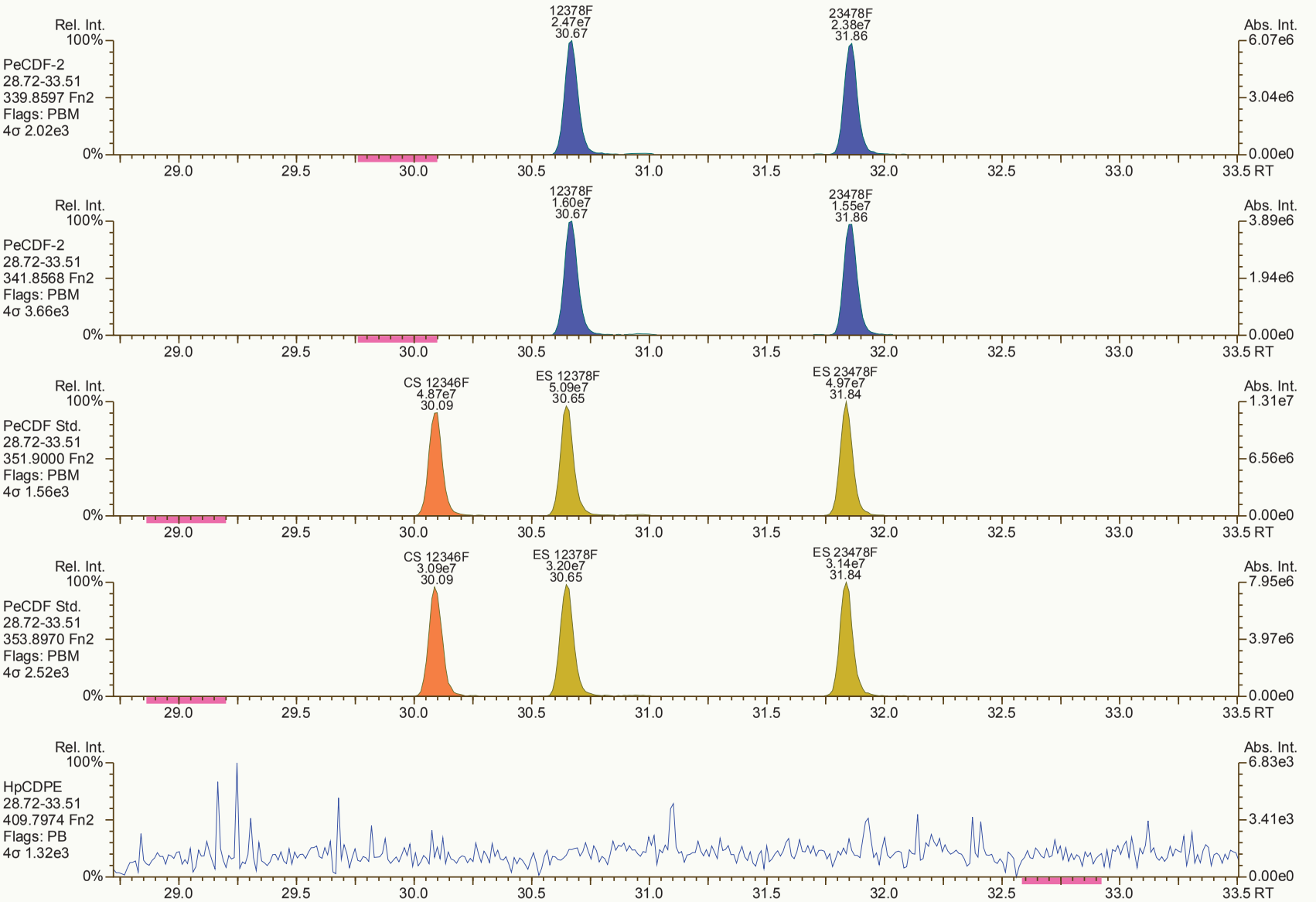
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6792, 0670, 2415 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2060 scc: 110-238 *Revised: 07-Jan-2016 09:29 (ARL) Printed: 07-Jan-2016 11:30 Page 8 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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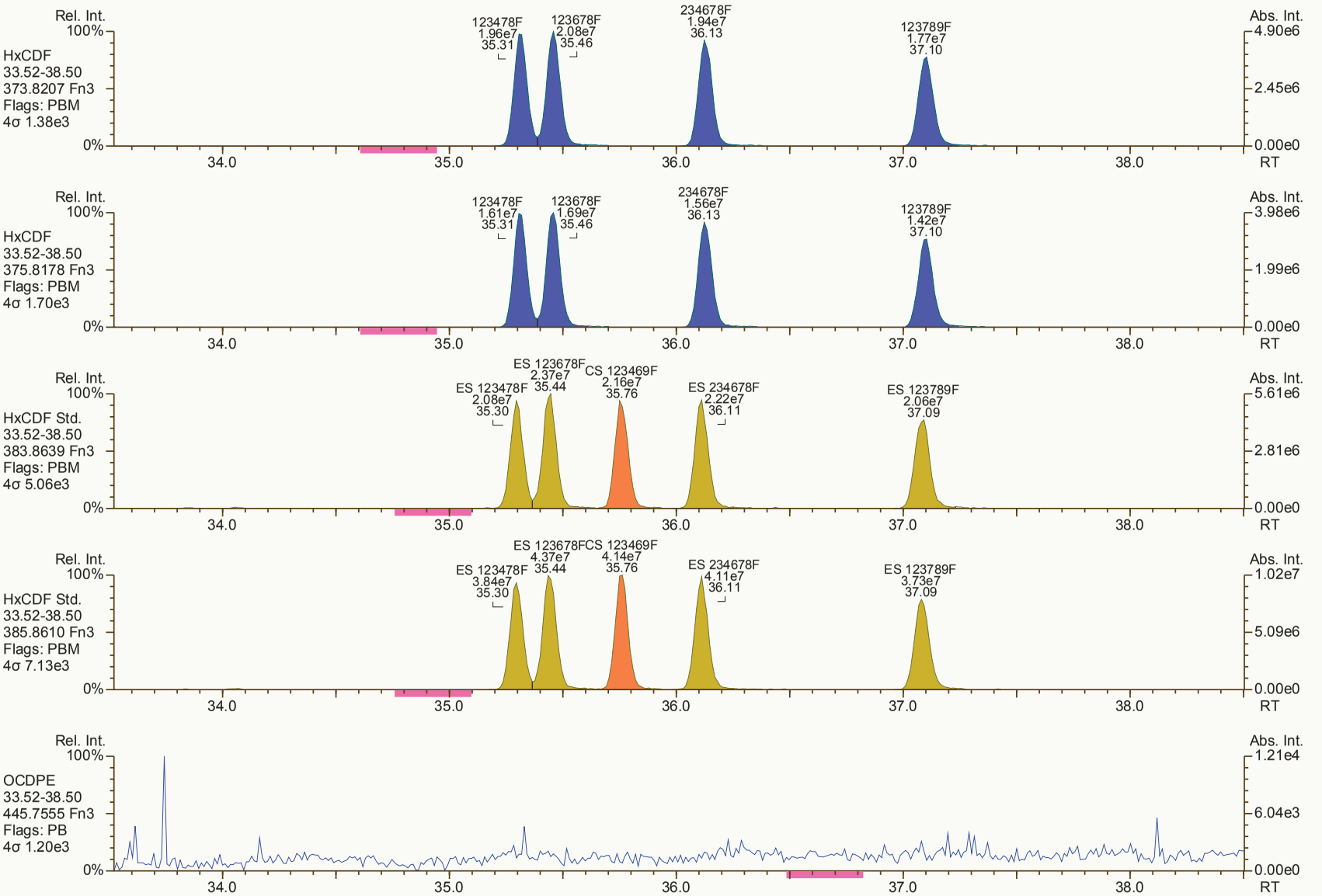
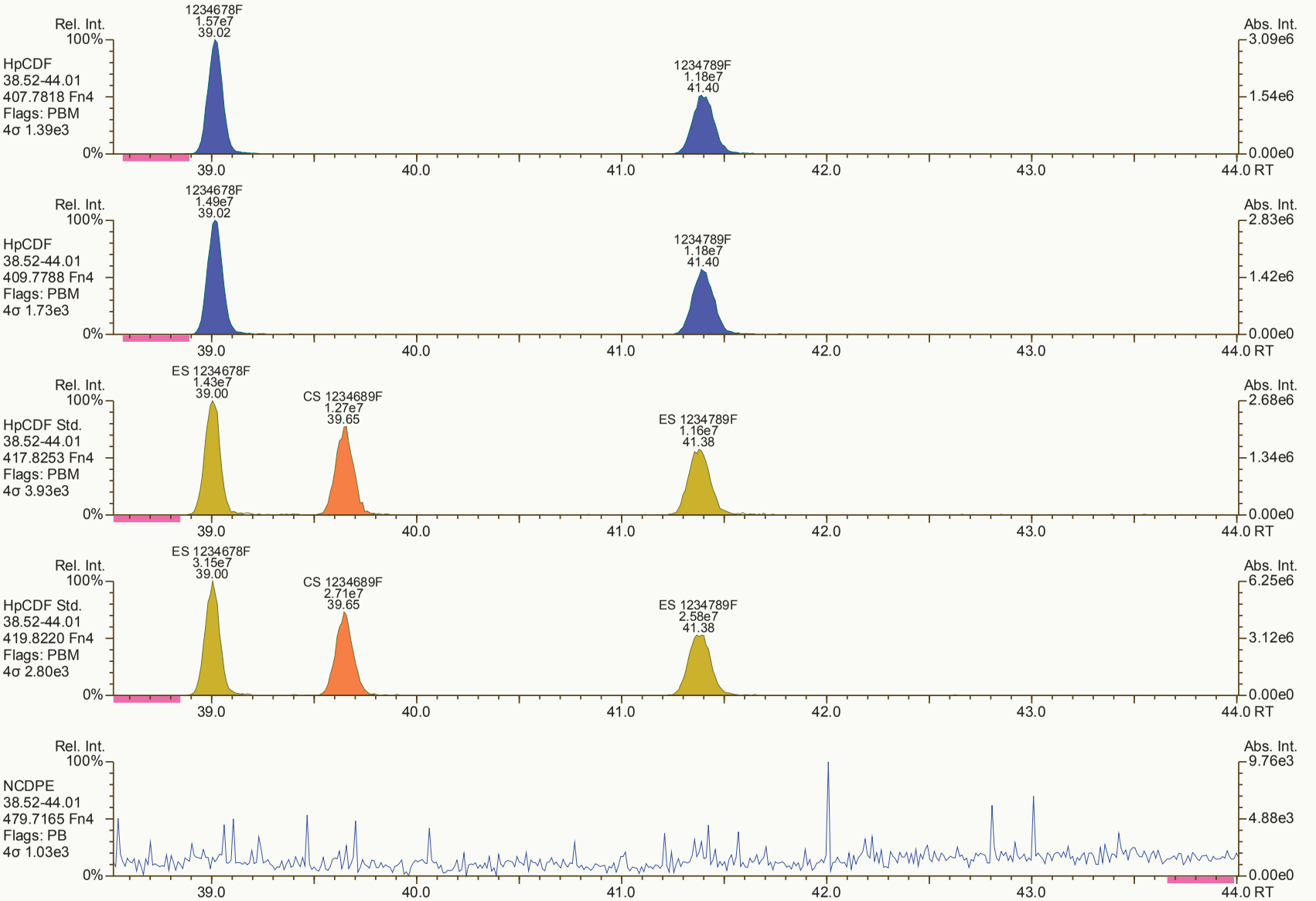
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7362, 7353, 8782 scc: 110-238 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0195, 7140, 9629 scc: 110-238 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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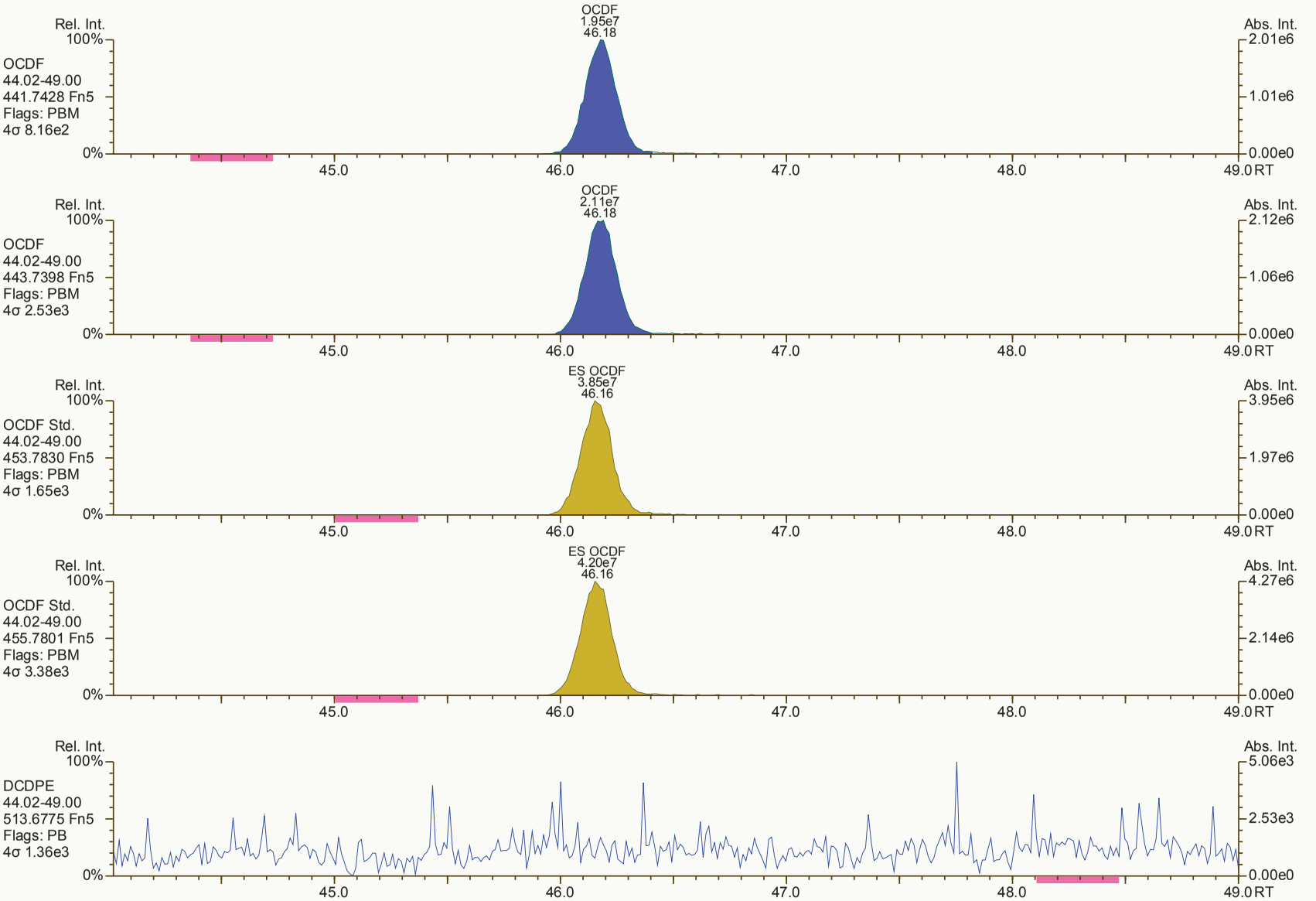
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8215, 3907, 3506 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5518, 5754, 7823 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 22:32 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS4_160106_CA | **UTP: 07-Jan-2016 10:52:25 ARL** | **Checkcode: 873-132-BRL**

Sample ID: SIL 15-104-1 | **Report: 07 Jan 2016 11:23 AL** | **Datafile: 160106C09**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	2.79E+07	0.78	Y	1.19	1.19	0%
12378-PeCDD	32.23	1.15E+08	1.59	Y	1.02	1.02	1%
123478-HxCDD	36.32	9.79E+07	1.26	Y	1.08	1.07	-1%
123678-HxCDD	36.44	9.89E+07	1.26	Y	1.05	1.09	4%
123789-HxCDD	36.74	1.02E+08	1.25	Y	0.99	0.98	-1%
1234678-HpCDD	40.66	8.10E+07	1.06	Y	1.02	1.03	1%
OCDD	45.78	1.32E+08	0.90	Y	1.09	1.10	1%
2378-TCDF	25.48	3.93E+07	0.79	Y	1.09	1.11	2%
12378-PeCDF	30.67	1.69E+08	1.56	Y	1.03	1.05	1%
23478-PeCDF	31.86	1.69E+08	1.55	Y	1.02	1.03	1%
123478-HxCDF	35.30	1.45E+08	1.23	Y	1.29	1.28	-1%
123678-HxCDF	35.46	1.53E+08	1.24	Y	1.17	1.19	2%
234678-HxCDF	36.13	1.36E+08	1.26	Y	1.18	1.18	0%
123789-HxCDF	37.12	1.21E+08	1.25	Y	1.18	1.15	-2%
1234678-HpCDF	39.04	1.18E+08	1.00	Y	1.38	1.37	0%
1234789-HpCDF	41.42	9.88E+07	1.01	Y	1.30	1.30	0%
OCDF	46.08	1.64E+08	0.92	Y	1.03	1.05	1%
ES 2378-TCDD	26.41	5.86E+07	0.81	Y	1.06	1.02	-4%
ES 12378-PeCDD	32.21	5.63E+07	1.59	Y	0.99	0.98	-1%
ES 123478-HxCDD	36.31	4.58E+07	1.25	Y	1.09	1.08	-1%
ES 123678-HxCDD	36.43	4.52E+07	1.26	Y	1.10	1.06	-3%
ES 123789-HxCDD	36.73	5.19E+07	1.26	Y	1.24	1.22	-2%
ES 1234678-HpCDD	40.64	3.92E+07	1.07	Y	0.93	0.92	-1%
ES OCDD	45.77	6.00E+07	0.93	Y	0.71	0.70	-1%
ES 2378-TCDF	25.45	8.88E+07	0.80	Y	1.02	1.00	-2%
ES 12378-PeCDF	30.65	8.07E+07	1.56	Y	0.96	0.91	-6%
ES 23478-PeCDF	31.84	8.18E+07	1.57	Y	0.95	0.92	-3%
ES 123478-HxCDF	35.29	5.66E+07	0.53	Y	1.32	1.33	1%
ES 123678-HxCDF	35.44	6.40E+07	0.53	Y	1.51	1.50	0%
ES 234678-HxCDF	36.11	5.77E+07	0.52	Y	1.38	1.35	-2%
ES 123789-HxCDF	37.10	5.24E+07	0.54	Y	1.25	1.23	-2%
ES 1234678-HpCDF	39.03	4.31E+07	0.46	Y	1.03	1.01	-1%
ES 1234789-HpCDF	41.40	3.80E+07	0.47	Y	0.87	0.89	2%
ES OCDF	46.06	7.85E+07	0.91	Y	0.92	0.92	0%

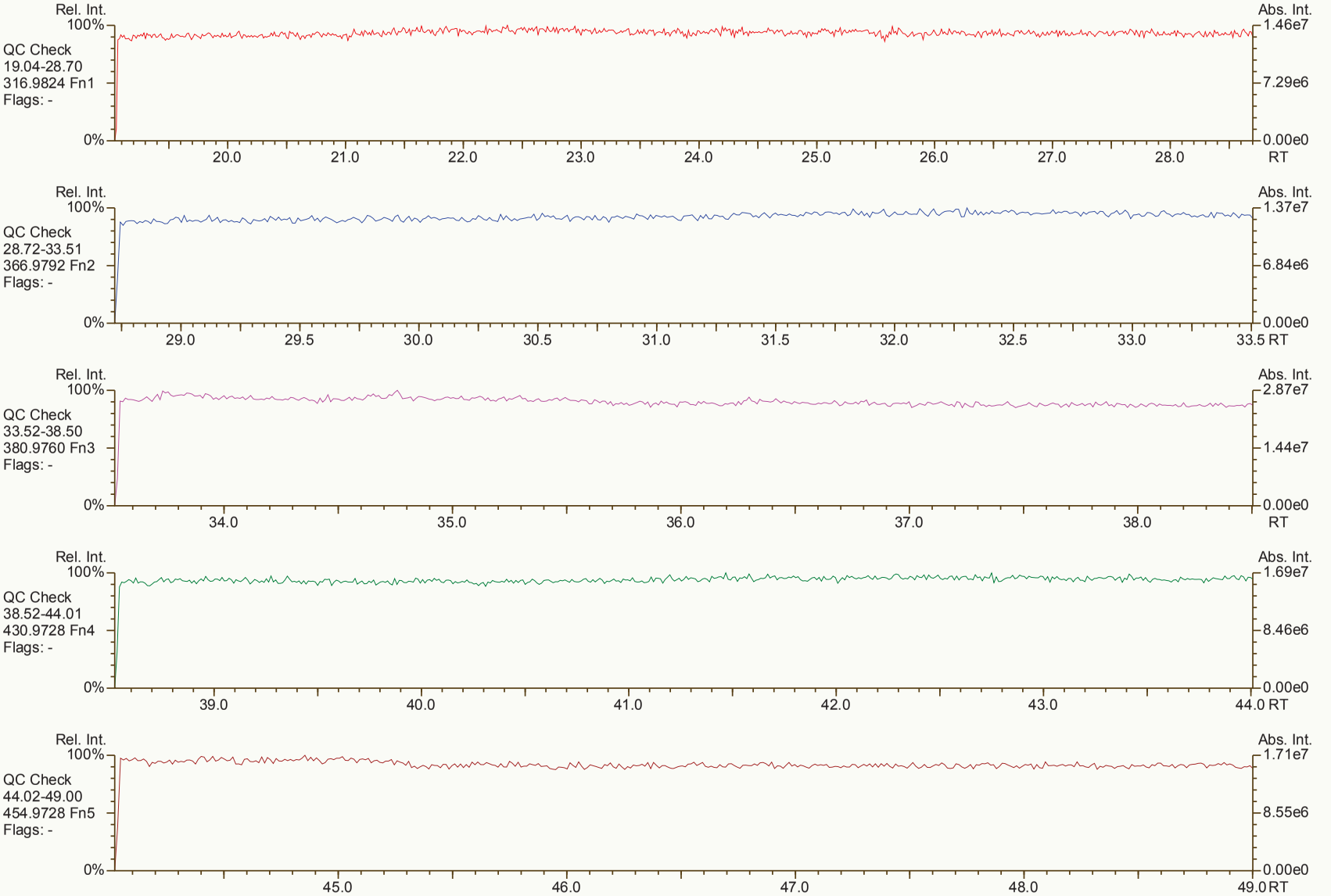
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 22:32 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS4_160106_CA | **UTP: 07-Jan-2016 10:52:25 ARL** | **Checkcode: 873-132**

Sample ID: SIL 15-104-1 | **Report: 07 Jan 2016 11:23 AL** | **Datafile: 160106C09**

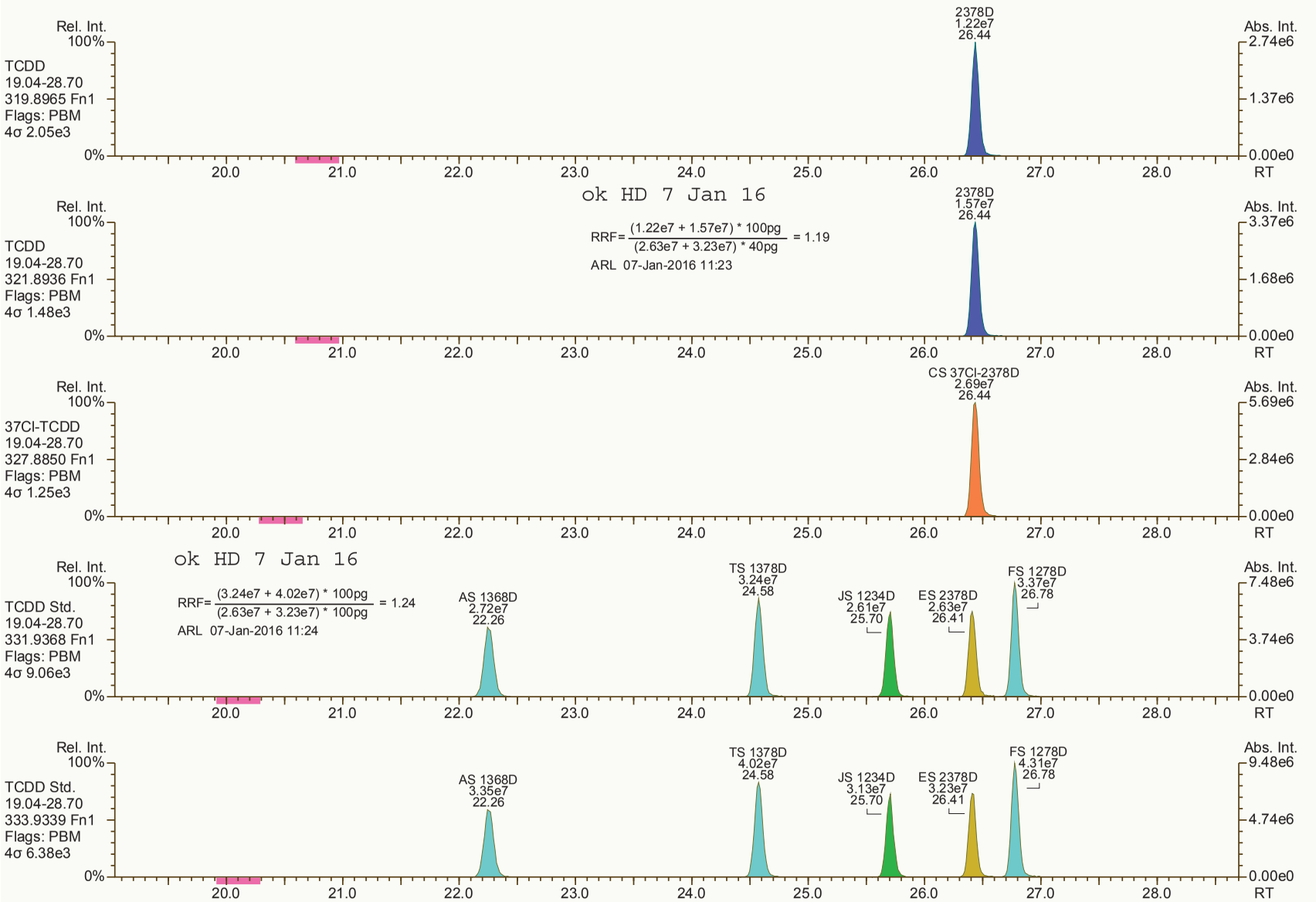
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.74E+07	0.83	Y	-	-	-
JS 1234-TCDF	23.93	8.88E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.62	2.13E+07	1.25	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	2.69E+07	n/a	-	1.24	1.17	-6%
CS 12347-PeCDD	31.68	5.30E+07	1.61	Y	0.94	0.92	-2%
CS 12346-PeCDF	30.09	8.00E+07	1.58	Y	0.92	0.90	-2%
CS 123469-HxCDF	35.76	5.82E+07	0.53	Y	1.38	1.37	-1%
CS 1234689-HpCDF	39.69	3.84E+07	0.46	Y	0.88	0.90	2%
SS 37Cl-2378-TCDD	26.44	2.69E+07	n/a	-	1.18	1.15	-3%
SS 12347-PeCDD	31.68	5.30E+07	1.61	Y	0.94	0.94	0%
SS 12346-PeCDF	30.09	8.00E+07	1.58	Y	0.96	0.99	3%
SS 123469-HxCDF	35.76	5.82E+07	0.53	Y	0.92	0.91	-1%
SS 1234689-HpCDF	39.69	3.84E+07	0.46	Y	0.86	0.89	3%
AS 1368-TCDD	22.26	6.07E+07	0.81	Y	1.05	1.06	1%
AS 1368-TCDF	20.14	1.21E+08	0.80	Y	1.40	1.36	-3%
FS 1278-TCDD	26.78	7.68E+07	0.78	Y	1.28	1.31	2%
FS 12478-PeCDD	30.91	6.08E+07	1.61	Y	1.11	1.08	-3%
FS 123468-HxCDD	35.22	6.37E+07	1.27	Y	1.36	1.39	2%
FS 1234679-HpCDD	39.47	5.30E+07	1.04	Y	1.30	1.35	4%
TS 1378-TCDD	24.58	7.26E+07	0.81	Y	1.21	1.24	3%
OCDD-a	45.78	8.42E+06	2.50	Y	0.07	0.07	4%
OCDF-a	46.08	1.07E+07	2.45	Y	0.06	0.07	7%

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 873-132 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



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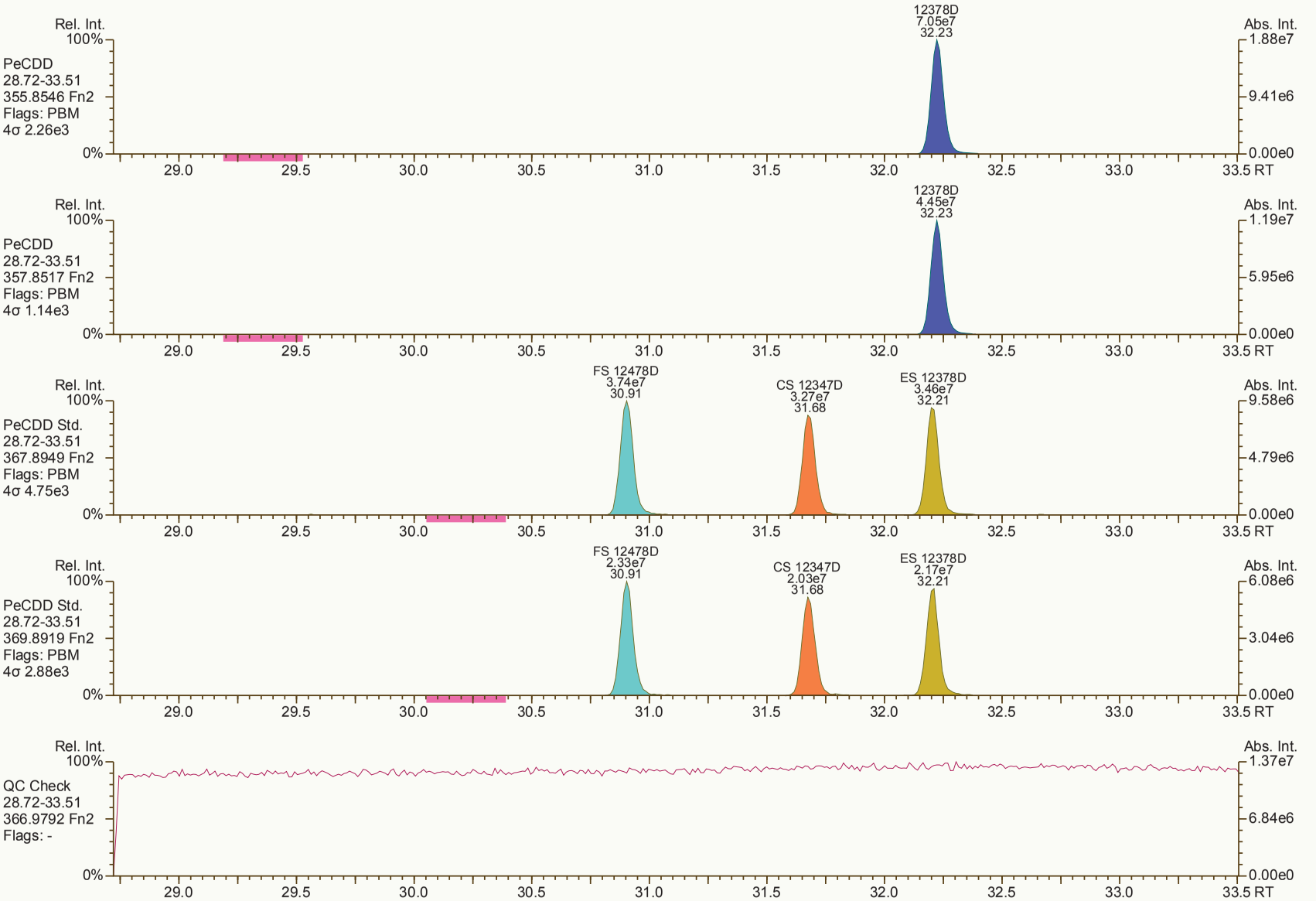
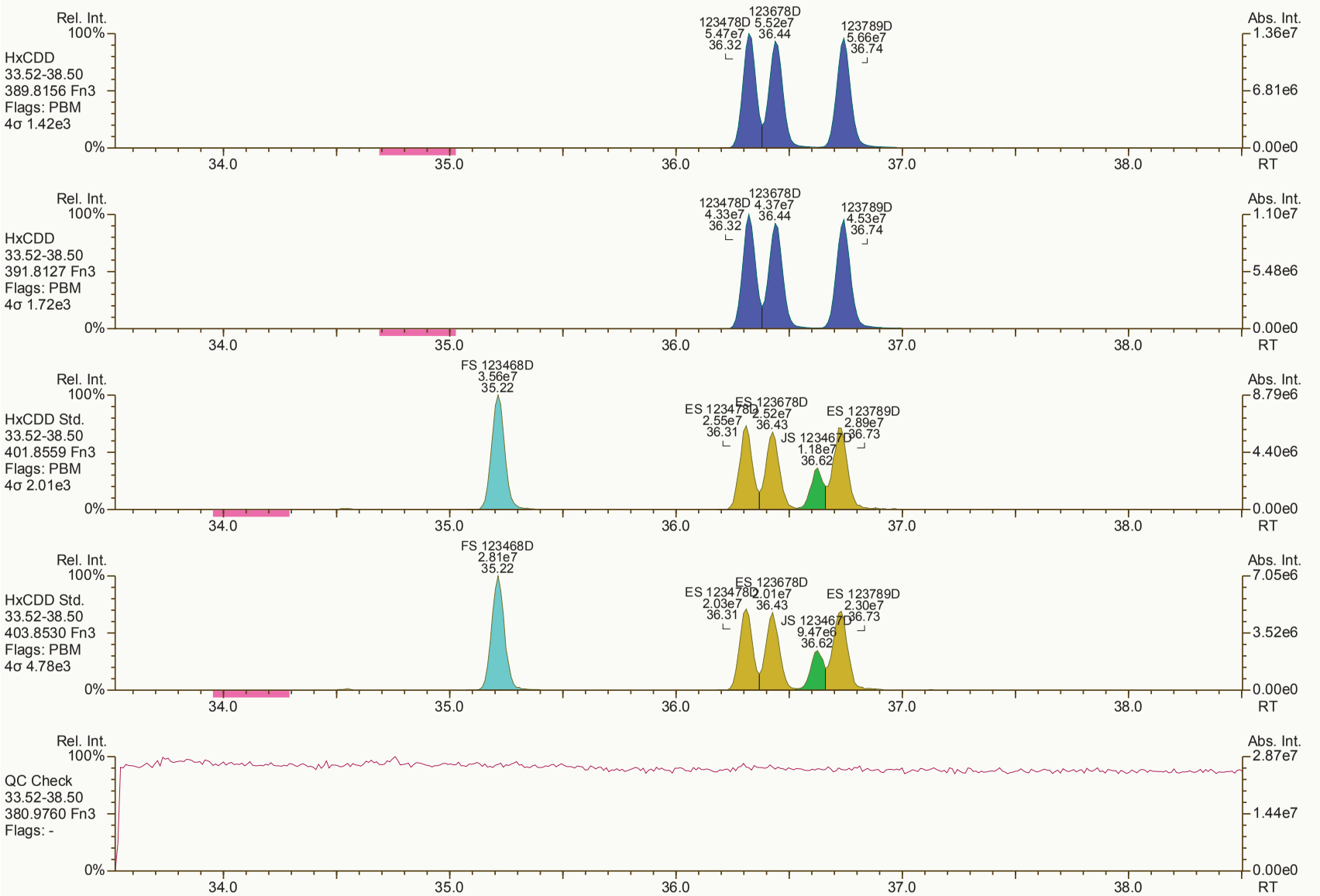
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4974, 4312, 2969 scc: 873-132 *PKD: 07-Jan-2016 09:36 Printed: 07-Jan-2016 11:30 Page 2 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



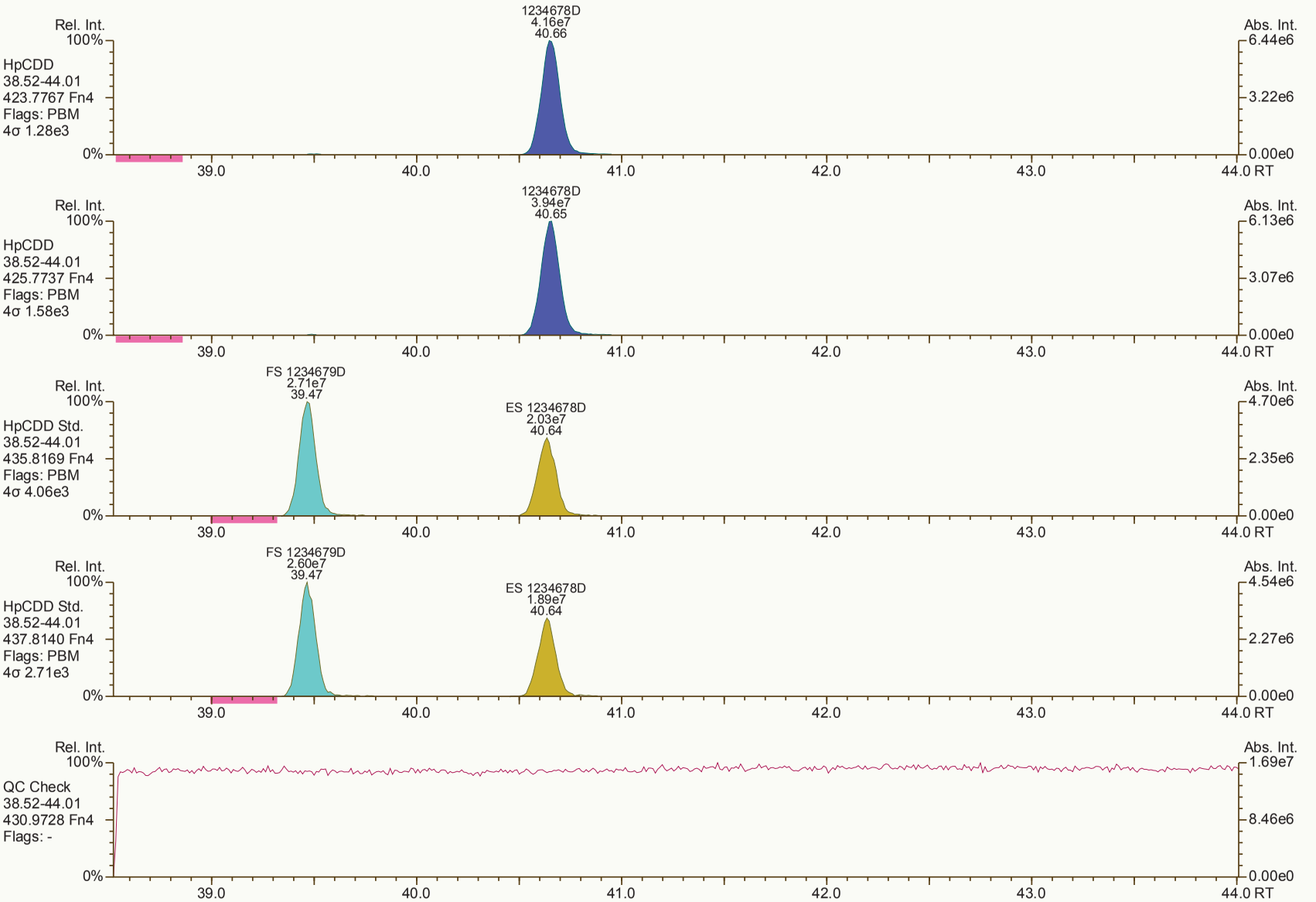
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5648, 4512 scc: 873-132 *Revised: 07-Jan-2016 09:40 (ARL) Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5713, 9953 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



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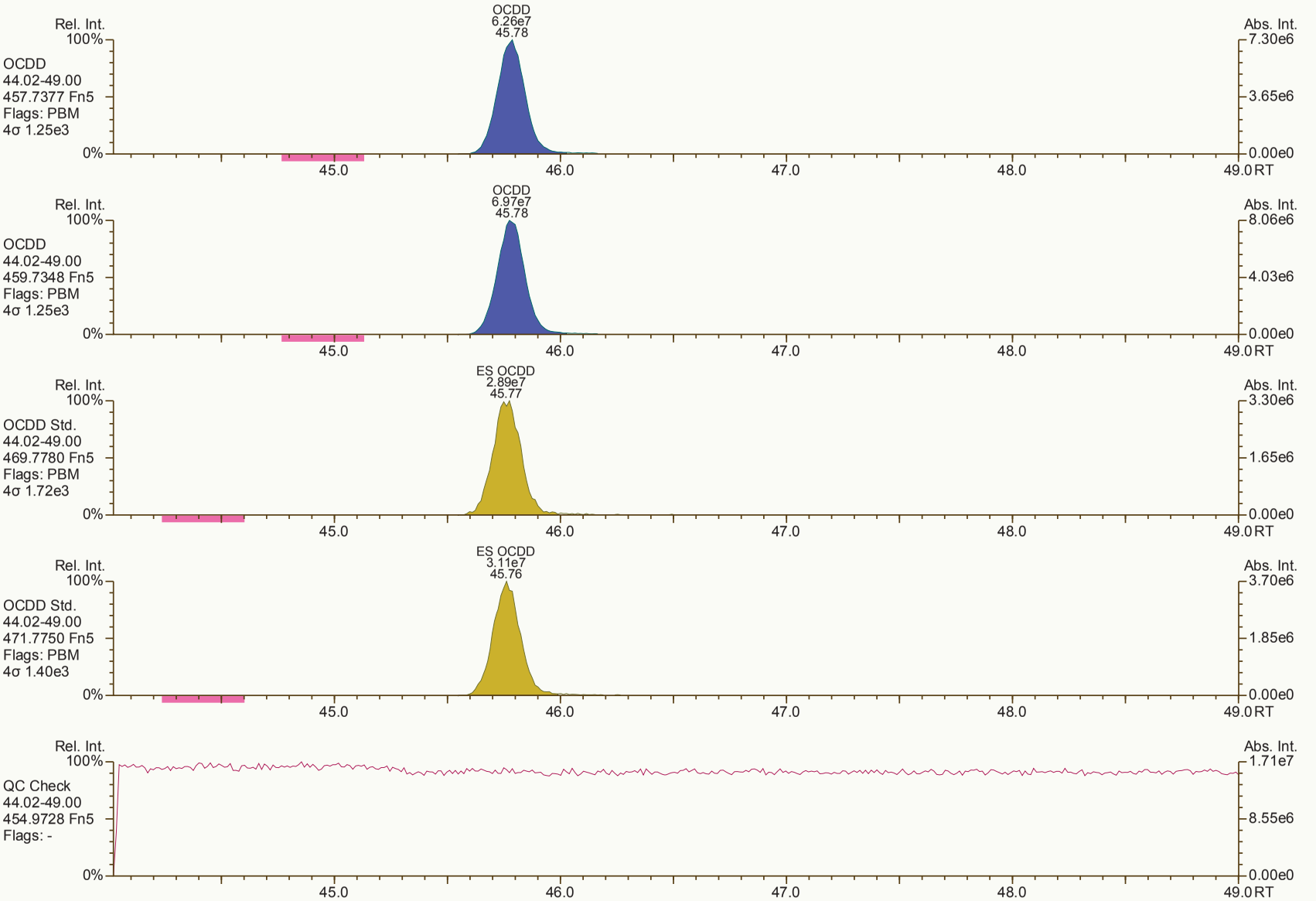
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3763, 2808 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0583, 3746 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 6 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

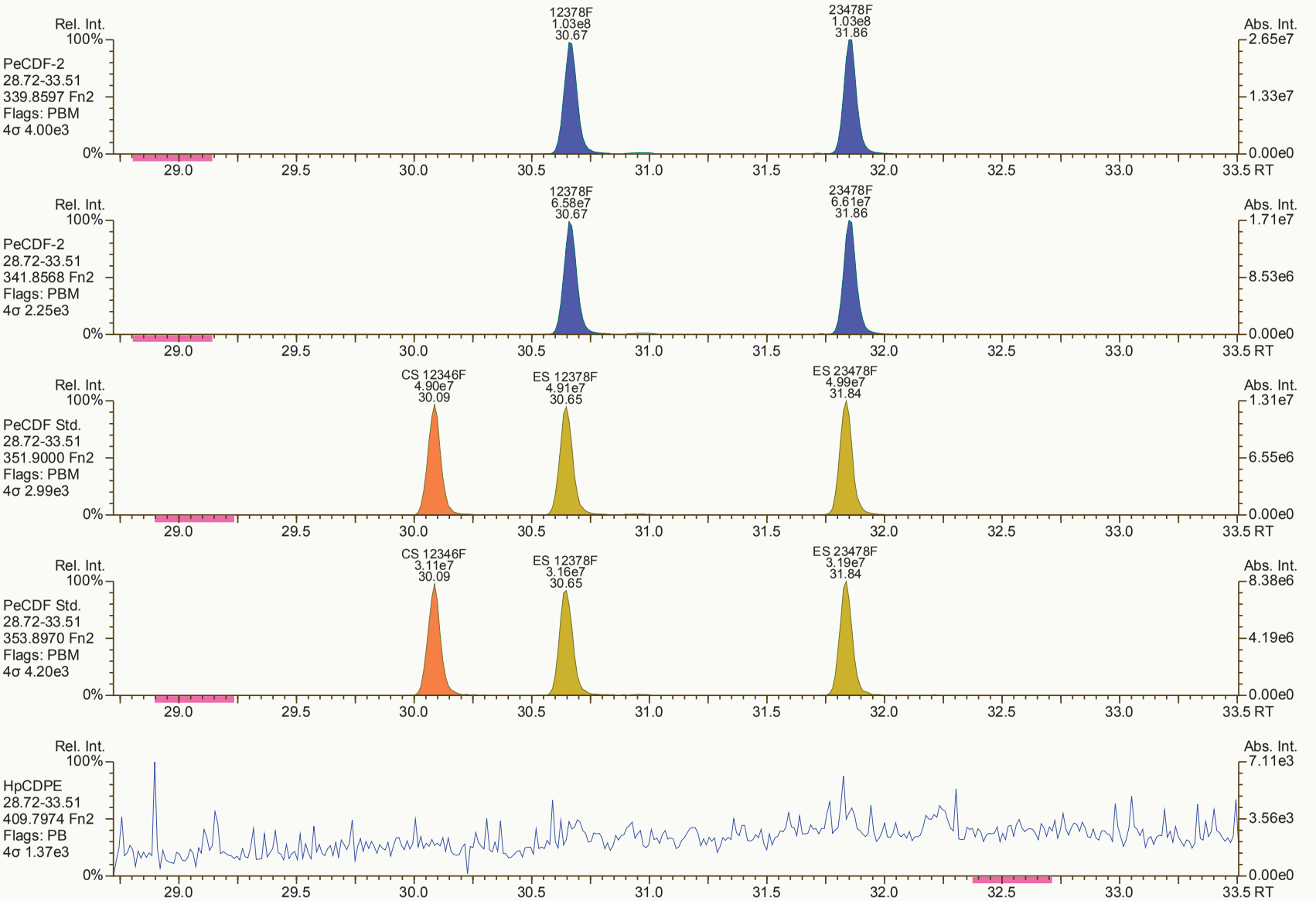
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2776, 2467, 2654 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS4_160106_CA **Sample ID: SIL 15-104-1** **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2116 scc: 873-132 *PKD: 07-Jan-2016 09:36 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**

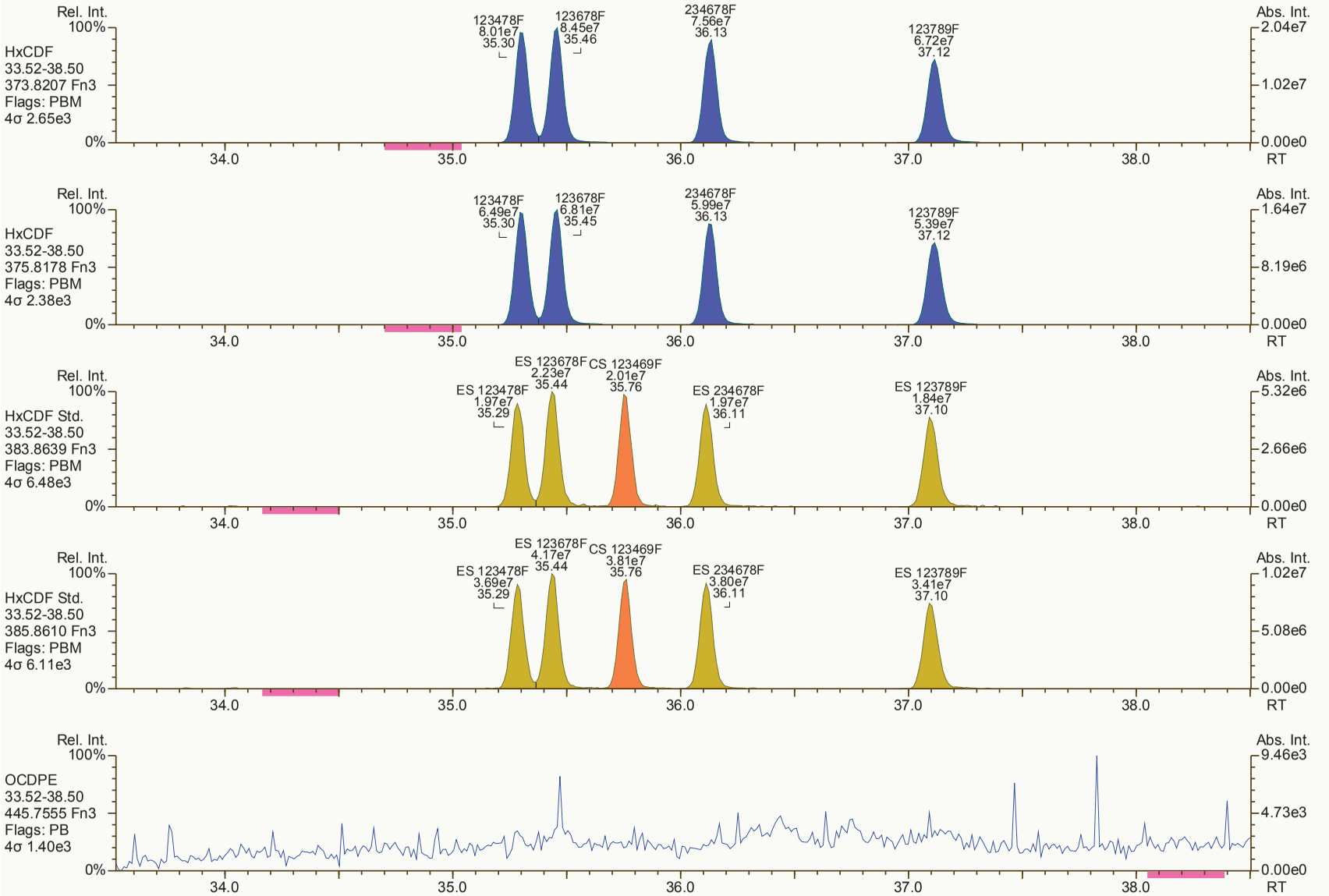
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9921, 7318, 4281 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5270, 5250, 6447 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3940, 2762, 8020 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3228, 4168, 6984 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 23:25 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS5_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 040-020-RVJ**

Sample ID: SIL 15-103-4 | **Report: 07 Jan 2016 11:27 AL** | **Datafile: 160106C10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.42	1.23E+08	0.78	Y	1.19	1.17	-2%
12378-PeCDD	32.22	5.01E+08	1.57	Y	1.02	1.01	-1%
123478-HxCDD	36.34	4.58E+08	1.27	Y	1.08	1.08	0%
123678-HxCDD	36.46	4.50E+08	1.26	Y	1.05	1.02	-3%
123789-HxCDD	36.75	4.78E+08	1.25	Y	0.99	0.96	-3%
1234678-HpCDD	40.59	3.82E+08	1.04	Y	1.02	1.00	-2%
OCDD	45.82	6.20E+08	0.89	Y	1.09	1.08	-1%
2378-TCDF	25.45	1.63E+08	0.79	Y	1.09	1.06	-2%
12378-PeCDF	30.66	8.00E+08	1.57	Y	1.03	1.03	0%
23478-PeCDF	31.85	7.46E+08	1.55	Y	1.02	1.02	0%
123478-HxCDF	35.31	6.53E+08	1.24	Y	1.29	1.24	-4%
123678-HxCDF	35.46	6.94E+08	1.24	Y	1.17	1.14	-3%
234678-HxCDF	36.15	6.38E+08	1.24	Y	1.18	1.19	0%
123789-HxCDF	37.12	5.91E+08	1.25	Y	1.18	1.16	-2%
1234678-HpCDF	39.00	5.71E+08	1.03	Y	1.38	1.36	-1%
1234789-HpCDF	41.36	4.45E+08	1.02	Y	1.30	1.26	-3%
OCDF	46.12	7.85E+08	0.90	Y	1.03	1.03	-1%
ES 2378-TCDD	26.40	5.27E+07	0.83	Y	1.06	1.07	1%
ES 12378-PeCDD	32.20	4.97E+07	1.60	Y	0.99	1.01	2%
ES 123478-HxCDD	36.33	4.24E+07	1.23	Y	1.09	1.08	-1%
ES 123678-HxCDD	36.44	4.42E+07	1.26	Y	1.10	1.12	3%
ES 123789-HxCDD	36.74	4.95E+07	1.25	Y	1.24	1.26	1%
ES 1234678-HpCDD	40.57	3.82E+07	1.04	Y	0.93	0.97	4%
ES OCDD	45.80	5.76E+07	0.92	Y	0.71	0.73	3%
ES 2378-TCDF	25.43	7.68E+07	0.81	Y	1.02	1.02	0%
ES 12378-PeCDF	30.64	7.76E+07	1.56	Y	0.96	1.03	7%
ES 23478-PeCDF	31.83	7.33E+07	1.57	Y	0.95	0.98	3%
ES 123478-HxCDF	35.29	5.26E+07	0.54	Y	1.32	1.34	1%
ES 123678-HxCDF	35.44	6.08E+07	0.53	Y	1.51	1.55	2%
ES 234678-HxCDF	36.13	5.38E+07	0.55	Y	1.38	1.37	-1%
ES 123789-HxCDF	37.10	5.08E+07	0.55	Y	1.25	1.29	3%
ES 1234678-HpCDF	38.98	4.21E+07	0.46	Y	1.03	1.07	4%
ES 1234789-HpCDF	41.34	3.53E+07	0.47	Y	0.87	0.90	3%
ES OCDF	46.10	7.64E+07	0.91	Y	0.92	0.97	5%

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 23:25 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS5_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 040-020**

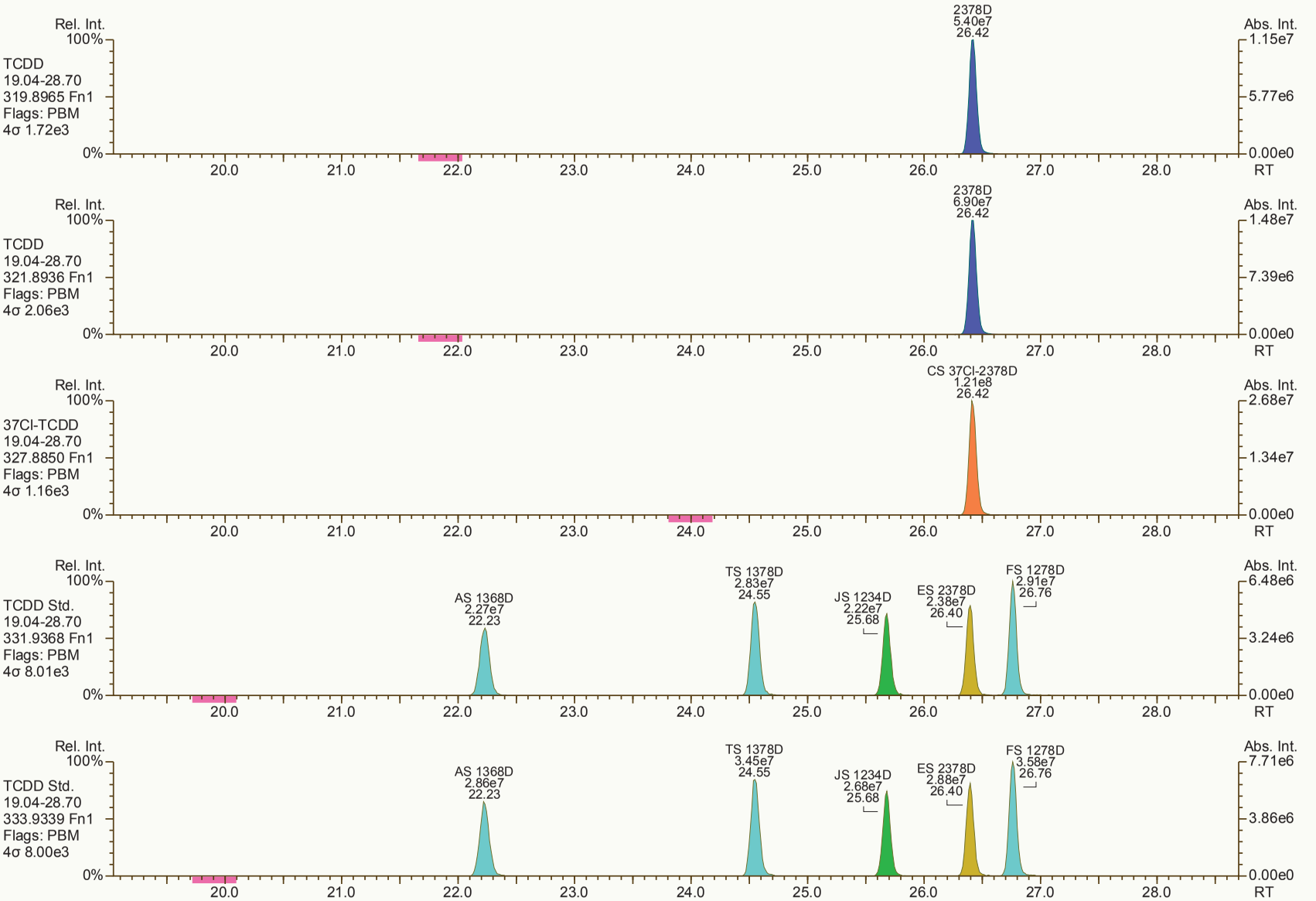
Sample ID: SIL 15-103-4 | **Report: 07 Jan 2016 11:27 AL** | **Datafile: 160106C10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.68	4.90E+07	0.83	Y	-	-	-
JS 1234-TCDF	23.91	7.50E+07	0.78	Y	-	-	-
JS 123467-HxCDD	36.63	1.97E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	26.42	1.21E+08	n/a	-	1.24	1.23	-1%
CS 12347-PeCDD	31.68	4.54E+07	1.61	Y	0.94	0.93	-1%
CS 12346-PeCDF	30.08	7.36E+07	1.63	Y	0.92	0.98	6%
CS 123469-HxCDF	35.76	5.35E+07	0.53	Y	1.38	1.36	-1%
CS 1234689-HpCDF	39.64	3.47E+07	0.46	Y	0.88	0.88	0%
SS 37Cl-2378-TCDD	26.42	1.21E+08	n/a	-	1.18	1.15	-3%
SS 12347-PeCDD	31.68	4.54E+07	1.61	Y	0.94	0.91	-3%
SS 12346-PeCDF	30.08	7.36E+07	1.63	Y	0.96	0.95	-1%
SS 123469-HxCDF	35.76	5.35E+07	0.53	Y	0.92	0.88	-4%
SS 1234689-HpCDF	39.64	3.47E+07	0.46	Y	0.86	0.82	-4%
AS 1368-TCDD	22.23	5.14E+07	0.79	Y	1.05	1.05	0%
AS 1368-TCDF	20.12	1.08E+08	0.79	Y	1.40	1.44	3%
FS 1278-TCDD	26.76	6.48E+07	0.81	Y	1.28	1.23	-4%
FS 12478-PeCDD	30.90	5.51E+07	1.59	Y	1.11	1.11	0%
FS 123468-HxCDD	35.23	5.38E+07	1.24	Y	1.36	1.27	-6%
FS 1234679-HpCDD	39.42	4.63E+07	1.05	Y	1.30	1.21	-7%
TS 1378-TCDD	24.55	6.28E+07	0.82	Y	1.21	1.19	-1%
OCDD-a	45.82	4.01E+07	2.42	Y	0.07	0.07	3%
OCDF-a	46.12	4.90E+07	2.51	Y	0.06	0.06	1%

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

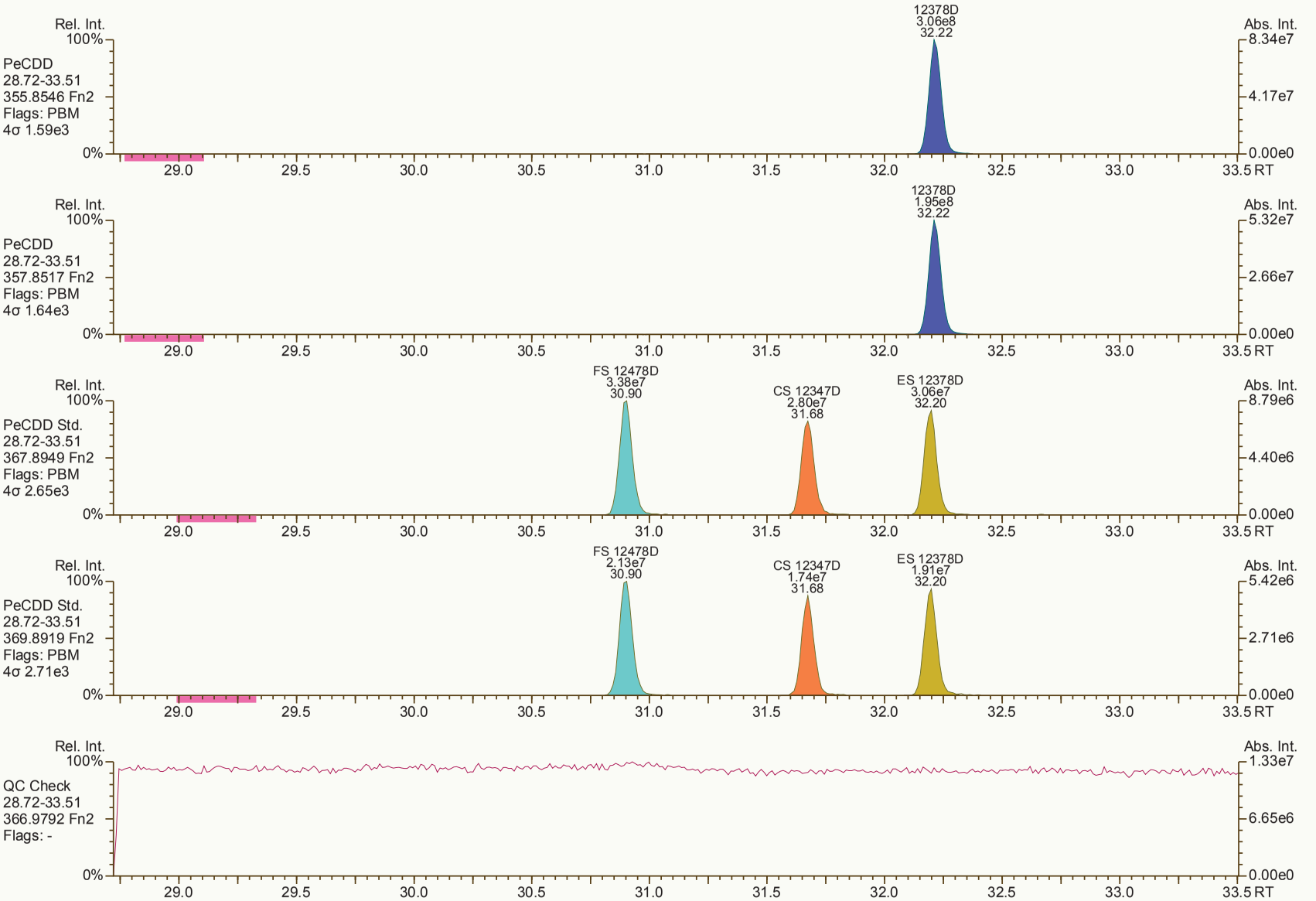
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 040-020 *PKD: n/a Printed: 07-Jan-2016 11:31 Page 1 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) — *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5427, 8924, 7983 scc: 040-020 — *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 2 of 12*

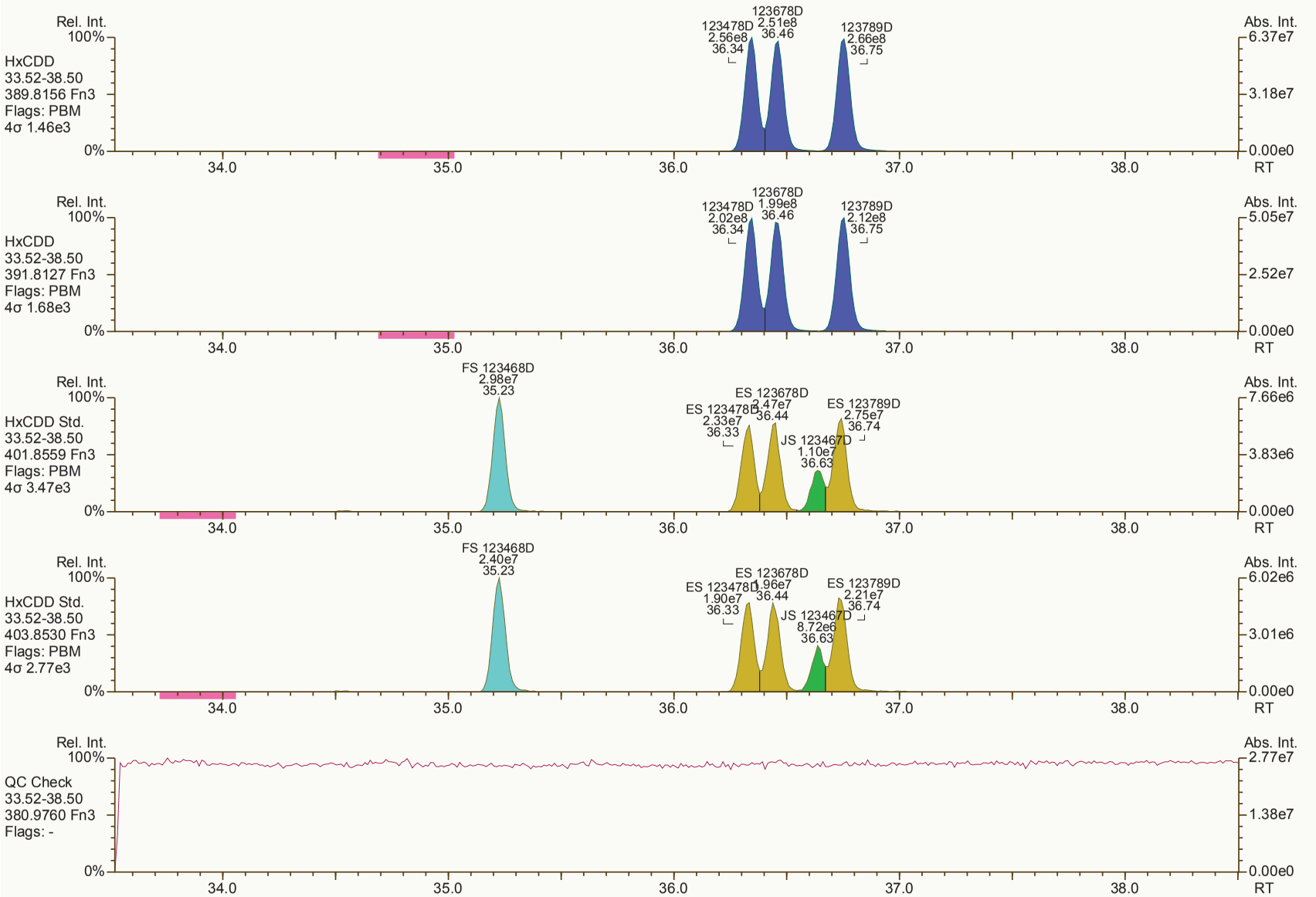
SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2838, 1278 scc: 040-020 *PKD: 07-Jan-2016 09:47 Printed: 07-Jan-2016 11:31 Page 3 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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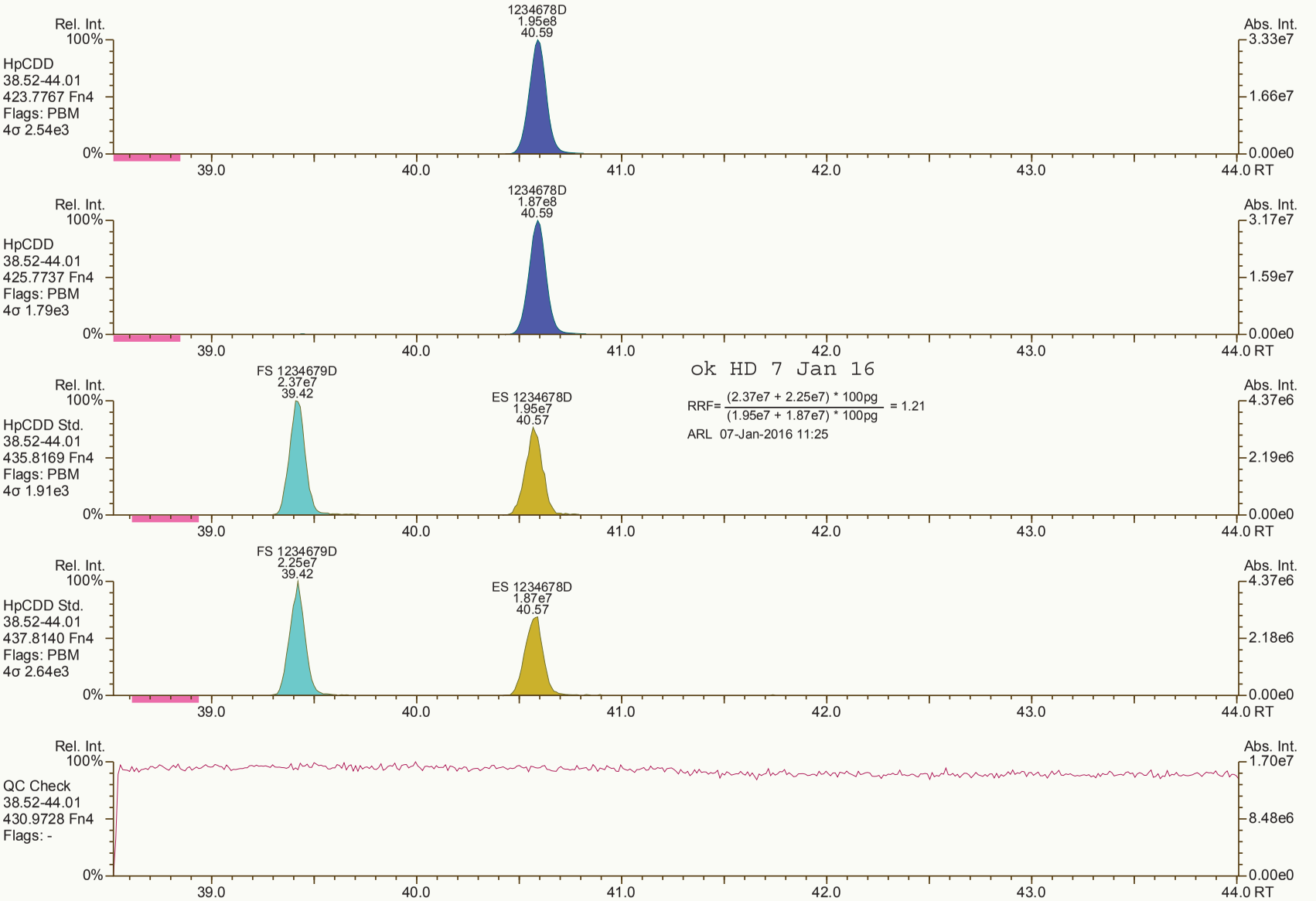
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4507, 2451 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 4 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**

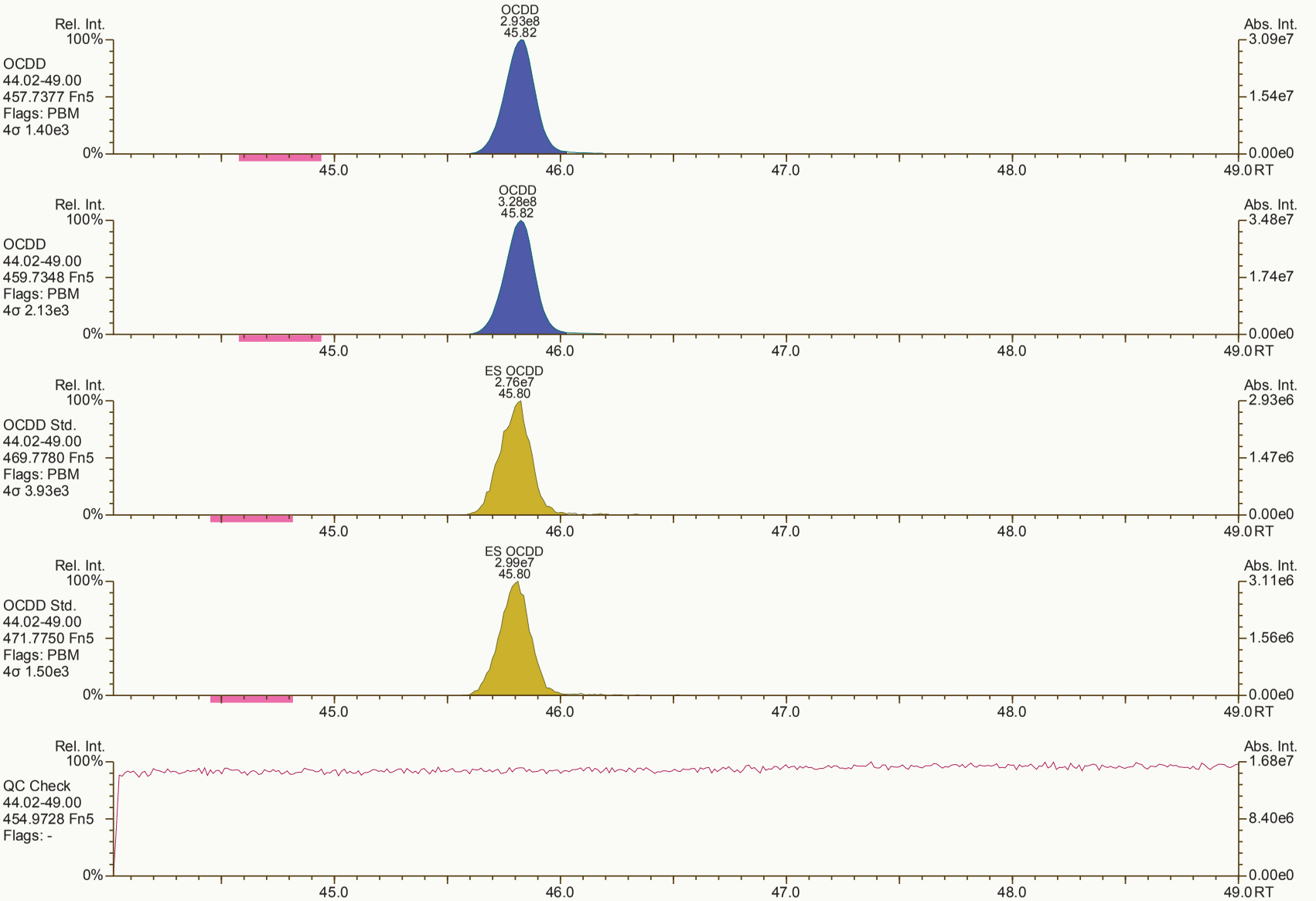
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) — *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1409, 3882 scc: 040-020 — *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2106, 9637 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 6 of 12*

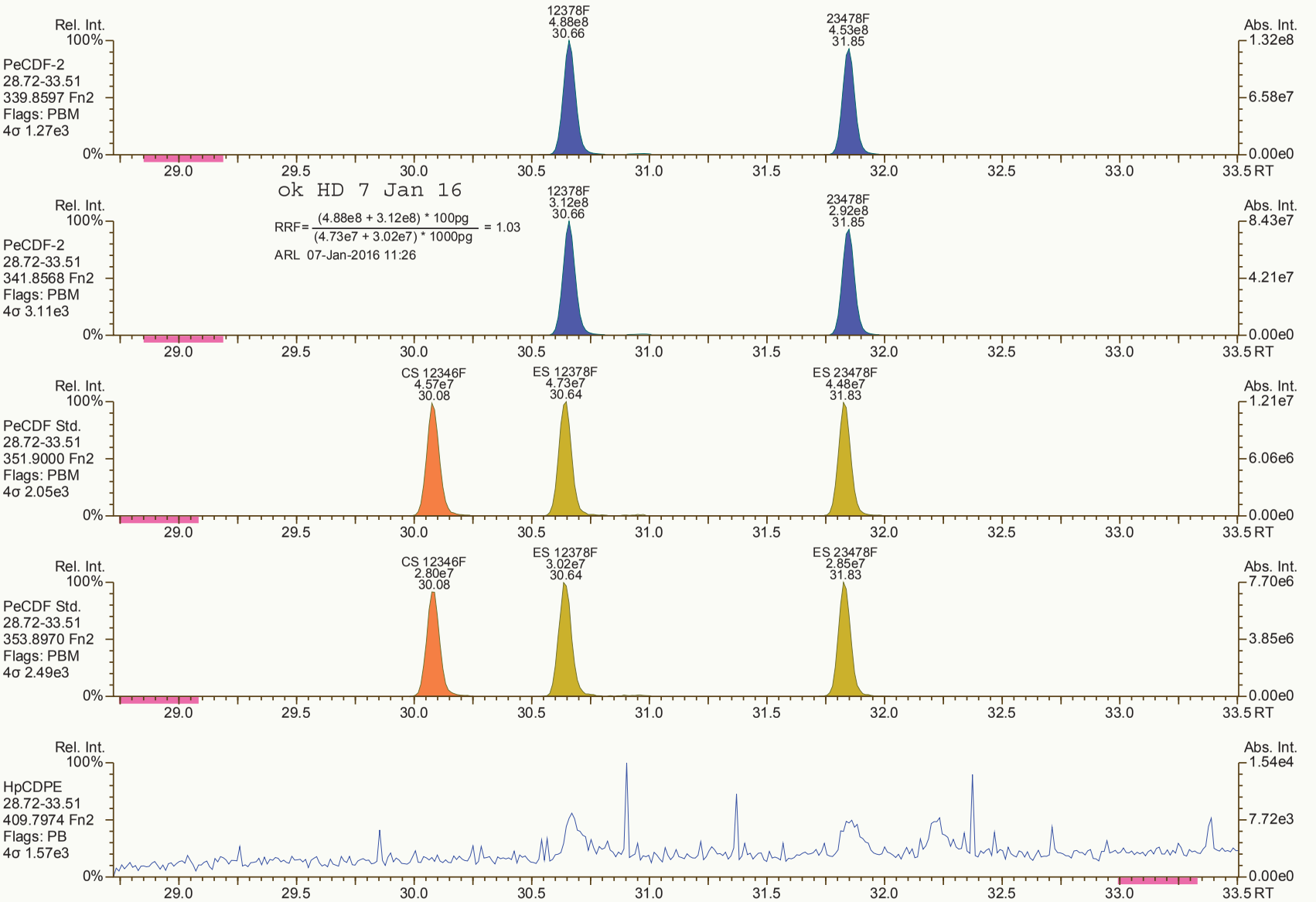
SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9430, 7299, 8804 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0948 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 8 of 12*

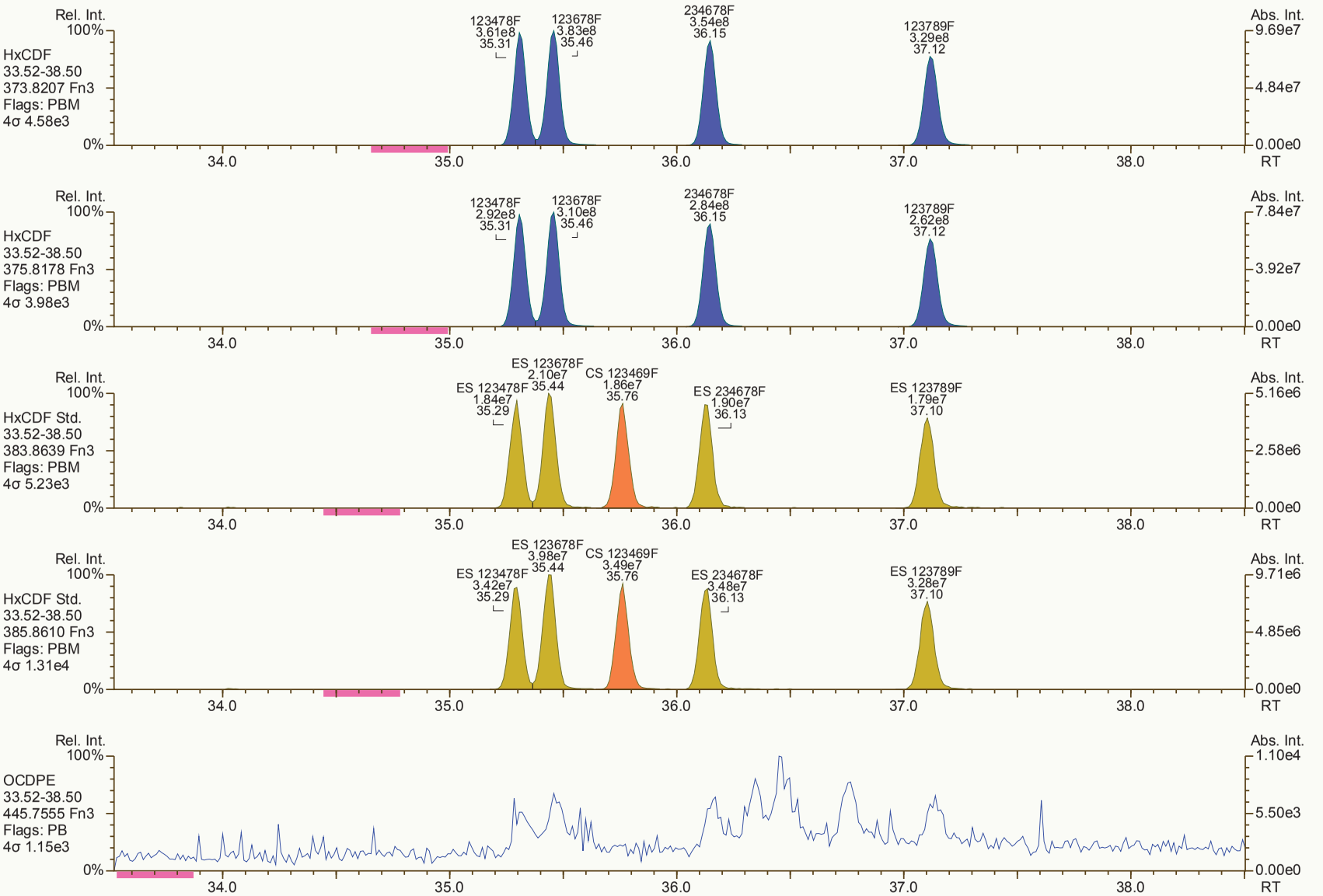
SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8836, 2270, 2550 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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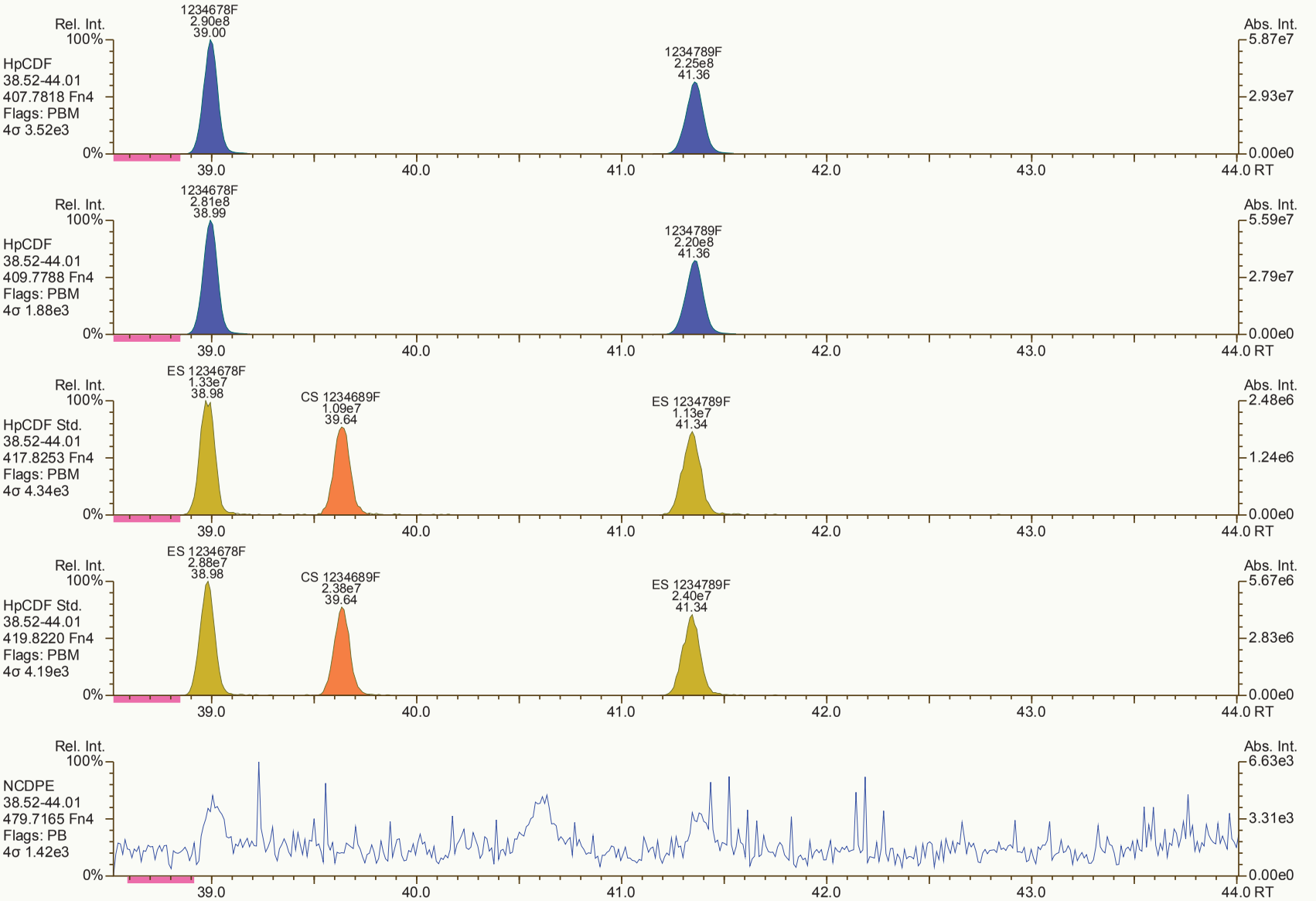
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6694, 6788, 6587 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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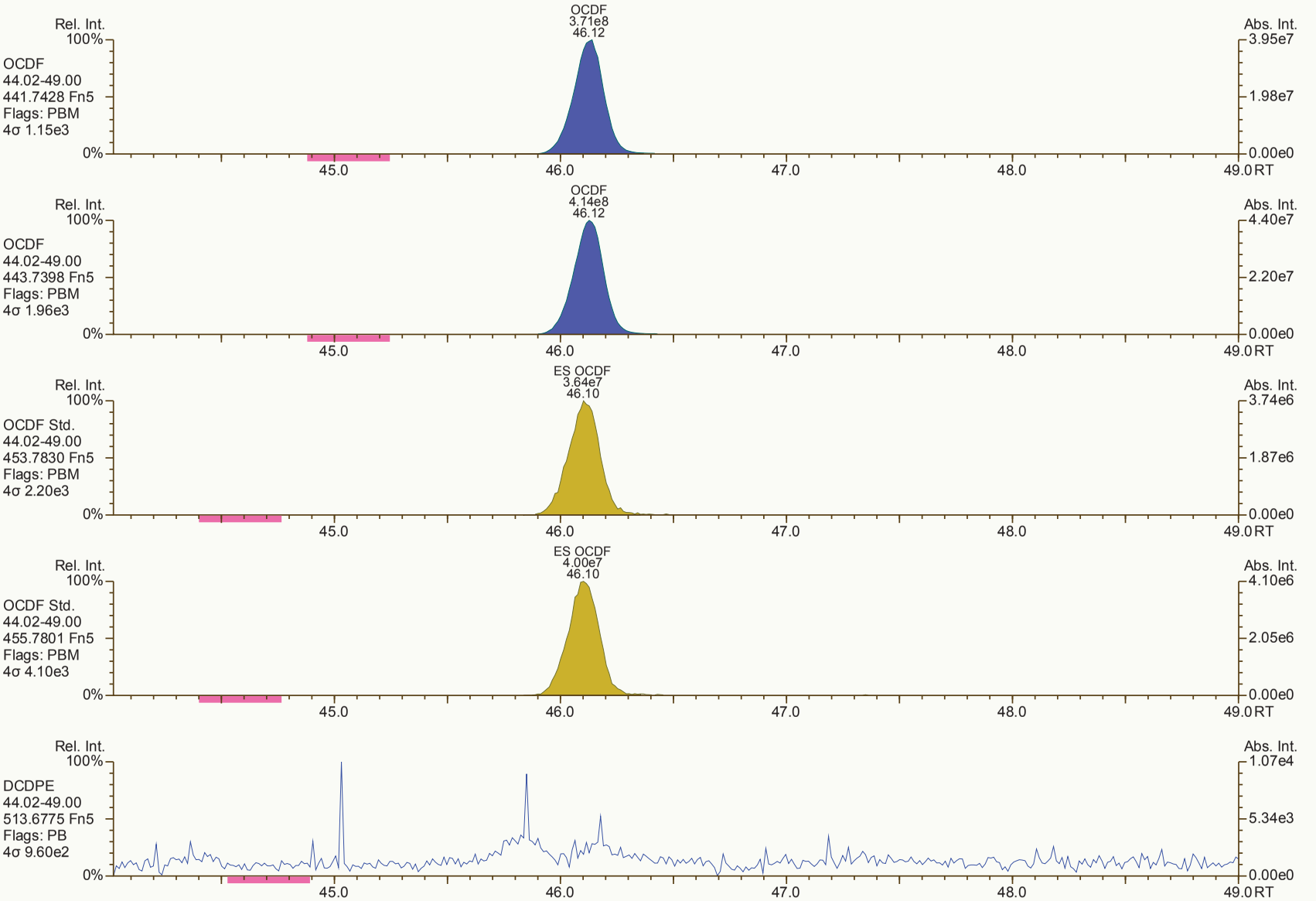
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1082, 0140, 0980 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0695, 7442, 7846 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 07 Jan 2016 00:17 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS6_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 804-666-MVB**

Sample ID: SIL 15-105-3 | **Report: 07 Jan 2016 11:29 AL** | **Datafile: 160106C11**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	3.67E+08	0.78	Y	1.19	1.13	-5%
12378-PeCDD	32.23	1.58E+09	1.58	Y	1.02	0.99	-2%
123478-HxCDD	36.34	1.51E+09	1.26	Y	1.08	1.04	-4%
123678-HxCDD	36.45	1.48E+09	1.27	Y	1.05	1.05	0%
123789-HxCDD	36.74	1.57E+09	1.26	Y	0.99	0.96	-3%
1234678-HpCDD	40.64	1.17E+09	1.05	Y	1.02	0.97	-5%
OCDD	45.91	2.08E+09	0.89	Y	1.09	1.06	-3%
2378-TCDF	25.47	5.14E+08	0.79	Y	1.09	1.05	-3%
12378-PeCDF	30.67	2.34E+09	1.56	Y	1.03	1.03	0%
23478-PeCDF	31.86	2.32E+09	1.57	Y	1.02	1.02	0%
123478-HxCDF	35.30	2.20E+09	1.25	Y	1.29	1.27	-2%
123678-HxCDF	35.45	2.29E+09	1.25	Y	1.17	1.15	-2%
234678-HxCDF	36.14	2.12E+09	1.24	Y	1.18	1.18	0%
123789-HxCDF	37.11	1.90E+09	1.25	Y	1.18	1.16	-2%
1234678-HpCDF	39.03	1.77E+09	1.03	Y	1.38	1.33	-3%
1234789-HpCDF	41.40	1.42E+09	1.02	Y	1.30	1.27	-2%
OCDF	46.20	2.65E+09	0.91	Y	1.03	1.01	-2%
ES 2378-TCDD	26.41	6.49E+07	0.80	Y	1.06	1.15	8%
ES 12378-PeCDD	32.21	6.33E+07	1.61	Y	0.99	1.12	13%
ES 123478-HxCDD	36.32	5.79E+07	1.28	Y	1.09	1.17	8%
ES 123678-HxCDD	36.44	5.66E+07	1.26	Y	1.10	1.14	5%
ES 123789-HxCDD	36.73	6.53E+07	1.27	Y	1.24	1.32	6%
ES 1234678-HpCDD	40.62	4.81E+07	1.06	Y	0.93	0.97	4%
ES OCDD	45.89	7.83E+07	0.91	Y	0.71	0.79	11%
ES 2378-TCDF	25.45	9.77E+07	0.80	Y	1.02	1.07	5%
ES 12378-PeCDF	30.65	9.11E+07	1.57	Y	0.96	1.00	4%
ES 23478-PeCDF	31.84	9.10E+07	1.57	Y	0.95	1.00	5%
ES 123478-HxCDF	35.28	6.93E+07	0.53	Y	1.32	1.40	6%
ES 123678-HxCDF	35.43	7.97E+07	0.54	Y	1.51	1.61	7%
ES 234678-HxCDF	36.12	7.22E+07	0.52	Y	1.38	1.46	6%
ES 123789-HxCDF	37.09	6.57E+07	0.53	Y	1.25	1.33	6%
ES 1234678-HpCDF	39.01	5.31E+07	0.47	Y	1.03	1.07	5%
ES 1234789-HpCDF	41.39	4.48E+07	0.47	Y	0.87	0.91	4%
ES OCDF	46.18	1.05E+08	0.91	Y	0.92	1.06	15%

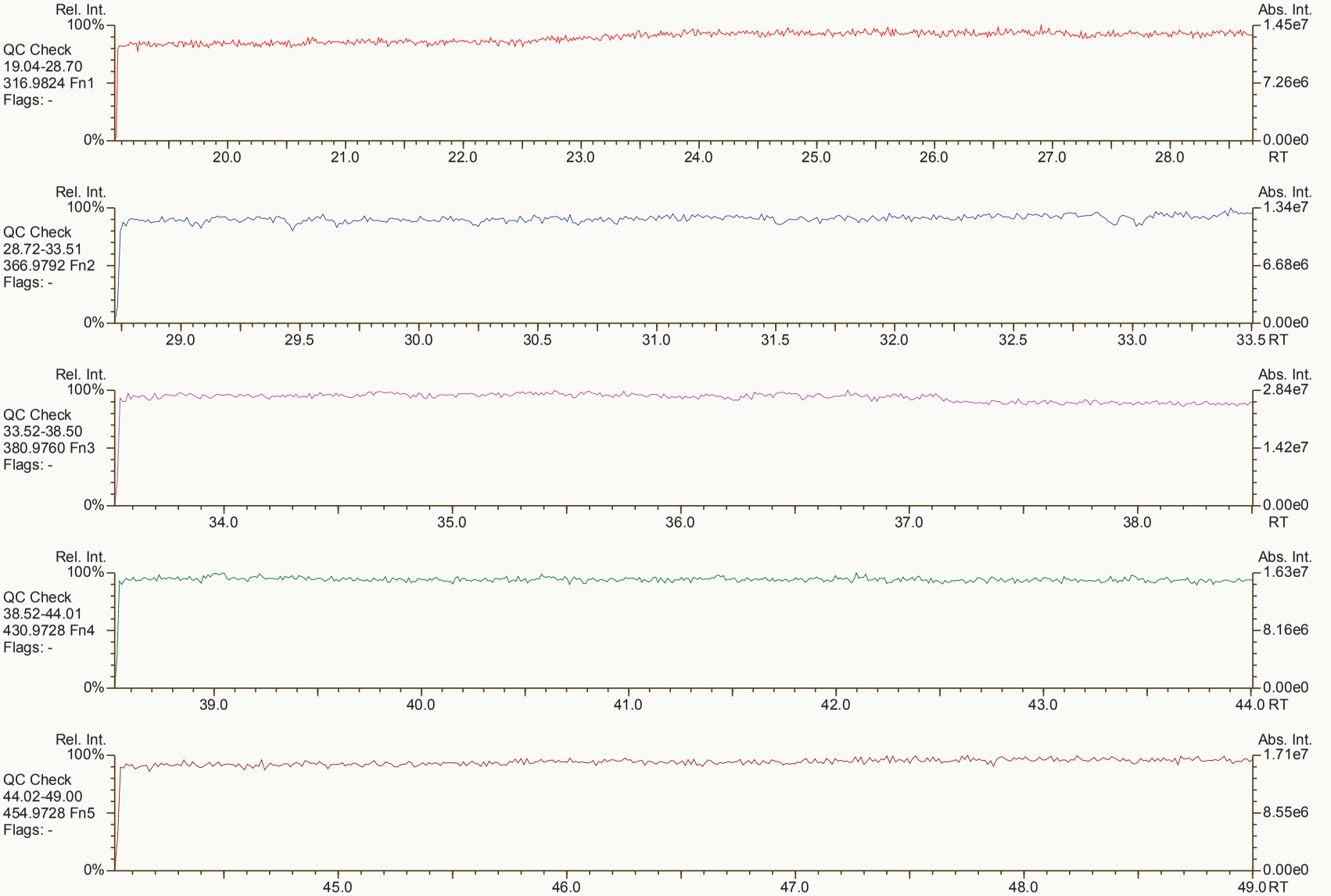
Dioxin/Furan QC Summary | **Acq'd: 07 Jan 2016 00:17 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS6_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 804-666**

Sample ID: SIL 15-105-3 | **Report: 07 Jan 2016 11:29 AL** | **Datafile: 160106C11**

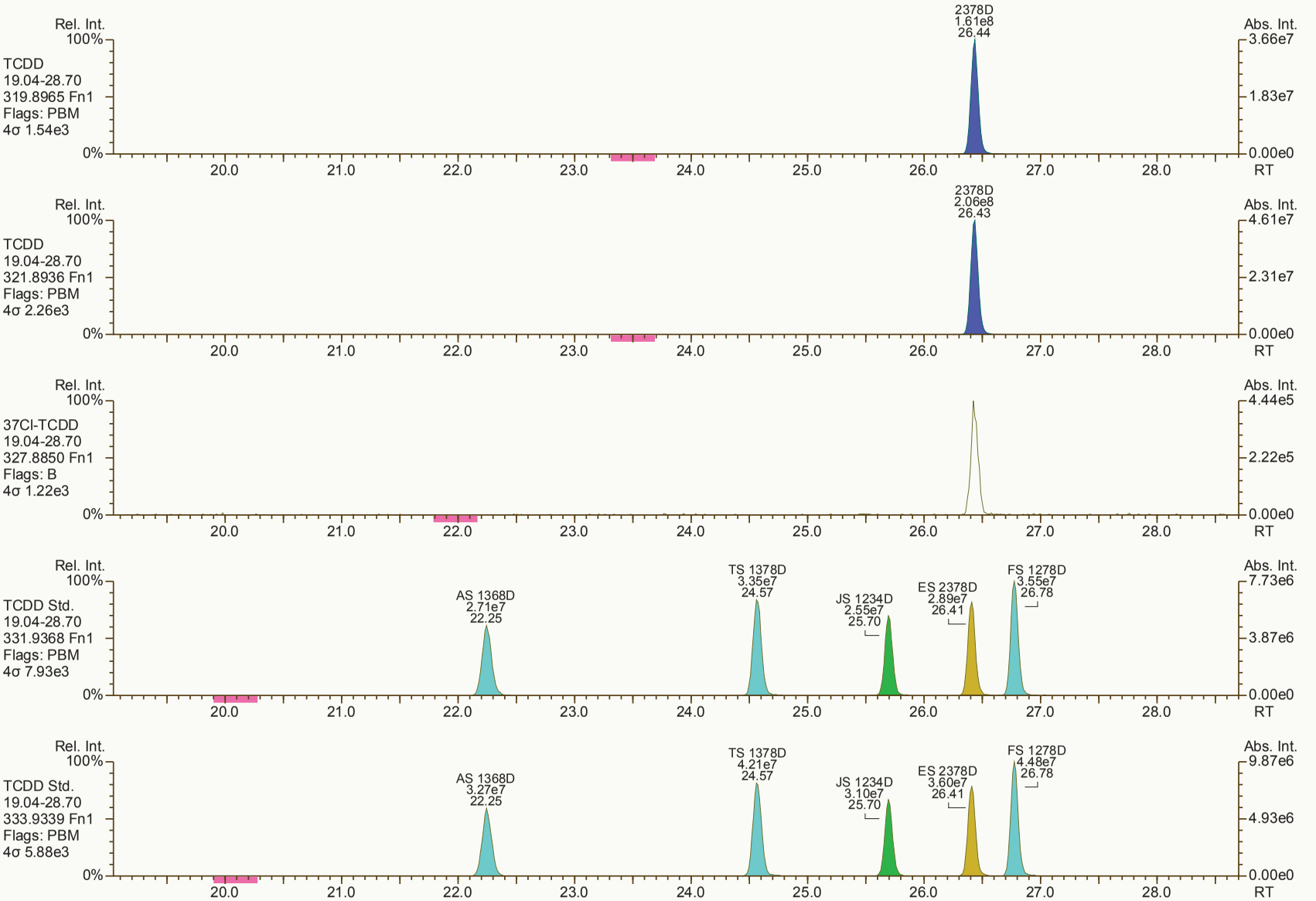
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.64E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.92	9.11E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.63	2.47E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	Not Fnd		n/a	-			
CS 12347-PeCDD	31.68	5.50E+07	1.55	Y	0.94	0.97	4%
CS 12346-PeCDF	30.09	8.37E+07	1.56	Y	0.92	0.92	-1%
CS 123469-HxCDF	35.75	6.66E+07	0.55	Y	1.38	1.35	-2%
CS 1234689-HpCDF	39.67	4.04E+07	0.46	Y	0.88	0.82	-7%
SS 37Cl-2378-TCDD	Not Fnd		n/a	-			
SS 12347-PeCDD	31.68	5.50E+07	1.55	Y	0.94	0.87	-8%
SS 12346-PeCDF	30.09	8.37E+07	1.56	Y	0.96	0.92	-4%
SS 123469-HxCDF	35.75	6.66E+07	0.55	Y	0.92	0.84	-9%
SS 1234689-HpCDF	39.67	4.04E+07	0.46	Y	0.86	0.76	-12%
AS 1368-TCDD	22.25	5.98E+07	0.83	Y	1.05	1.06	1%
AS 1368-TCDF	20.14	1.25E+08	0.80	Y	1.40	1.37	-2%
FS 1278-TCDD	26.78	8.03E+07	0.79	Y	1.28	1.24	-4%
FS 12478-PeCDD	30.91	6.35E+07	1.63	Y	1.11	1.00	-10%
FS 123468-HxCDD	35.22	7.07E+07	1.26	Y	1.36	1.22	-10%
FS 1234679-HpCDD	39.45	5.52E+07	1.09	Y	1.30	1.15	-12%
TS 1378-TCDD	24.57	7.56E+07	0.80	Y	1.21	1.17	-4%
OCDD-a	45.90	1.30E+08	2.42	Y	0.07	0.07	-1%
OCDF-a	46.20	1.61E+08	2.51	Y	0.06	0.06	-3%

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



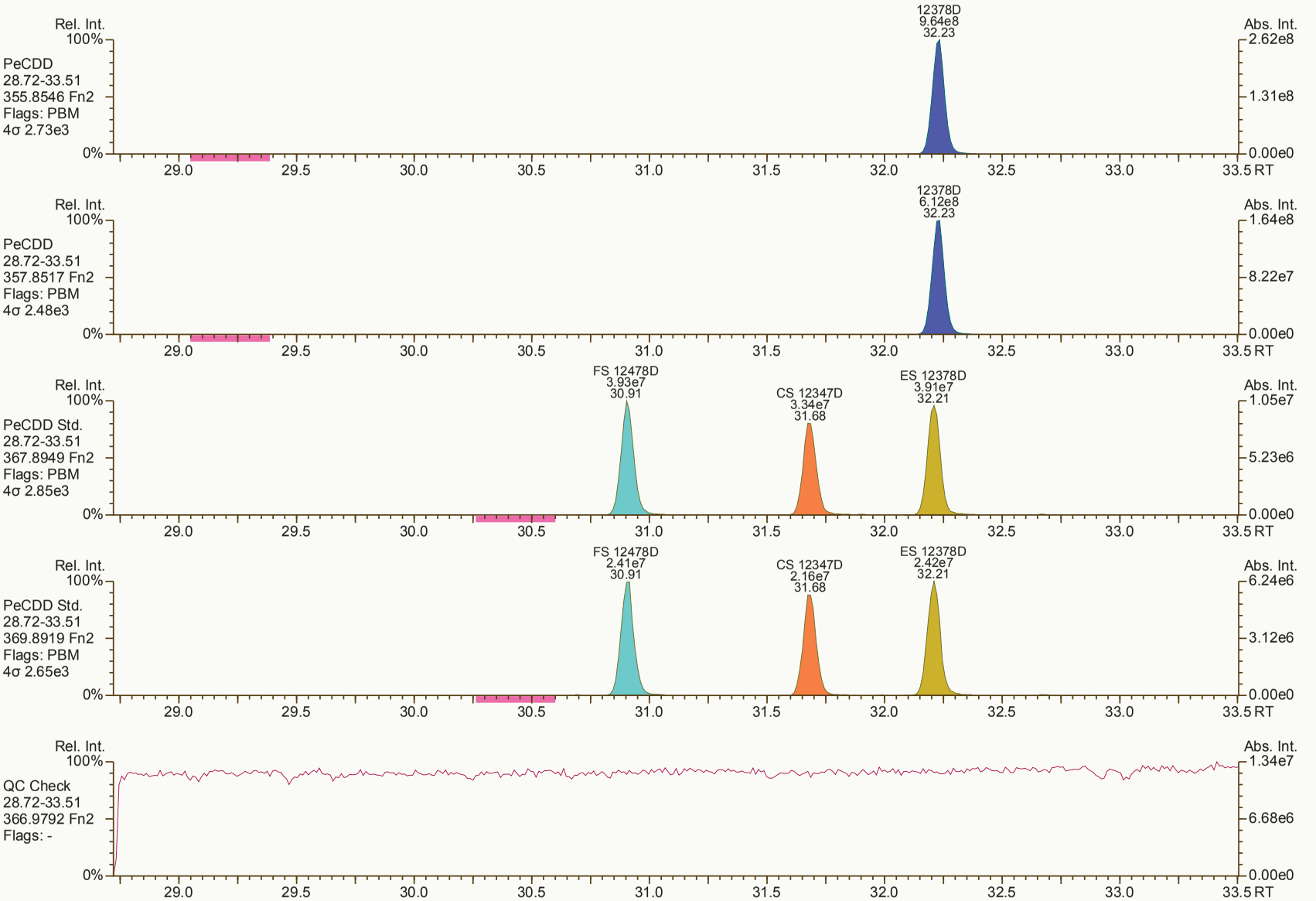
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 804-666 | *PKD: n/a Printed: 07-Jan-2016 11:31 Page 1 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



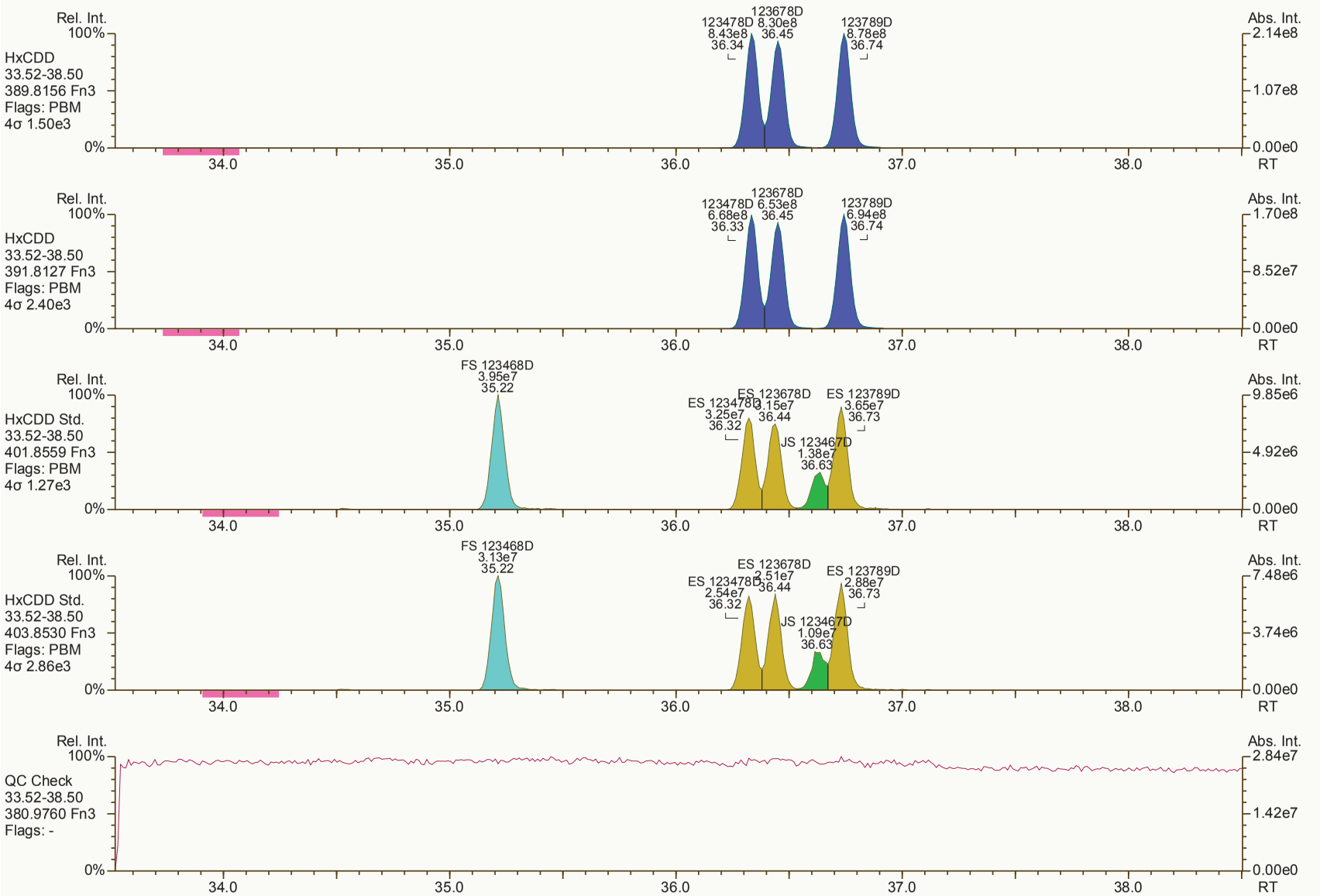
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3030, 7612, 7241 scc: 804-666 *Revised: 07-Jan-2016 10:40 (ARL) Printed: 07-Jan-2016 11:31 Page 2 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2994, 3437 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 3 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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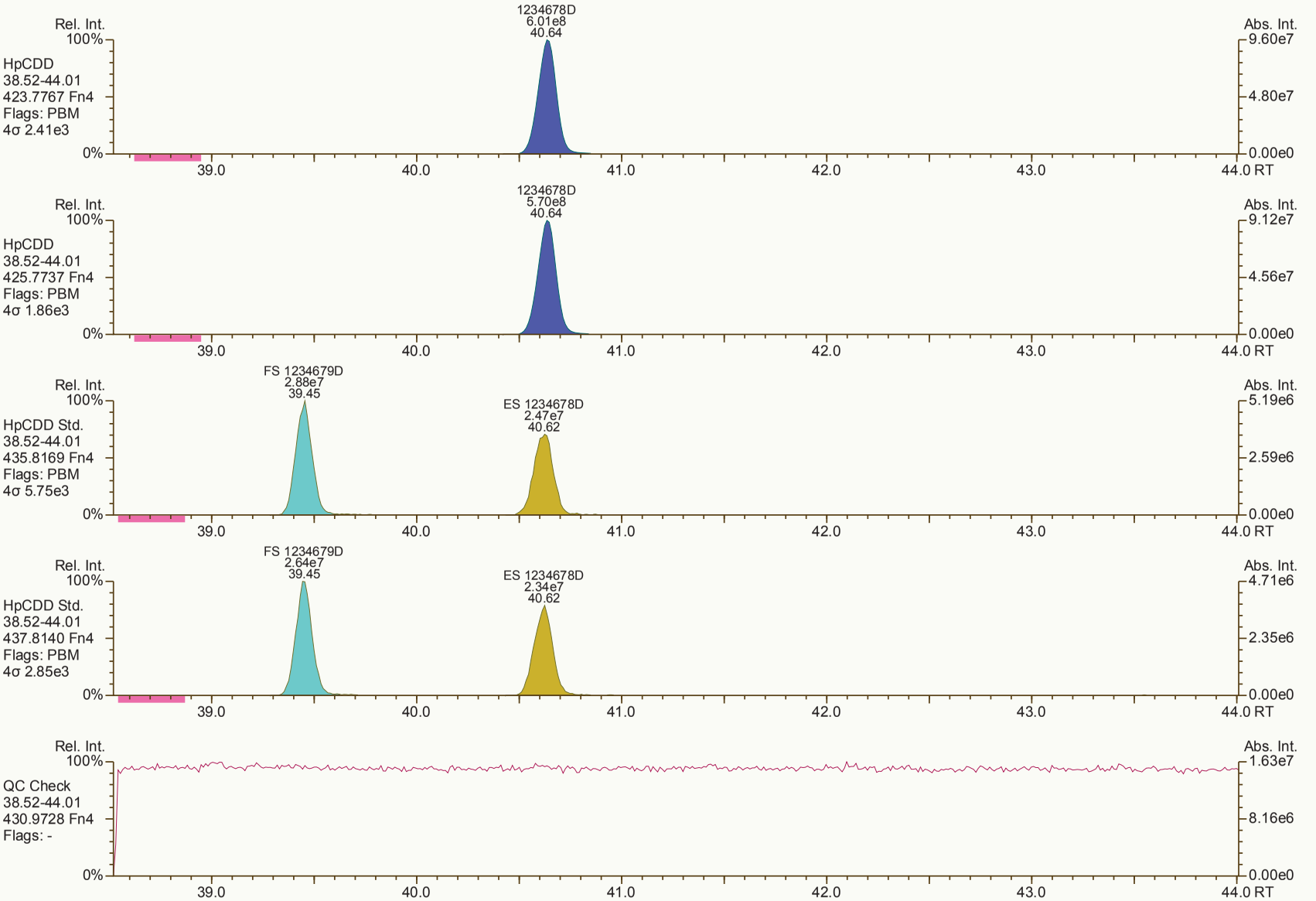
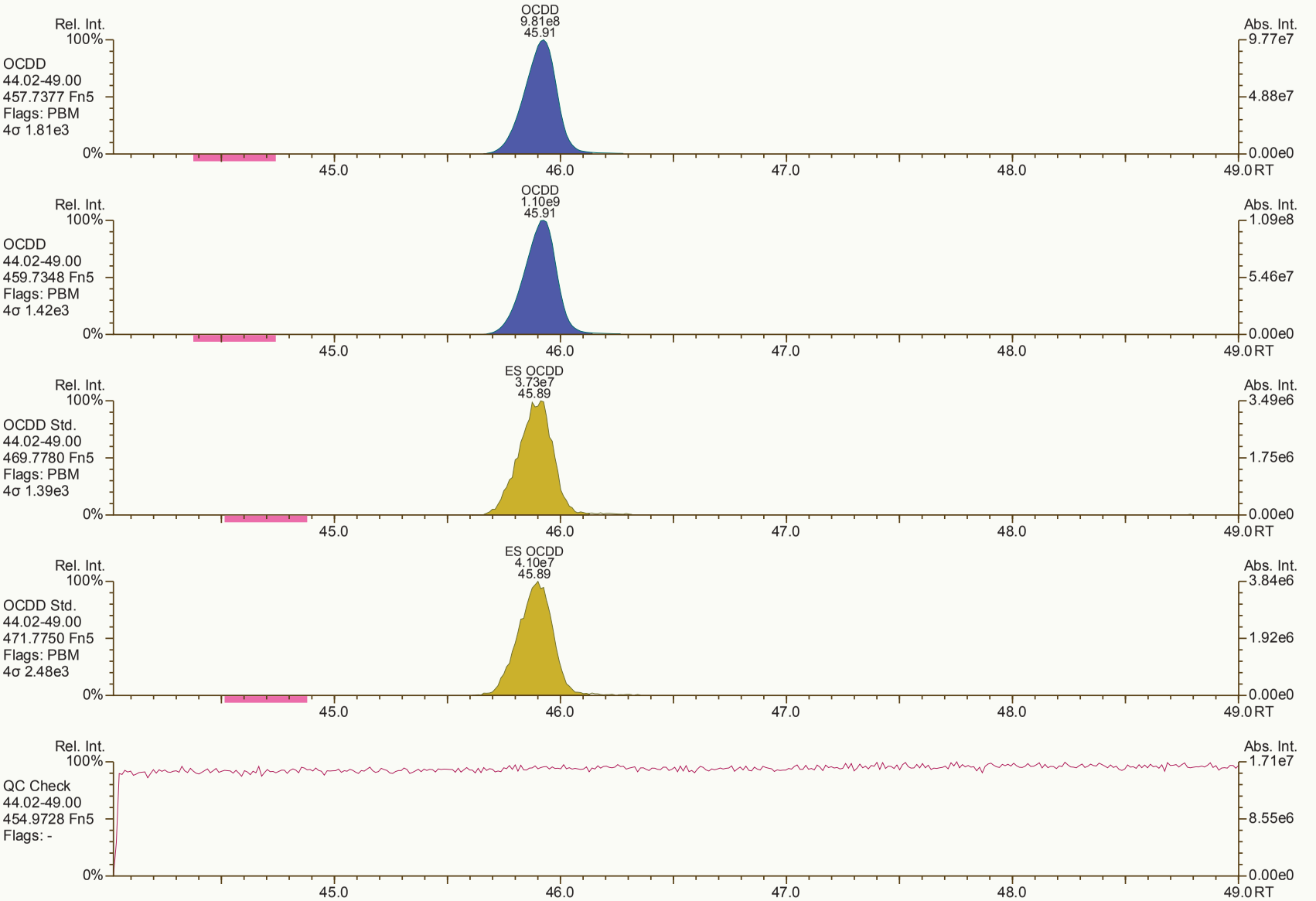
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1368, 6040 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 4 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1811, 2285 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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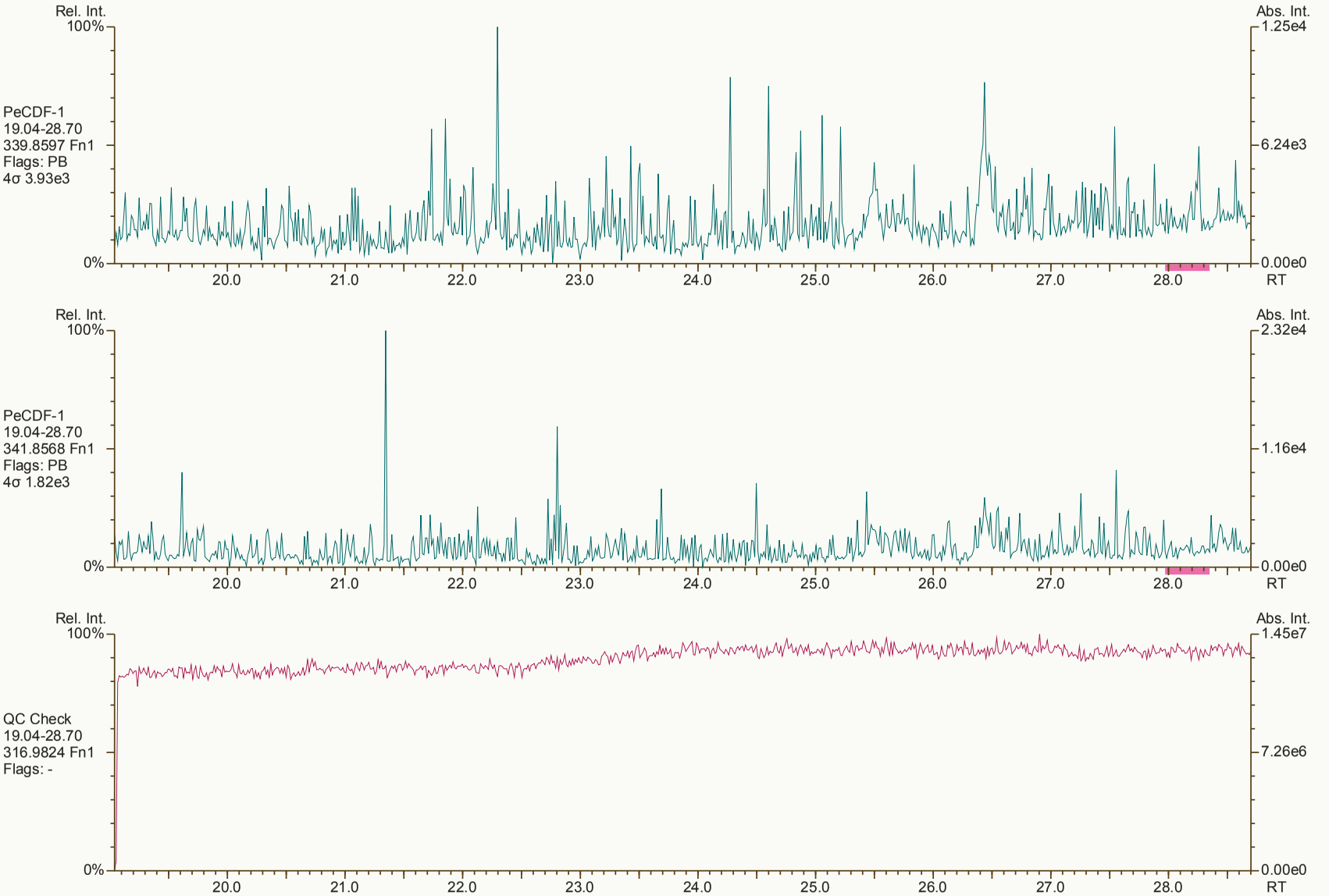
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7359, 5704 scc: 804-666 *Revised: 07-Jan-2016 09:55 (ARL) Printed: 07-Jan-2016 11:31 Page 6 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5584, 6848, 2304 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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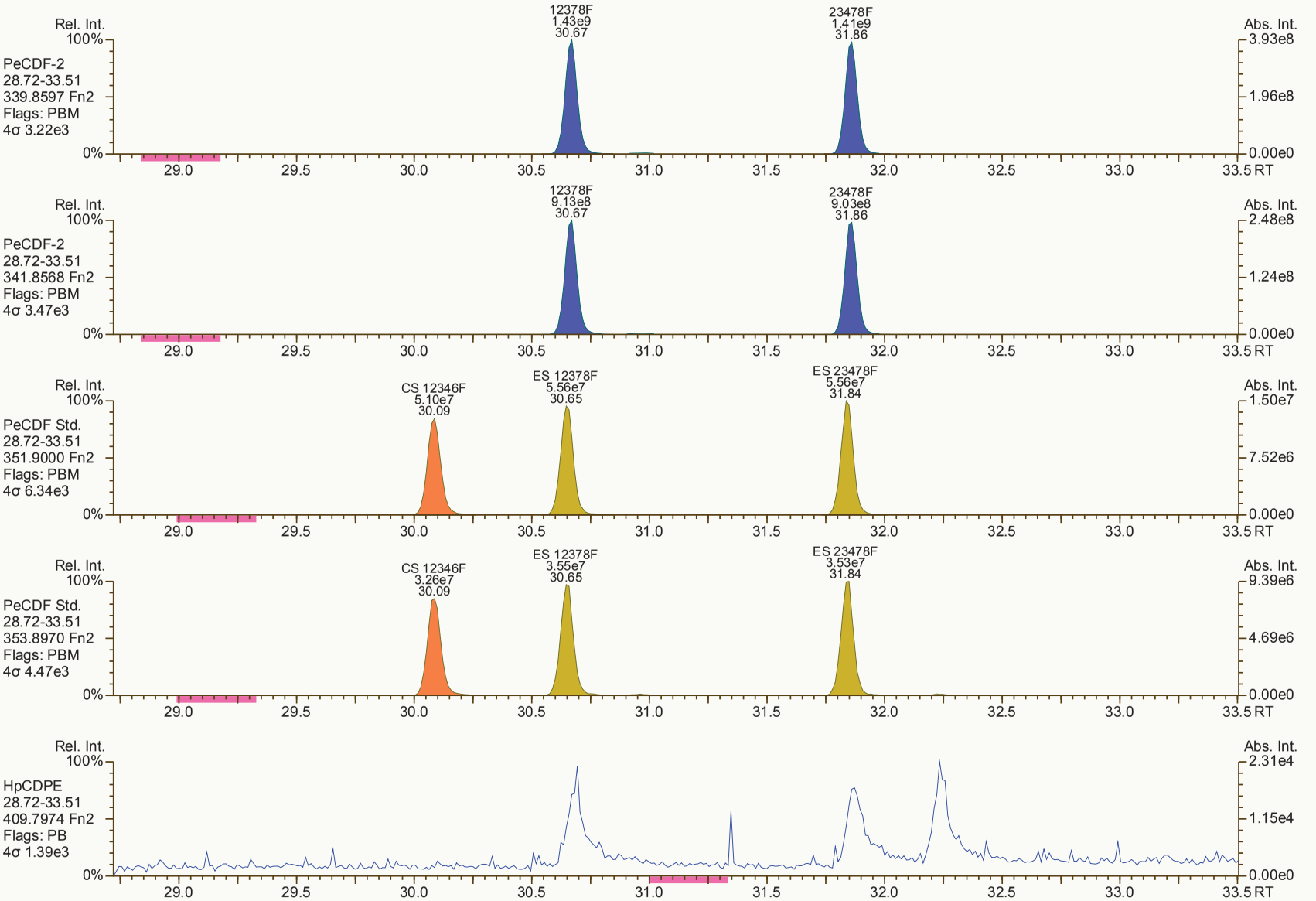
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8676 scc: 804-666 *PKD: 07-Jan-2016 09:49 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7759, 6904, 7407 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
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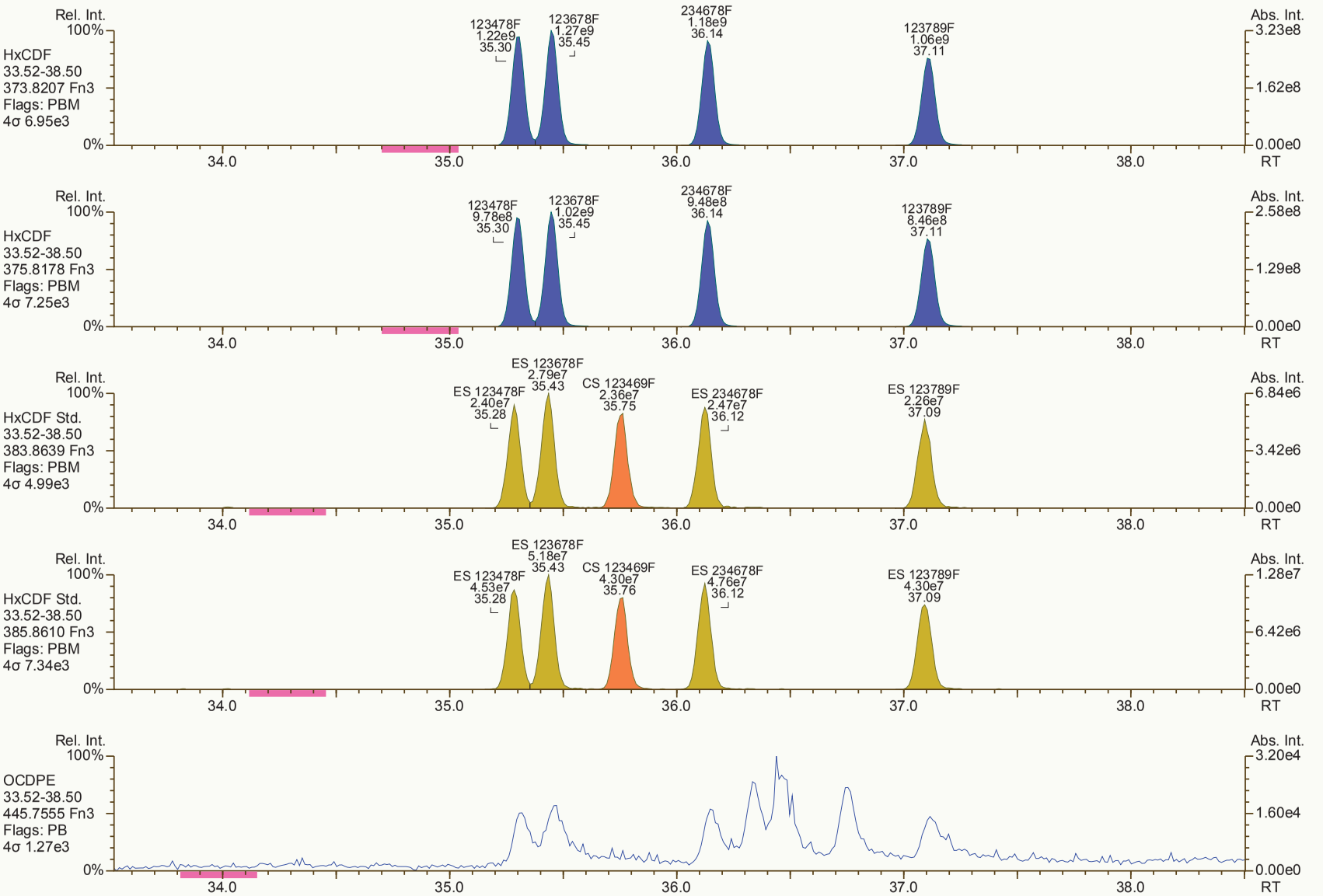

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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2541, 5320, 0843 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
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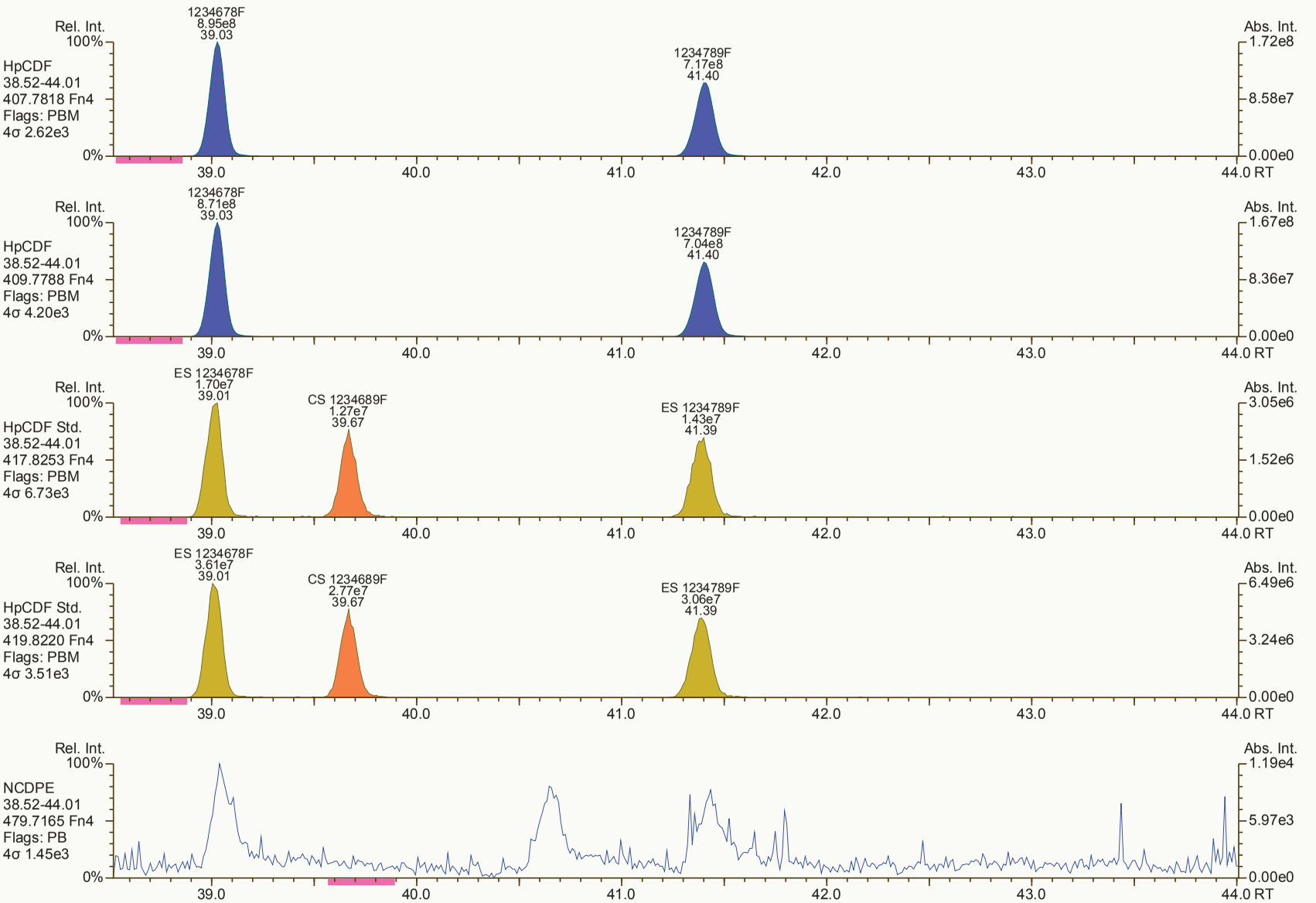

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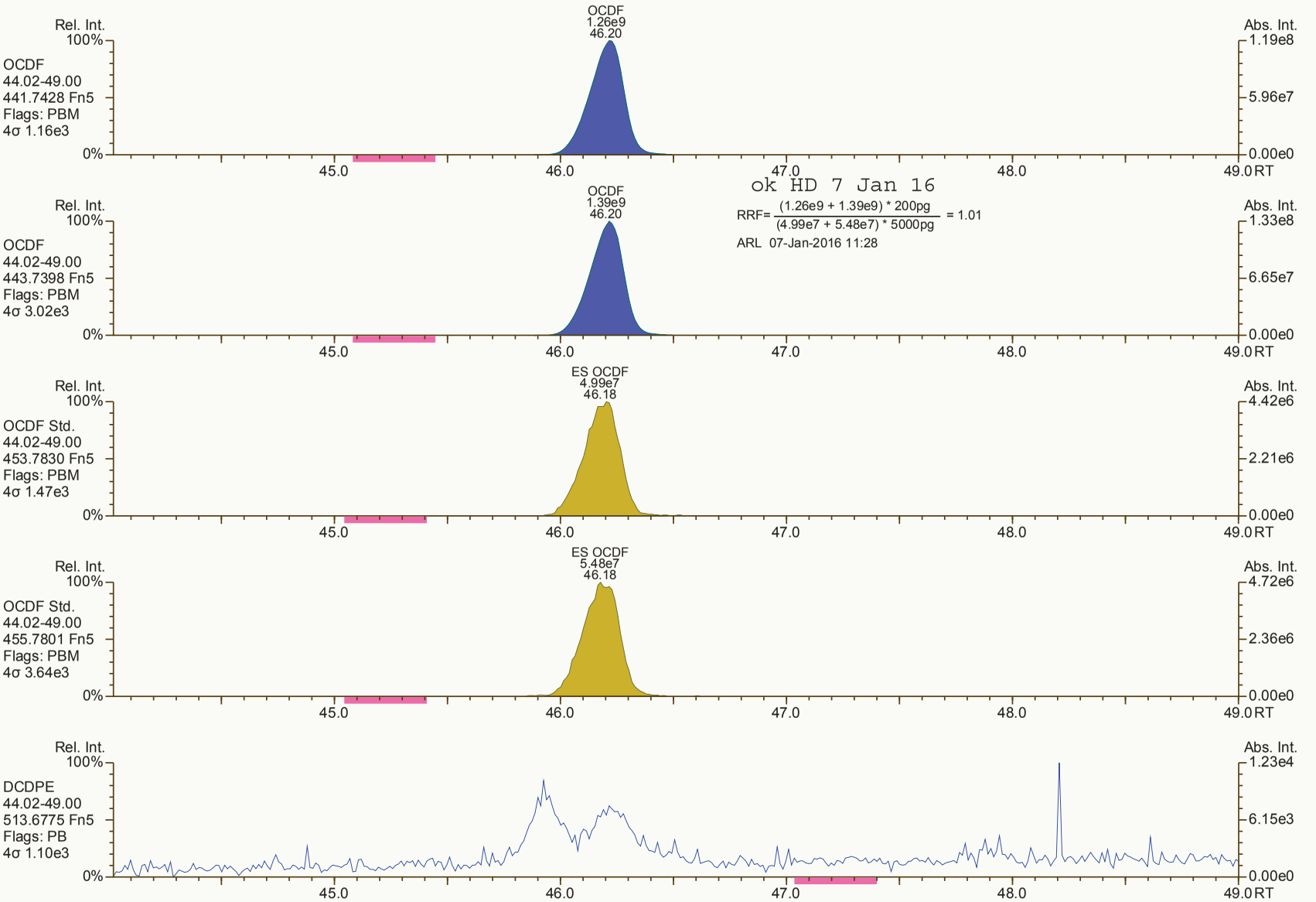
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9766, 2990, 6530 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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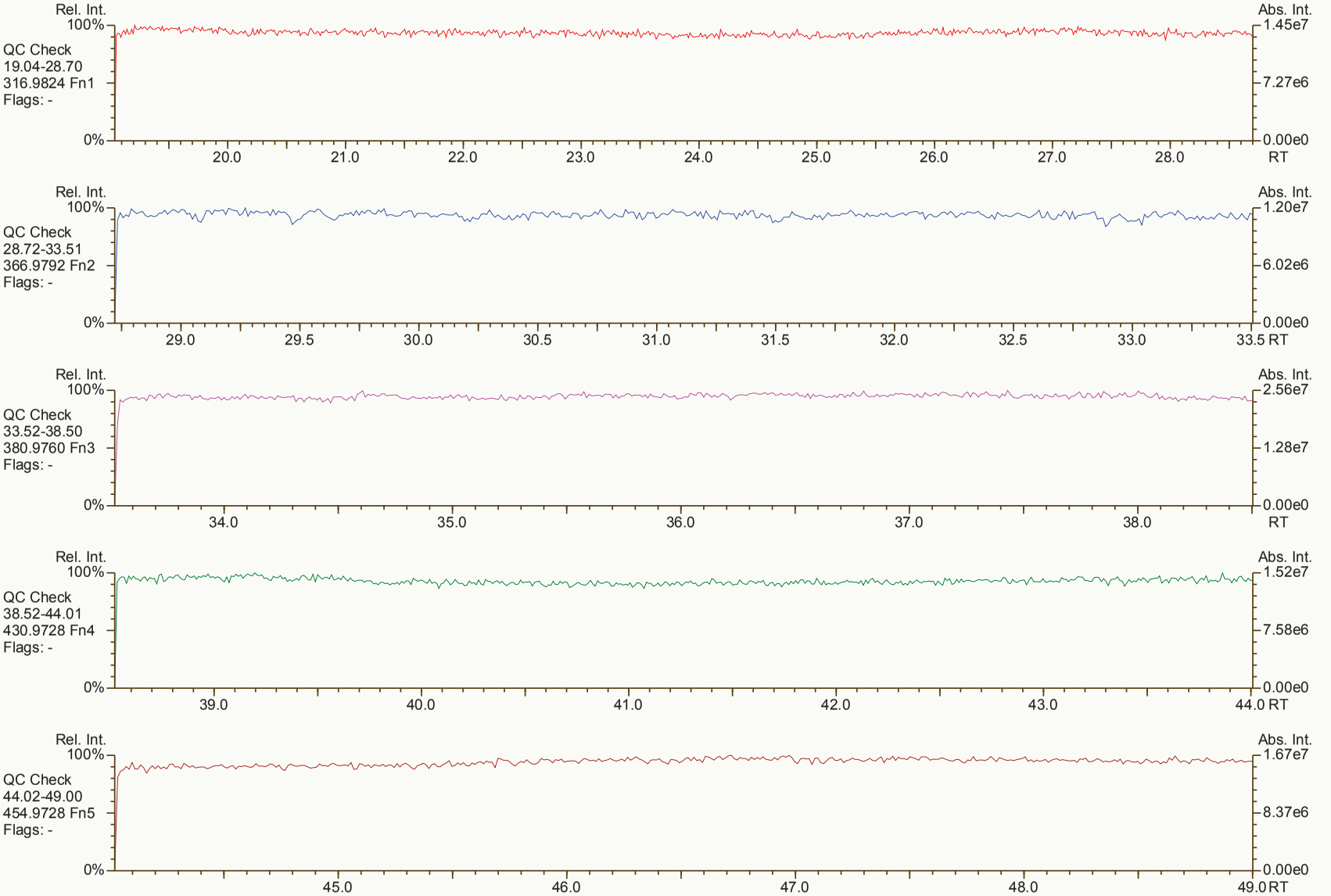
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8429, 3879, 8613 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 12 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



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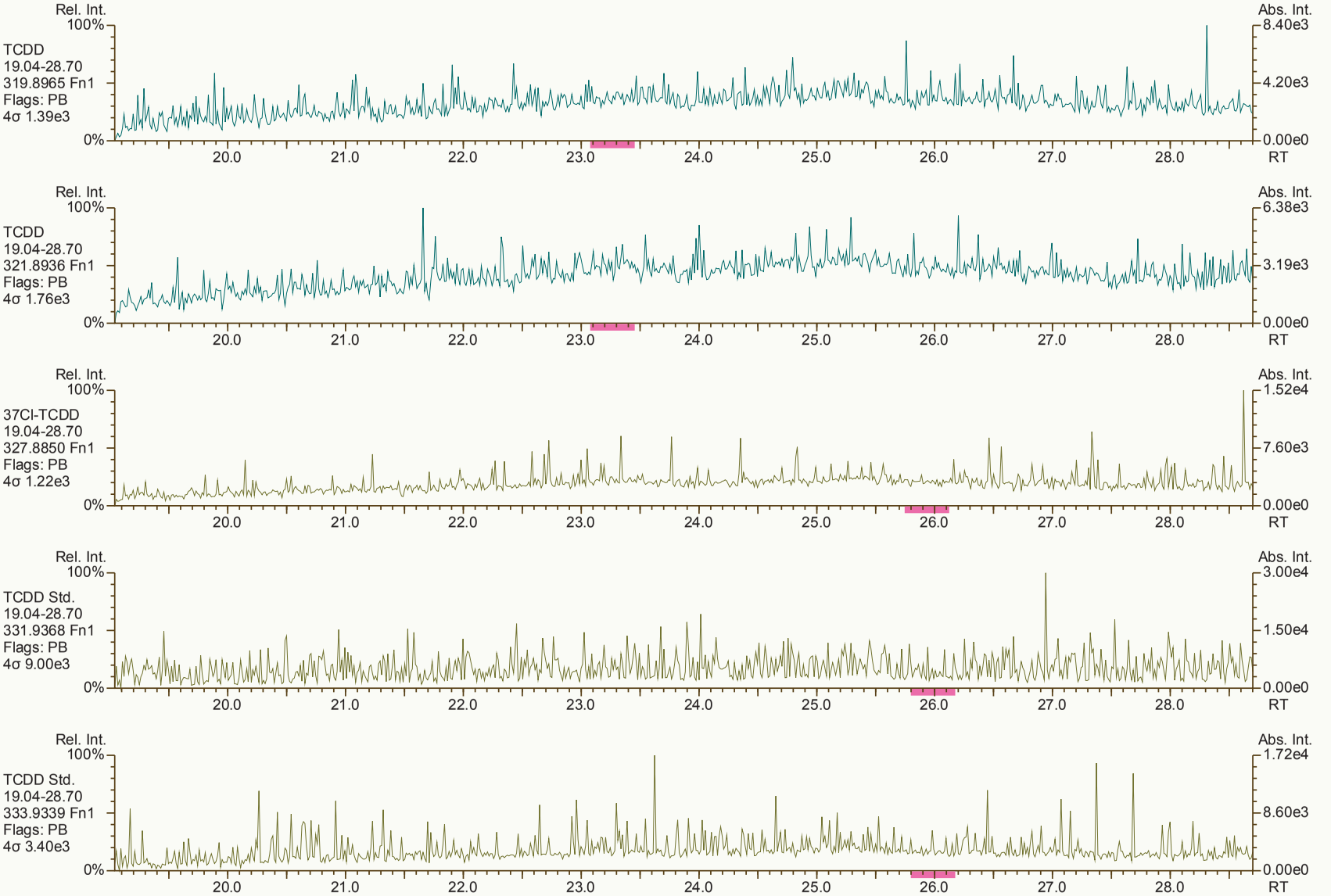
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 152-729 *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) | *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4005, 8299, 5345 scc: 152-729 | *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2860, 2558 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5568, 9339 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 4 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4227, 7341 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6446, 1639 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 6 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1385, 8643, 4959 scc: 152-729 *Revised: 07-Jan-2016 09:10 (ARL) Printed: 07-Jan-2016 11:29 Page 7 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1158 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 8 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7534, 7061, 1597 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 9 of 12*

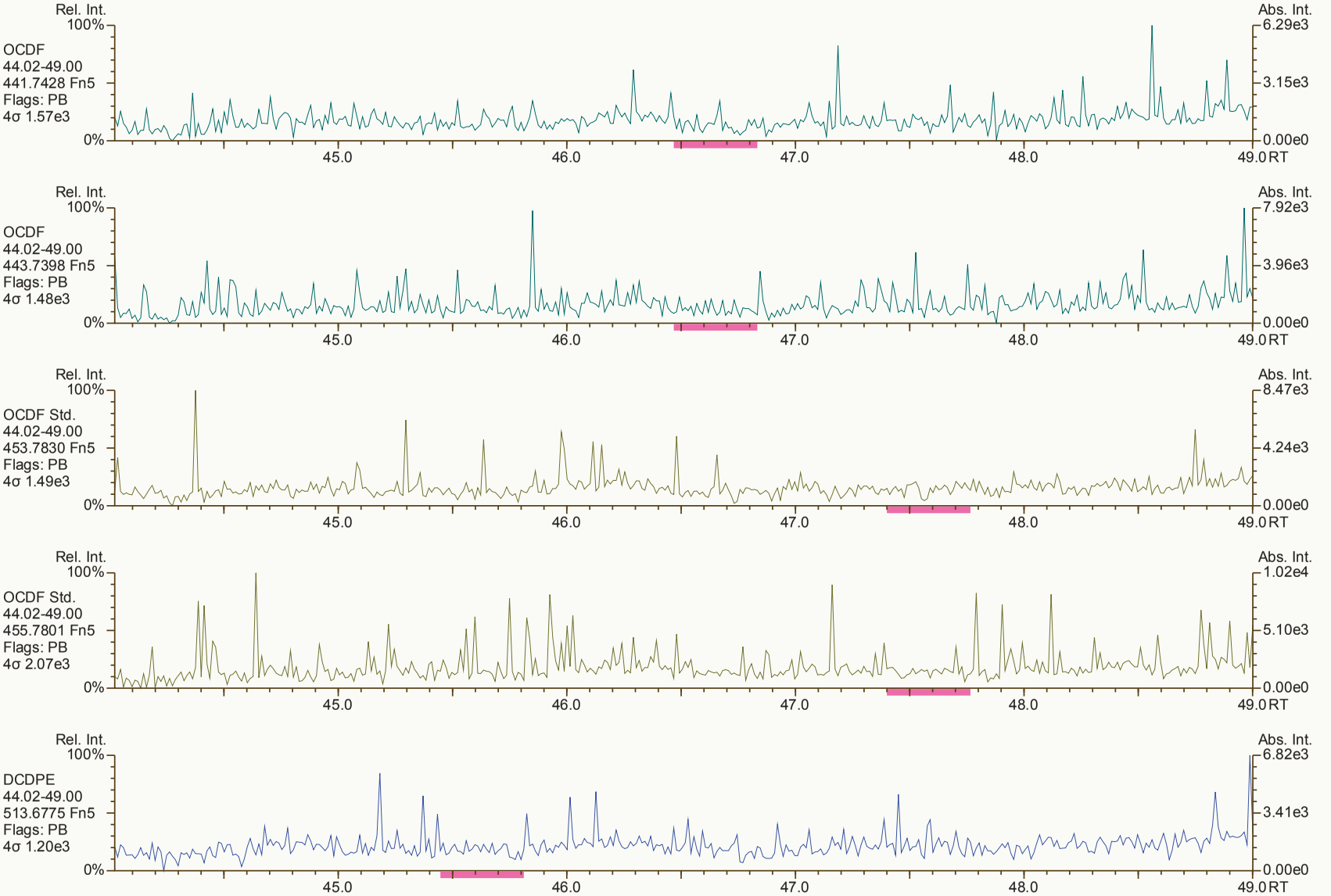
SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0586, 0533, 7908 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 10 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6278, 3765, 1758 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 11 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6907, 6593, 3757 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 12 of 12*

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Printed: Wednesday, January 06, 2016 18:11:40 Eastern Standard Time

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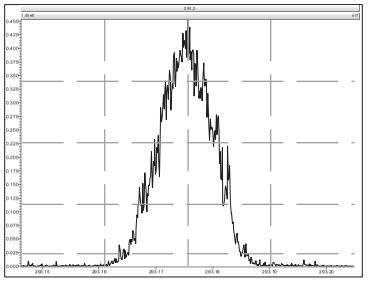
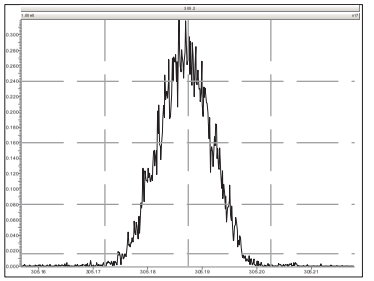


M 304.9824 R 13940



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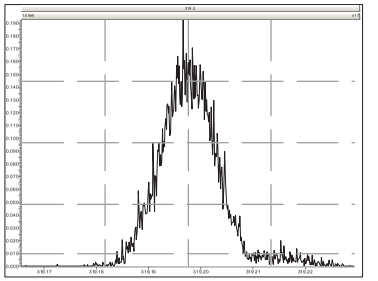

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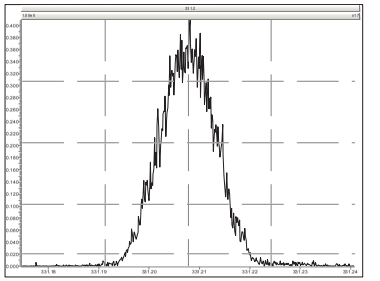

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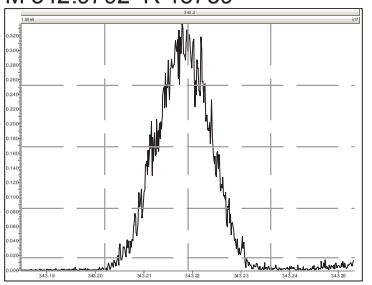

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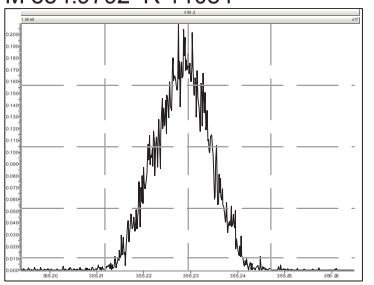

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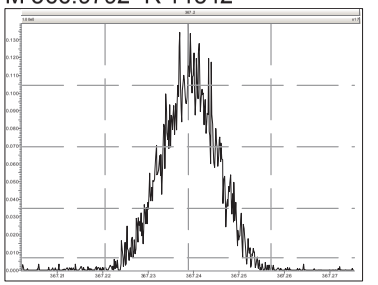

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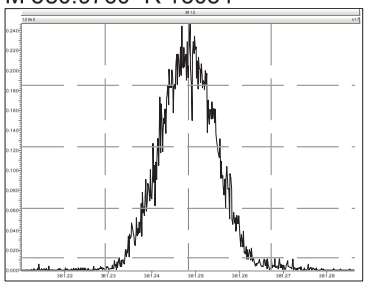

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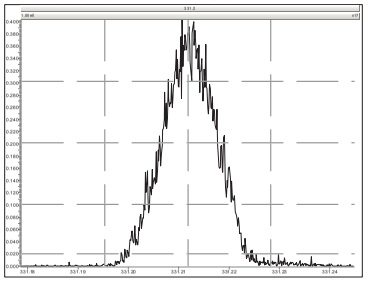

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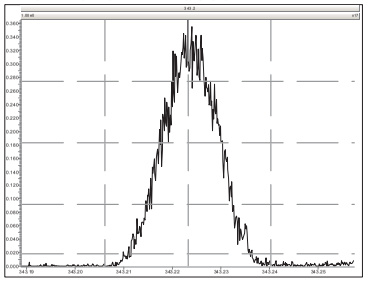

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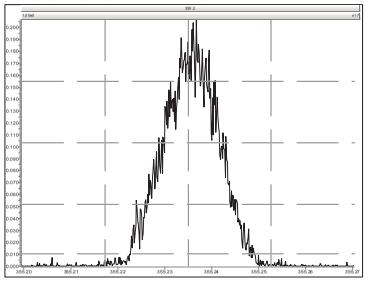
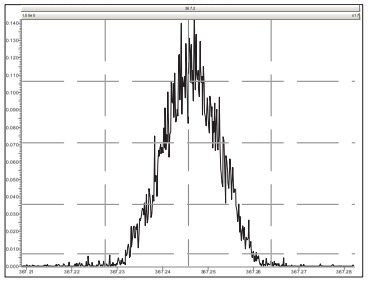


M 366.9792 R 13890



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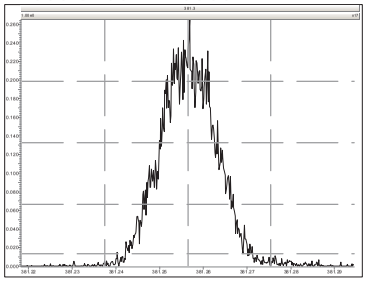

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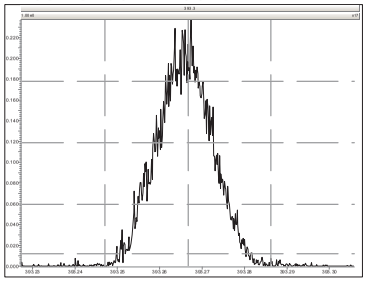

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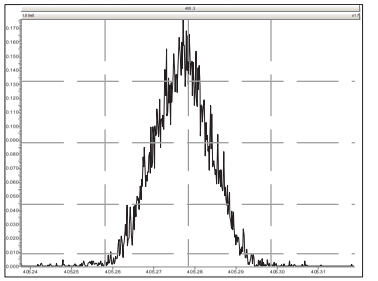

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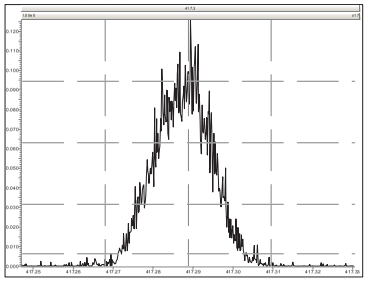

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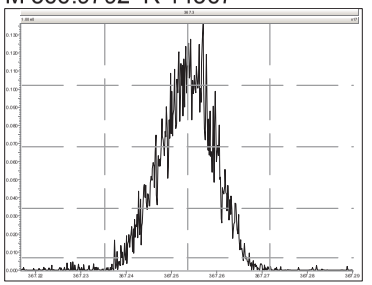

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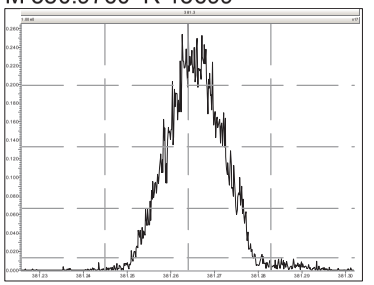

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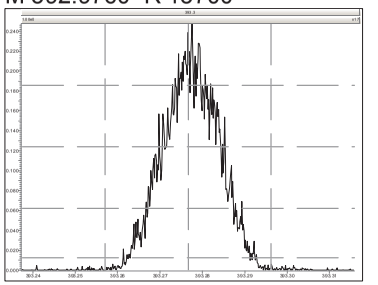

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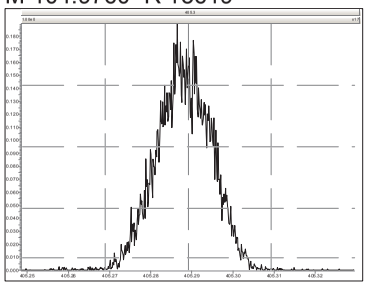

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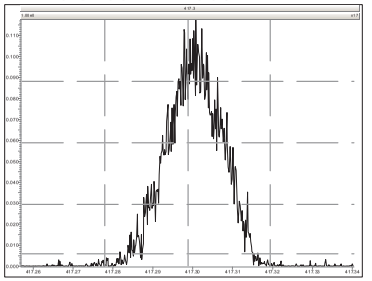

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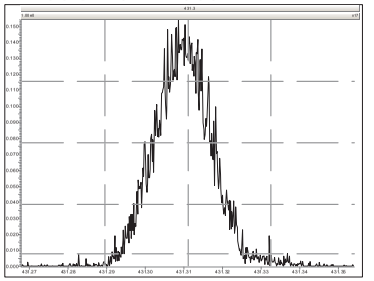

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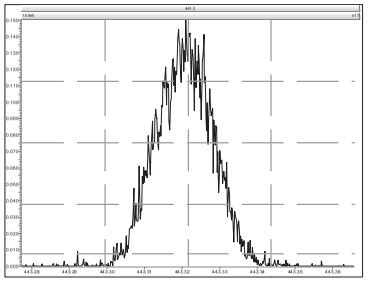

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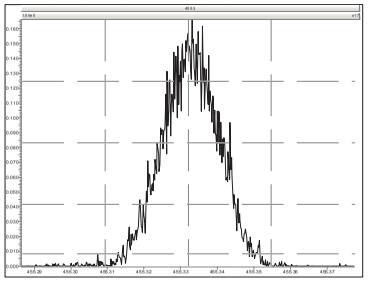

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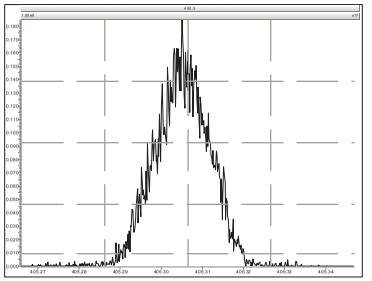

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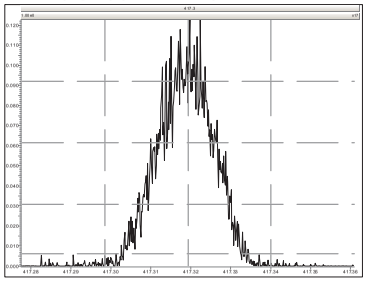

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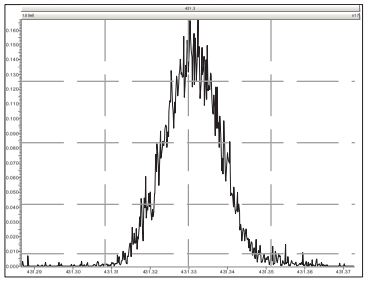
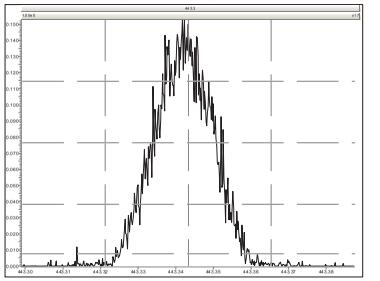


M 442.9728 R 13262



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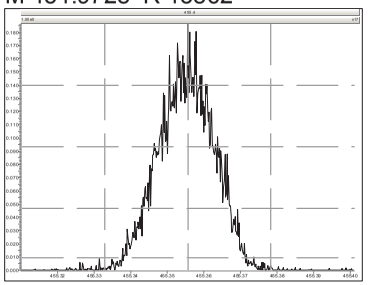

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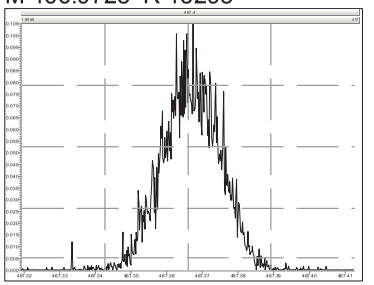

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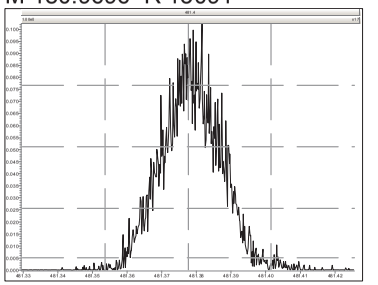

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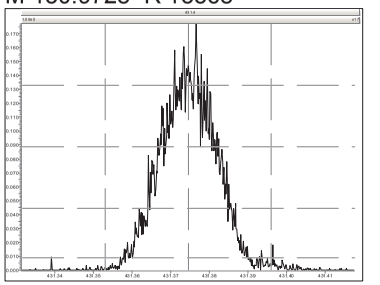

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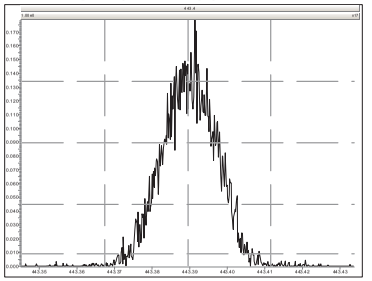

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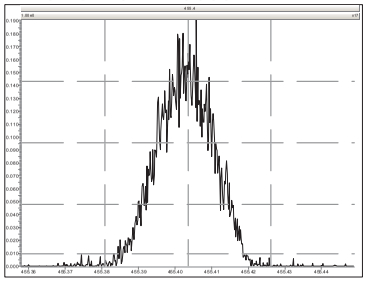

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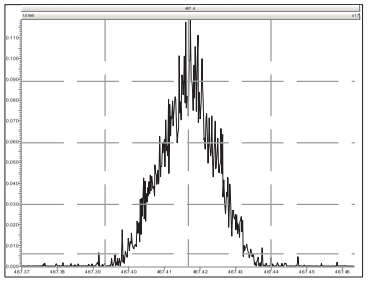

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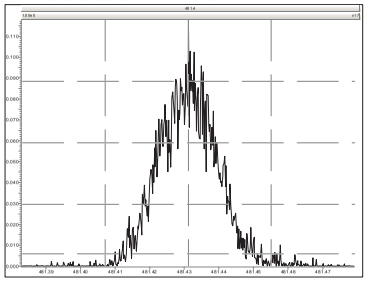

Resolution Check Report **MassLynx 4.1**

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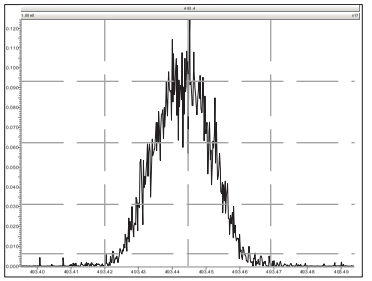

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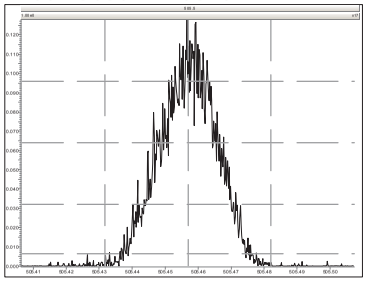

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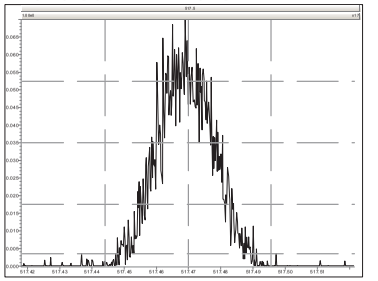

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Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

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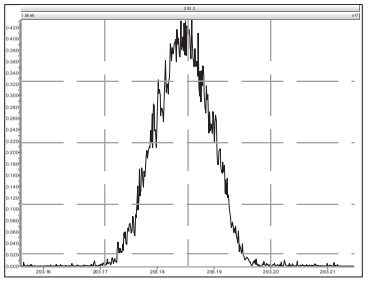

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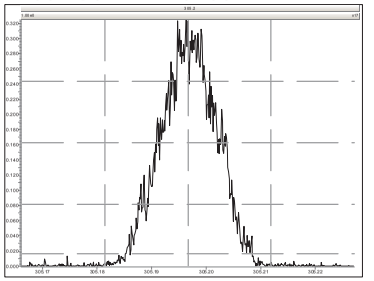

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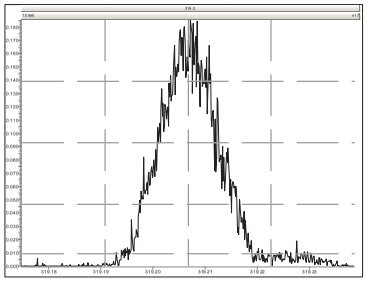

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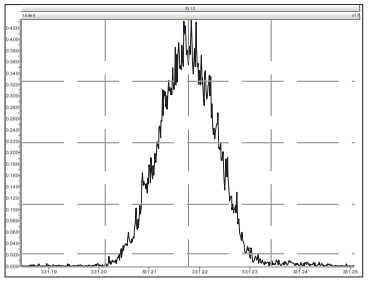

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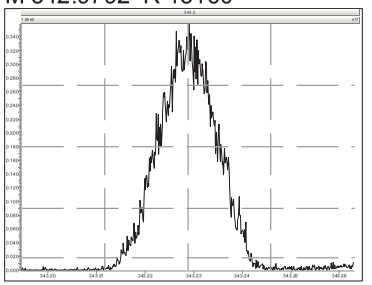

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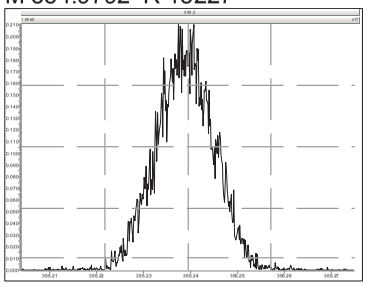
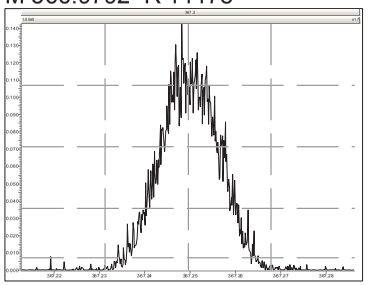
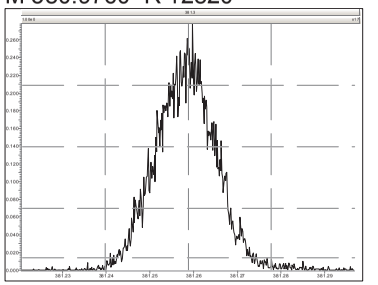


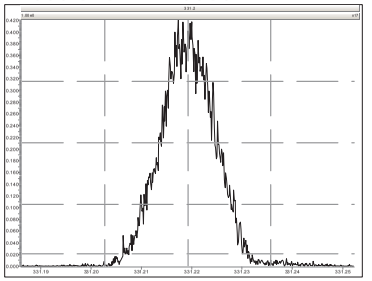
M 366.9792 R 14178



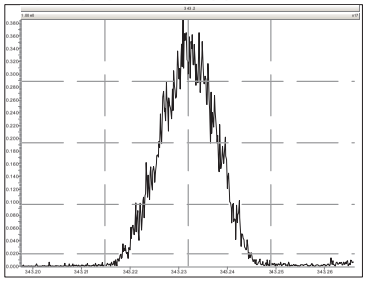
M 380.9760 R 12820



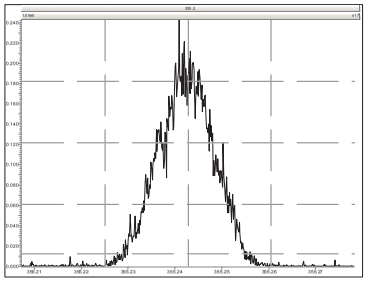
M 330.9792 R 13590



M 342.9792 R 13700



M 354.9792 R 13527



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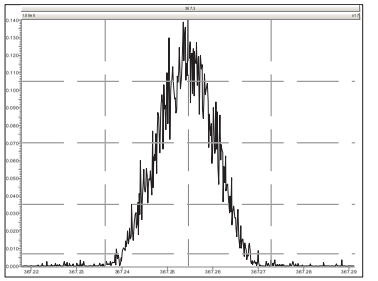
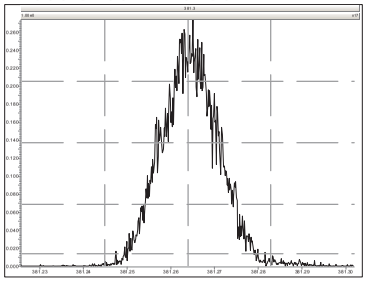


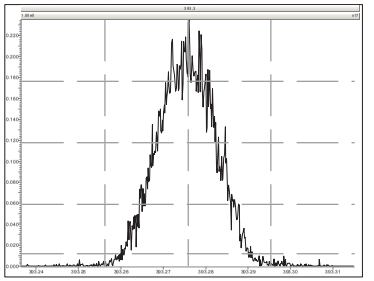
Resolution Check Report **MassLynx 4.1**

Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

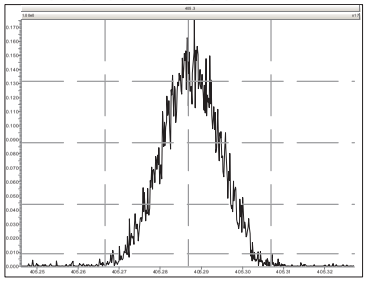
M 380.9760 R 13196



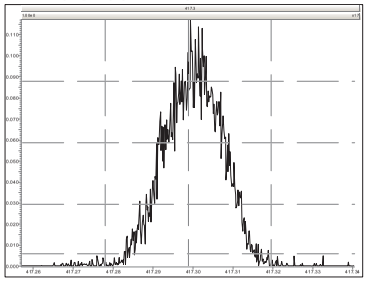
M 392.9760 R 12991



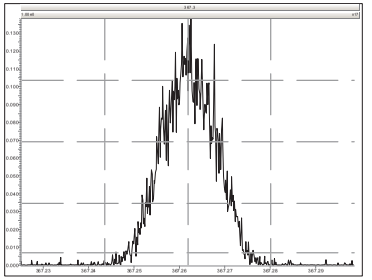
M 404.9760 R 13196



M 416.9760 R 13441



M 366.9792 R 14947



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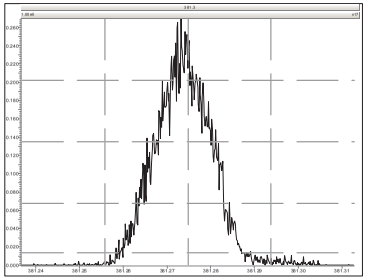

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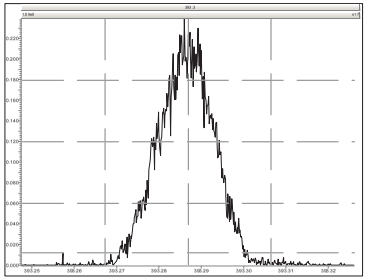

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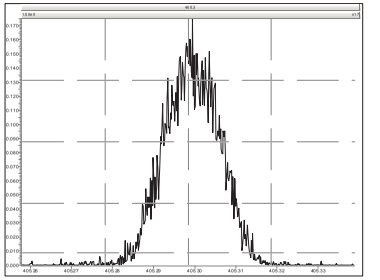
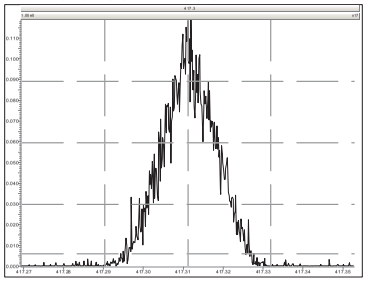
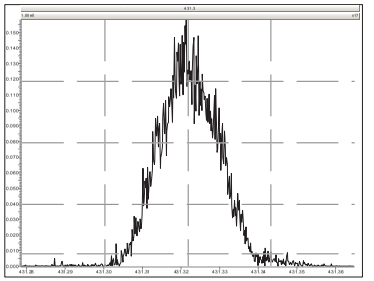


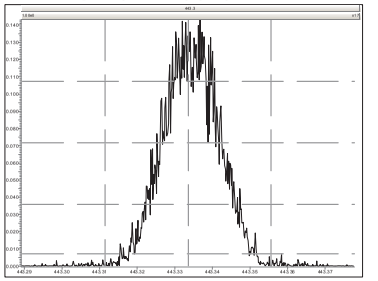
M 416.9760 R 13552



M 430.9728 R 12923



M 442.9728 R 13316



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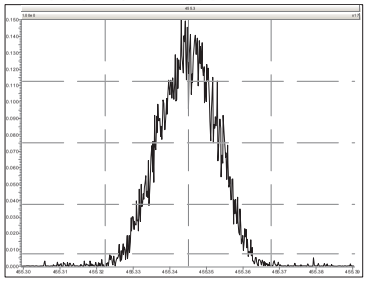

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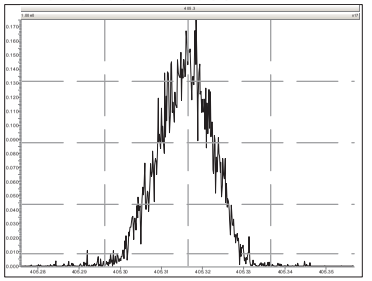

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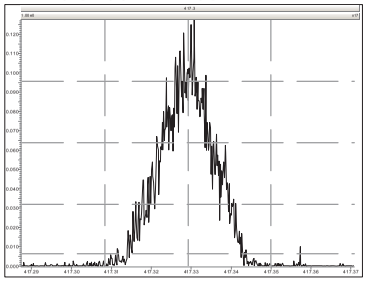

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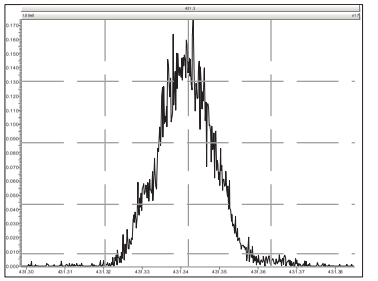
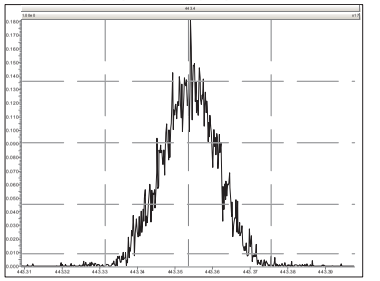


M 442.9728 R 13623



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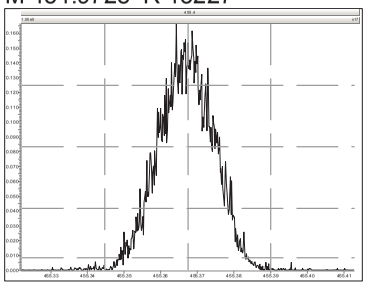

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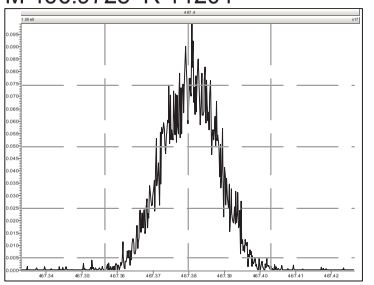

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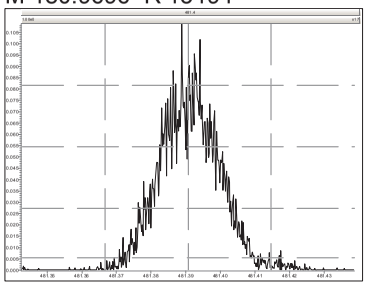

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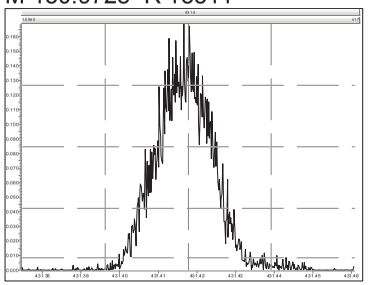

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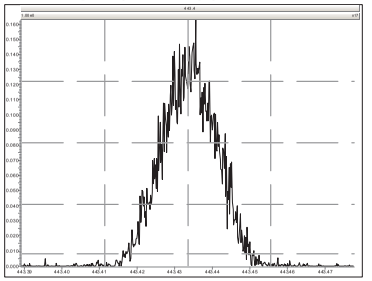

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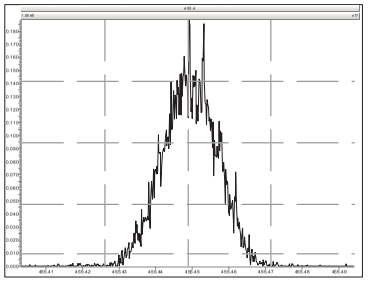

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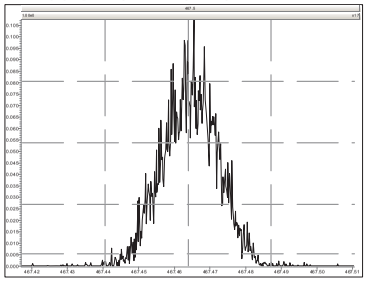

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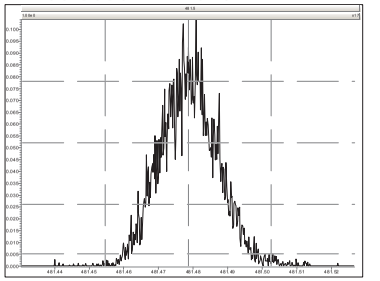

Resolution Check Report **MassLynx 4.1**

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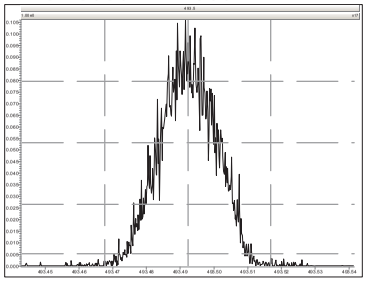

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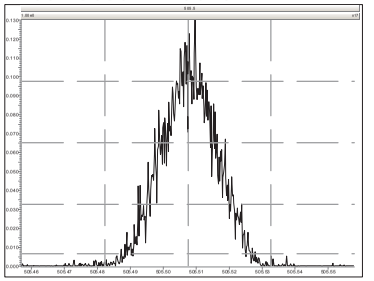

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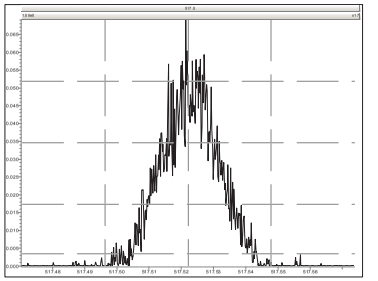


Lab ID: OPR1_14496_DF
Client ID: 0_14496_OPR001
Datafile: 161115C18

Acq'd: 16 Nov 2016 01:48 ARL
UTP: 16-Nov-2016 11:47:33 ARL
Report: 16 Nov 2016 11:51 al

Wt/Vol: 1 uL
J-level: 0.25 pg/uL Split: 1
Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

ICAL: HRMS3_DF_12212015_06JAN2016
Checkcode: 395-183-WZC

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	26.39		1.0009	1.0010	+0.2	6.93E+06	0.79	Y	1.19	9.54	8286	0.14

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	26.37	1.0285	1.0285	0	6.12E+07	0.78	Y	1.06	74.6

REVIEWED
By Amber Kornegay at 4:00 pm, Nov 16, 2016

Lab ID: OPR1_14496_DF | Acq'd: 16 Nov 2016 01:48 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14496_OPR001 | UTP: 16-Nov-2016 11:47:33 ARL | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 395-183-WZC

Datafile: 161115C18 | Report: 16 Nov 2016 11:51 al | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	25.64		-	-	-	7.72E+07	0.79	Y	-	-
JS 123467-HxCDD	36.58		-	-	-	3.05E+07	1.25	Y	-	-
CS 37Cl-2378-TCDD	26.39		1.0294	1.0295	+0.2	3.16E+07	n/a	-	1.24	82.5

Totals	Conc	EMPC
Total TCDD	43	43

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.79	0.79
Response	6.95E+06	6.93E+06

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161115C18	Analysis Date:	16-NOV-2016 01:48:16
Lab ID:	OPR1_14496_DF		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	9.54	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 16 Nov 2016 11:51 Analyst: al

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161115C18	Analysis Date:	16-NOV-2016 01:48:16
Lab ID:	OPR1_14496_DF		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	74.6	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	33	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 16 Nov 2016 11:51 Analyst: al

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
CPSM Data Filename:	161115C18	Analysis Date:	16-NOV-2016 01:48:16
Lab ID:	OPR1_14496_DF		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	22.17	1289-TCDD	27.48

Isomer Specificity Test Standard Results

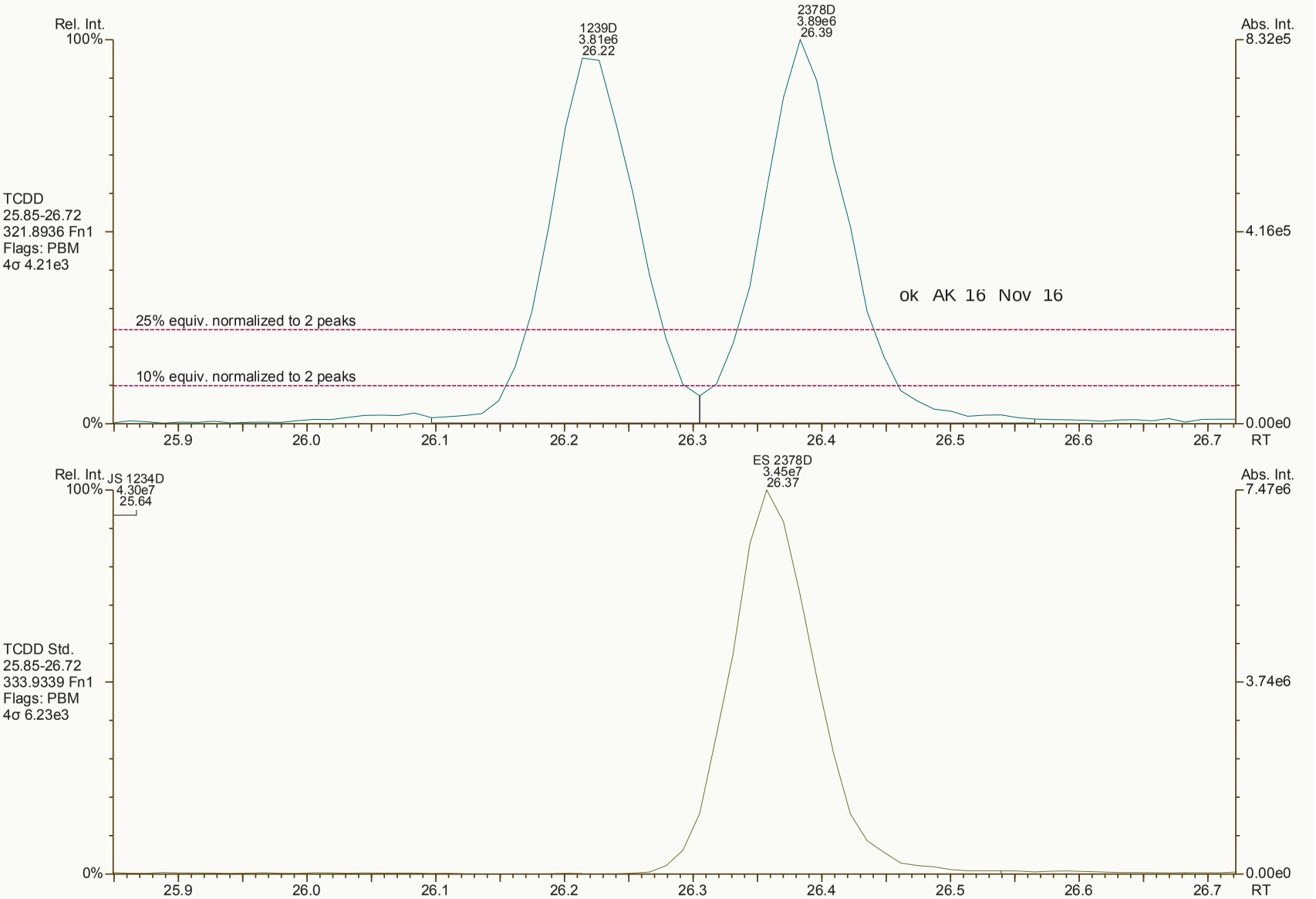
Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	26.22	2378-TCDD	26.39

Processed: 16 Nov 2016 11:51 Analyst: al

SGS ID: OPR1_14496_DF
Instr: [ILM] AutoSpec-Ultima HRMS3

Sample ID: 0_14496_OPR001
VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 6

Acq: 16-Nov-2016 01:48:16
User: ARL Datafile: 161115C18

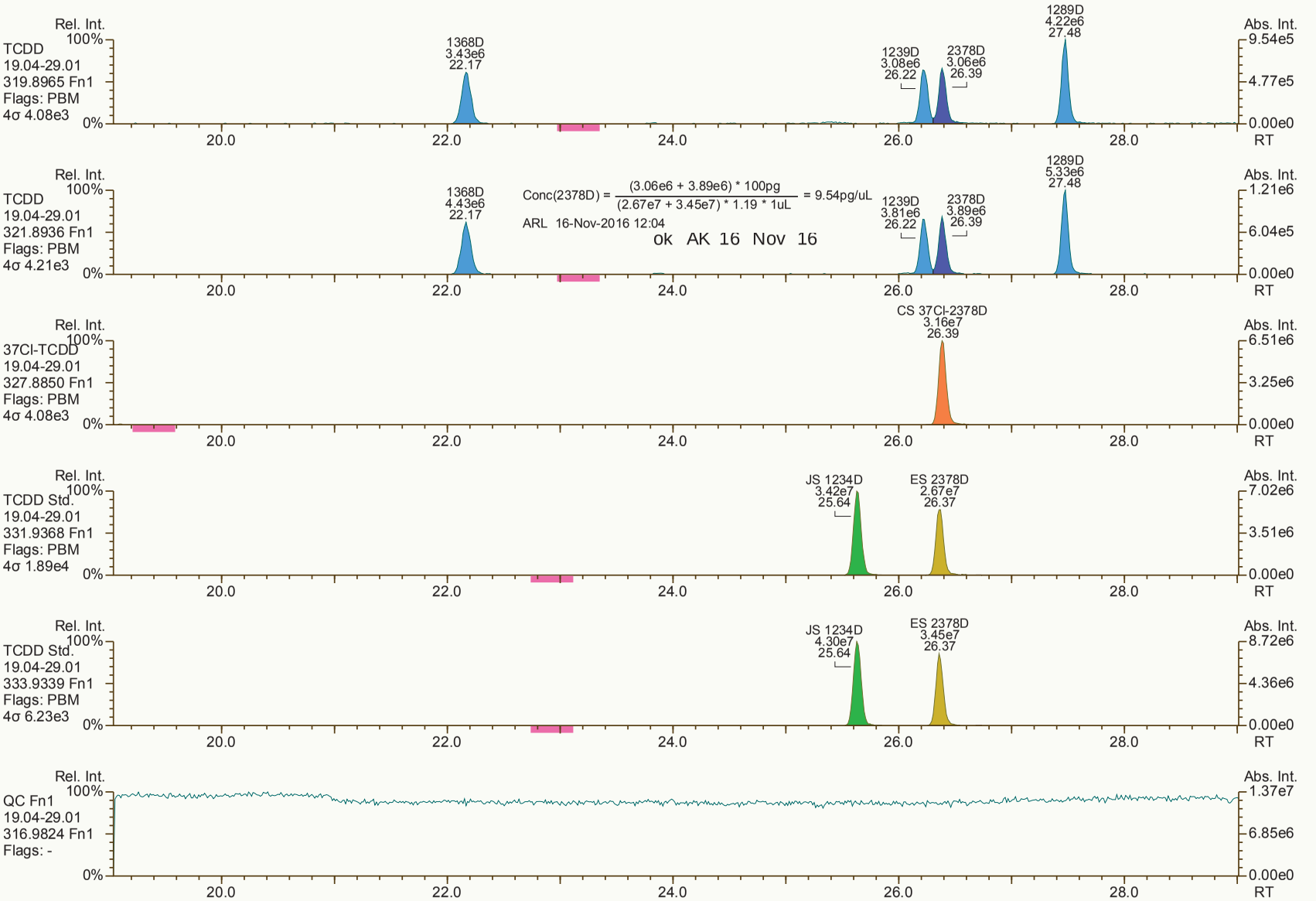


Results: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\OPR1_14496_DF.utp_res, saved 16-Nov-2016 12:33 (ARL)
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951

Peak annotation: Areas, Centroids
Revised: 16-Nov-2016 11:32 (ARL) Printed: 16-Nov-2016 14:04

SGS ID: OPR1_14496_DF | **Sample ID: 0_14496_OPR001** | **Acq: 16-Nov-2016 01:48:16**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 6** | **User: ARL Datafile: 161115C18**



Results: P:\A9300_A9399\A9382\A9382_14496 DF\Resources\OPR1_14496_DF.utp_res, saved 16-Nov-2016 12:04 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 5895, 4659, 7452 scc: 395-183 *Revised: 16-Nov-2016 11:32 (ARL) Printed: 16-Nov-2016 12:05 Page 1 of 1*

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST

SCC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC30810

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City: Florham Park State: NJ Zip: 07932
Project Contact: Brian Crespi E-mail: bcrespi@matrix-nwe.com
Phone #: 212 324 4251
Sampler(s) Name(s): M. Cleland + B. Crespi. Phone #:

Project Information

Project Name: L1RR Expansion
Street:
City: Long Island State: New York
Project #: 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)
Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (Full)	TCLP (Full)	RCRA Char.	Dioxin		3x5 Grams Encores Received 10/31/16						LAB USE ONLY
1	SB03-161031		10/31/16	1105	MC	S	7					4			3	X	X	X	X								C63
2	SB08-161031		10/31/16	1303	MC	S	7					4			3	X	X	X	X								~~4B4~~
3	SB07-161031		10/31/16	1415	MC	S	7					4			3	X	X	X	X								4L2
																											P22
																											14B2
																											4086
																											SUB

INITIAL ASESSMENT 3B
LABEL VERIFICATION

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice.

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	10/31/16 1509	1 Chris Lau	2 Chris Lau	10/31/16 1530	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 330 [x] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [x] Cooler Temp. 2.1°C

JC30810X: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC30810 **Client:** **Project:**

Date / Time Received: 10/31/2016 6:30:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.1);

Cooler Temps (Corrected) °C: Cooler 1: (3.0);

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	or N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144 LIRR Expansion

SGS Accutest Job Number: JC30944

Sampling Dates: 11/01/16 - 11/02/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **170**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC30944-1	11/01/16	09:45	MC	11/02/16	SO	Soil	SB08-161101
JC30944-1A	11/01/16	09:45	MC	11/02/16	SO	Soil	SB08-161101
JC30944-2	11/01/16	11:27	MC	11/02/16	SO	Soil	SB10-161101
JC30944-2A	11/01/16	11:27	MC	11/02/16	SO	Soil	SB10-161101
JC30944-3	11/01/16	13:06	MC	11/02/16	SO	Soil	SB11-161101
JC30944-3A	11/01/16	13:06	MC	11/02/16	SO	Soil	SB11-161101
JC30944-4	11/01/16	14:25	MC	11/02/16	SO	Soil	SB09-161101
JC30944-4A	11/01/16	14:25	MC	11/02/16	SO	Soil	SB09-161101
JC30944-5	11/02/16	08:55	MC	11/02/16	SO	Soil	SB12-161102
JC30944-5A	11/02/16	08:55	MC	11/02/16	SO	Soil	SB12-161102
JC30944-6	11/02/16	09:25	MC	11/02/16	SO	Soil	SB13-161102
JC30944-6A	11/02/16	09:25	MC	11/02/16	SO	Soil	SB13-161102
JC30944-7	11/02/16	10:45	MC	11/02/16	SO	Soil	SB14-161102

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS Accutest

Sample Summary
(continued)

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC30944-7A	11/02/16	10:45	MC	11/02/16	SO	Soil	SB14-161102
JC30944-8	11/02/16	12:36	MC	11/02/16	SO	Soil	SB16-161102
JC30944-8A	11/02/16	12:36	MC	11/02/16	SO	Soil	SB16-161102

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

2

Summary of Hits

Job Number: JC30944
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/01/16 thru 11/02/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC30944-1	**SB08-161101**					
Methylene chloride		0.0019 J	0.0045	0.00091	mg/kg	SW846 8260C
Benzo(a)anthracene		0.0775	0.035	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0911	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.122	0.035	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0732	0.035	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0464	0.035	0.017	mg/kg	SW846 8270D
Chrysene		0.0944	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0170 J	0.035	0.016	mg/kg	SW846 8270D
Fluoranthene		0.171	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0724	0.035	0.017	mg/kg	SW846 8270D
Phenanthrene		0.0785	0.035	0.012	mg/kg	SW846 8270D
Pyrene		0.151	0.035	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.0012	0.00072	0.00034	mg/kg	SW846 8081B
gamma-Chlordane [a]		0.00099	0.00072	0.00032	mg/kg	SW846 8081B
Aluminum		4050	53		mg/kg	SW846 6010C
Arsenic		2.4	2.1		mg/kg	SW846 6010C
Beryllium		0.21	0.21		mg/kg	SW846 6010C
Calcium		1660	530		mg/kg	SW846 6010C
Chromium		9.0	1.1		mg/kg	SW846 6010C
Copper		8.5	2.7		mg/kg	SW846 6010C
Iron		7500	53		mg/kg	SW846 6010C
Lead		8.0	2.1		mg/kg	SW846 6010C
Magnesium		904	530		mg/kg	SW846 6010C
Manganese		112	1.6		mg/kg	SW846 6010C
Nickel		7.3	4.3		mg/kg	SW846 6010C
Vanadium		9.7	5.3		mg/kg	SW846 6010C
Zinc		23.2	5.3		mg/kg	SW846 6010C
JC30944-1A	**SB08-161101**					
Corrosivity as pH		7.32 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC30944-2	**SB10-161101**					
Acetone		0.0069 J	0.013	0.0063	mg/kg	SW846 8260C
Methylene chloride		0.0021 J	0.0063	0.0013	mg/kg	SW846 8260C
Benzo(a)anthracene		0.0179 J	0.039	0.011	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0213 J	0.039	0.018	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0322 J	0.039	0.017	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0223 J	0.039	0.019	mg/kg	SW846 8270D
Chrysene		0.0223 J	0.039	0.012	mg/kg	SW846 8270D
Fluoranthene		0.0247 J	0.039	0.017	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC30944
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/01/16 thru 11/02/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Indeno(1,2,3-cd)pyrene	0.0204 J	0.039	0.018	mg/kg	SW846 8270D
Pyrene	0.0268 J	0.039	0.012	mg/kg	SW846 8270D
Aluminum	1410	61		mg/kg	SW846 6010C
Chromium	4.8	1.2		mg/kg	SW846 6010C
Copper	6.3	3.1		mg/kg	SW846 6010C
Iron	4960	61		mg/kg	SW846 6010C
Lead	4.4	2.5		mg/kg	SW846 6010C
Manganese	81.2	1.8		mg/kg	SW846 6010C
Nickel	5.0	4.9		mg/kg	SW846 6010C
Zinc	8.9	6.1		mg/kg	SW846 6010C
JC30944-2A SB10-161101					
Corrosivity as pH	7.78 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC30944-3 SB11-161101					
Methylene chloride	0.0037 J	0.0069	0.0014	mg/kg	SW846 8260C
m,p-Xylene	0.00031 J	0.0014	0.00030	mg/kg	SW846 8260C
Xylene (total)	0.00031 J	0.0014	0.00028	mg/kg	SW846 8260C
Acenaphthylene	0.0798	0.044	0.022	mg/kg	SW846 8270D
Anthracene	0.128	0.044	0.027	mg/kg	SW846 8270D
Benzo(a)anthracene	0.215	0.044	0.012	mg/kg	SW846 8270D
Benzo(a)pyrene	0.230	0.044	0.020	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.546	0.044	0.019	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.172	0.044	0.022	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.192	0.044	0.020	mg/kg	SW846 8270D
Benzaldehyde	0.0366 J	0.22	0.011	mg/kg	SW846 8270D
Carbazole	0.0544 J	0.088	0.0063	mg/kg	SW846 8270D
Chrysene	0.376	0.044	0.014	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0525	0.044	0.019	mg/kg	SW846 8270D
Dibenzofuran	0.0299 J	0.088	0.018	mg/kg	SW846 8270D
Fluoranthene	0.360	0.044	0.020	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.208	0.044	0.021	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0531 J	0.088	0.0099	mg/kg	SW846 8270D
Naphthalene	0.0381 J	0.044	0.012	mg/kg	SW846 8270D
Phenanthrene	0.166	0.044	0.015	mg/kg	SW846 8270D
Pyrene	0.334	0.044	0.014	mg/kg	SW846 8270D
gamma-Chlordane	0.0011	0.00089	0.00039	mg/kg	SW846 8081B
4,4'-DDE	0.0047	0.00089	0.00047	mg/kg	SW846 8081B
4,4'-DDT	0.0082	0.00089	0.00053	mg/kg	SW846 8081B
Aluminum	1910	68		mg/kg	SW846 6010C
Chromium	5.4	1.4		mg/kg	SW846 6010C
Copper	13.4	3.4		mg/kg	SW846 6010C

2

Summary of Hits

Job Number: JC30944
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/01/16 thru 11/02/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Iron		5440	68		mg/kg	SW846 6010C
Lead		17.7	2.7		mg/kg	SW846 6010C
Manganese		90.0	2.0		mg/kg	SW846 6010C
Mercury		0.047	0.034		mg/kg	SW846 7471B
Zinc		27.2	6.8		mg/kg	SW846 6010C
JC30944-3A	**SB11-161101**					
Corrosivity as pH		5.73 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC30944-4	**SB09-161101**					
Methylene chloride		0.0024 J	0.0052	0.0010	mg/kg	SW846 8260C
Anthracene		0.0376	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0775	0.034	0.0097	mg/kg	SW846 8270D
Benzo(a)pyrene		0.102	0.034	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.118	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0732	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0433	0.034	0.016	mg/kg	SW846 8270D
Chrysene		0.0911	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0204 J	0.034	0.015	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.0359 J	0.068	0.0080	mg/kg	SW846 8270D
Fluoranthene		0.126	0.034	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0671	0.034	0.016	mg/kg	SW846 8270D
Phenanthrene		0.102	0.034	0.011	mg/kg	SW846 8270D
Pyrene		0.129	0.034	0.011	mg/kg	SW846 8270D
gamma-Chlordane		0.00029 J	0.00066	0.00029	mg/kg	SW846 8081B
Aluminum		1890	50		mg/kg	SW846 6010C
Arsenic		3.0	2.0		mg/kg	SW846 6010C
Calcium		3110	500		mg/kg	SW846 6010C
Chromium		9.3	1.0		mg/kg	SW846 6010C
Copper		10.4	2.5		mg/kg	SW846 6010C
Iron		6400	50		mg/kg	SW846 6010C
Lead		13.8	2.0		mg/kg	SW846 6010C
Magnesium		1470	500		mg/kg	SW846 6010C
Manganese		143	1.5		mg/kg	SW846 6010C
Nickel		8.0	4.0		mg/kg	SW846 6010C
Vanadium		8.5	5.0		mg/kg	SW846 6010C
Zinc		31.7	5.0		mg/kg	SW846 6010C
JC30944-4A	**SB09-161101**					
Corrosivity as pH		8.81 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93

2

Summary of Hits

Job Number: JC30944
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/01/16 thru 11/02/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC30944-5	**SB12-161102**					
Methylene chloride		0.0013 J	0.0050	0.00099	mg/kg	SW846 8260C
2-Methylphenol		0.0462 J	0.068	0.022	mg/kg	SW846 8270D
3&4-Methylphenol		0.101	0.068	0.028	mg/kg	SW846 8270D
Phenol		0.151	0.068	0.018	mg/kg	SW846 8270D
Acenaphthene		0.0218 J	0.034	0.012	mg/kg	SW846 8270D
Acenaphthylene		0.166	0.034	0.017	mg/kg	SW846 8270D
Anthracene		0.112	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.112	0.034	0.0096	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0732	0.034	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.230	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0602	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0649	0.034	0.016	mg/kg	SW846 8270D
1,1'-Biphenyl		0.108	0.068	0.0047	mg/kg	SW846 8270D
Benzaldehyde		0.135 J	0.17	0.0085	mg/kg	SW846 8270D
2-Chloronaphthalene		0.0986	0.068	0.0081	mg/kg	SW846 8270D
Carbazole		0.0315 J	0.068	0.0049	mg/kg	SW846 8270D
Chrysene		0.322	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0342	0.034	0.015	mg/kg	SW846 8270D
Dibenzofuran		0.138	0.068	0.014	mg/kg	SW846 8270D
Fluoranthene		0.332	0.034	0.015	mg/kg	SW846 8270D
Fluorene		0.0541	0.034	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0522	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.382	0.068	0.0077	mg/kg	SW846 8270D
Naphthalene		0.726	0.034	0.0096	mg/kg	SW846 8270D
Phenanthrene		0.611	0.034	0.011	mg/kg	SW846 8270D
Pyrene		0.298	0.034	0.011	mg/kg	SW846 8270D
4,4'-DDD		0.0109	0.00071	0.00046	mg/kg	SW846 8081B
4,4'-DDE		0.0486	0.00071	0.00037	mg/kg	SW846 8081B
4,4'-DDT		0.0281	0.00071	0.00042	mg/kg	SW846 8081B
Aluminum		4850	55		mg/kg	SW846 6010C
Arsenic		23.8	2.2		mg/kg	SW846 6010C
Barium		56.3	22		mg/kg	SW846 6010C
Beryllium		0.26	0.22		mg/kg	SW846 6010C
Chromium		9.9	1.1		mg/kg	SW846 6010C
Copper		32.9	2.8		mg/kg	SW846 6010C
Iron		12800	55		mg/kg	SW846 6010C
Lead		56.1	2.2		mg/kg	SW846 6010C
Magnesium		578	550		mg/kg	SW846 6010C
Manganese		101	1.7		mg/kg	SW846 6010C
Mercury		0.044	0.035		mg/kg	SW846 7471B
Nickel		9.9	4.4		mg/kg	SW846 6010C
Vanadium		13.5	5.5		mg/kg	SW846 6010C

2

Summary of Hits

Job Number: JC30944
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/01/16 thru 11/02/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Zinc		37.2	5.5		mg/kg	SW846 6010C
JC30944-5A	**SB12-161102**					
Corrosivity as pH		4.43 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC30944-6	**SB13-161102**					
Acetone		0.0132	0.0096	0.0048	mg/kg	SW846 8260C
Methylene chloride		0.0012 J	0.0048	0.00096	mg/kg	SW846 8260C
Acenaphthene		0.0235 J	0.036	0.013	mg/kg	SW846 8270D
Acenaphthylene		0.127	0.036	0.018	mg/kg	SW846 8270D
Anthracene		0.147	0.036	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.175	0.036	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.137	0.036	0.017	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.361	0.036	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.129	0.036	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.122	0.036	0.017	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0611 J	0.073	0.0050	mg/kg	SW846 8270D
Benzaldehyde		0.176 J	0.18	0.0090	mg/kg	SW846 8270D
Carbazole		0.0565 J	0.073	0.0053	mg/kg	SW846 8270D
Chrysene		0.376	0.036	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0380	0.036	0.016	mg/kg	SW846 8270D
Dibenzofuran		0.120	0.073	0.015	mg/kg	SW846 8270D
Fluoranthene		0.454	0.036	0.016	mg/kg	SW846 8270D
Fluorene		0.0310 J	0.036	0.017	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.120	0.036	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene		0.241	0.073	0.0082	mg/kg	SW846 8270D
Naphthalene		0.324	0.036	0.010	mg/kg	SW846 8270D
Phenanthrene		0.510	0.036	0.012	mg/kg	SW846 8270D
Pyrene		0.394	0.036	0.012	mg/kg	SW846 8270D
4,4'-DDE		0.0284	0.00073	0.00038	mg/kg	SW846 8081B
4,4'-DDT		0.0313	0.00073	0.00043	mg/kg	SW846 8081B
Aluminum		7020	53		mg/kg	SW846 6010C
Arsenic		3.9	2.1		mg/kg	SW846 6010C
Barium		27.9	21		mg/kg	SW846 6010C
Beryllium		0.31	0.21		mg/kg	SW846 6010C
Chromium		12.2	1.1		mg/kg	SW846 6010C
Copper		33.0	2.7		mg/kg	SW846 6010C
Iron		11700	53		mg/kg	SW846 6010C
Lead		47.0	2.1		mg/kg	SW846 6010C
Magnesium		1180	530		mg/kg	SW846 6010C
Manganese		172	1.6		mg/kg	SW846 6010C
Mercury		0.057	0.033		mg/kg	SW846 7471B

Summary of Hits

Job Number: JC30944
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/01/16 thru 11/02/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Nickel		11.3	4.3		mg/kg	SW846 6010C
Vanadium		15.8	5.3		mg/kg	SW846 6010C
Zinc		35.6	5.3		mg/kg	SW846 6010C
JC30944-6A	**SB13-161102**					
Corrosivity as pH		4.69 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC30944-7	**SB14-161102**					
Methylene chloride		0.0020 J	0.0047	0.00093	mg/kg	SW846 8260C
m,p-Xylene		0.00022 J	0.00093	0.00020	mg/kg	SW846 8260C
Xylene (total)		0.00022 J	0.00093	0.00019	mg/kg	SW846 8260C
Acenaphthylene		0.0221 J	0.033	0.017	mg/kg	SW846 8270D
Anthracene		0.0427	0.033	0.020	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0417	0.033	0.0092	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0463	0.033	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.119	0.033	0.014	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0398	0.033	0.016	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0429	0.033	0.015	mg/kg	SW846 8270D
Carbazole		0.0148 J	0.065	0.0047	mg/kg	SW846 8270D
Chrysene		0.0591	0.033	0.010	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0143 J	0.033	0.014	mg/kg	SW846 8270D
Fluoranthene		0.0563	0.033	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0483	0.033	0.015	mg/kg	SW846 8270D
Phenanthrene		0.0263 J	0.033	0.011	mg/kg	SW846 8270D
Pyrene		0.0620	0.033	0.010	mg/kg	SW846 8270D
Aluminum		1680	53		mg/kg	SW846 6010C
Chromium		5.3	1.1		mg/kg	SW846 6010C
Copper		10.8	2.7		mg/kg	SW846 6010C
Iron		5260	53		mg/kg	SW846 6010C
Lead		4.2	2.1		mg/kg	SW846 6010C
Manganese		171	1.6		mg/kg	SW846 6010C
Nickel		5.2	4.3		mg/kg	SW846 6010C
Vanadium		5.5	5.3		mg/kg	SW846 6010C
Zinc		11.1	5.3		mg/kg	SW846 6010C
JC30944-7A	**SB14-161102**					
Corrosivity as pH		6.98 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93

Summary of Hits

Job Number: JC30944
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/01/16 thru 11/02/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC30944-8	**SB16-161102**					
Acetone		0.0103	0.0095	0.0048	mg/kg	SW846 8260C
Carbon disulfide		0.00080 J	0.0019	0.00016	mg/kg	SW846 8260C
Acenaphthylene		0.0305 J	0.033	0.017	mg/kg	SW846 8270D
Anthracene		0.0583	0.033	0.020	mg/kg	SW846 8270D
Benzo(a)anthracene		0.126	0.033	0.0094	mg/kg	SW846 8270D
Benzo(a)pyrene		0.174	0.033	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.200	0.033	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.179	0.033	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0682	0.033	0.015	mg/kg	SW846 8270D
Carbazole		0.0177 J	0.066	0.0048	mg/kg	SW846 8270D
Chrysene		0.167	0.033	0.010	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0287 J	0.033	0.015	mg/kg	SW846 8270D
Fluoranthene		0.225	0.033	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.114	0.033	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0255 J	0.066	0.0075	mg/kg	SW846 8270D
Naphthalene		0.0171 J	0.033	0.0094	mg/kg	SW846 8270D
Phenanthrene		0.132	0.033	0.011	mg/kg	SW846 8270D
Pyrene		0.232	0.033	0.011	mg/kg	SW846 8270D
Aluminum		1780	50		mg/kg	SW846 6010C
Arsenic		2.5	2.0		mg/kg	SW846 6010C
Barium		29.6	20		mg/kg	SW846 6010C
Calcium		13000	500		mg/kg	SW846 6010C
Chromium		5.1	1.0		mg/kg	SW846 6010C
Copper		21.3	2.5		mg/kg	SW846 6010C
Iron		6110	50		mg/kg	SW846 6010C
Lead		23.1	2.0		mg/kg	SW846 6010C
Magnesium		6880	500		mg/kg	SW846 6010C
Manganese		275	1.5		mg/kg	SW846 6010C
Mercury		0.036	0.032		mg/kg	SW846 7471B
Nickel		5.3	4.0		mg/kg	SW846 6010C
Vanadium		7.5	5.0		mg/kg	SW846 6010C
Zinc		26.0	5.0		mg/kg	SW846 6010C
JC30944-8A	**SB16-161102**					
Corrosivity as pH		7.69 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93

(a) More than 40 % RPD for detected concentrations between the two GC columns.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167671.D	1	11/08/16	PS	11/03/16 08:00	n/a	VY7286
Run #2							

	Initial Weight
Run #1	6.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0091	0.0045	mg/kg	
71-43-2	Benzene	ND	0.00045	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0045	0.00029	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0018	0.00014	mg/kg	
75-25-2	Bromoform	ND	0.0045	0.00024	mg/kg	
74-83-9	Bromomethane	ND	0.0045	0.00044	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0091	0.0016	mg/kg	
75-15-0	Carbon disulfide	ND	0.0018	0.00015	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0018	0.00015	mg/kg	
108-90-7	Chlorobenzene	ND	0.0018	0.00015	mg/kg	
75-00-3	Chloroethane	ND	0.0045	0.00039	mg/kg	
67-66-3	Chloroform	ND	0.0018	0.00022	mg/kg	
74-87-3	Chloromethane	ND	0.0045	0.00019	mg/kg	
110-82-7	Cyclohexane	ND	0.0018	0.00049	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0018	0.00044	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0018	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00091	0.00022	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00091	0.00015	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00091	0.00012	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00091	0.00014	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0045	0.00049	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00091	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00091	0.00015	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00091	0.00014	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00091	0.00040	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00091	0.00014	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0018	0.00028	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0018	0.00018	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0018	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00091	0.00013	mg/kg	
76-13-1	Freon 113	ND	0.0045	0.00044	mg/kg	
591-78-6	2-Hexanone	ND	0.0045	0.0013	mg/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0018	0.00014	mg/kg	
79-20-9	Methyl Acetate	ND	0.0045	0.0018	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0018	0.00046	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00091	0.00024	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0045	0.00077	mg/kg	
75-09-2	Methylene chloride	0.0019	0.0045	0.00091	mg/kg	J
100-42-5	Styrene	ND	0.0018	0.00013	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.023	0.0028	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0018	0.00022	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0018	0.00025	mg/kg	
108-88-3	Toluene	ND	0.00091	0.00011	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0045	0.00020	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0045	0.00016	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0018	0.00015	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0018	0.00029	mg/kg	
79-01-6	Trichloroethene	ND	0.00091	0.00017	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0045	0.00057	mg/kg	
75-01-4	Vinyl chloride	ND	0.0018	0.00018	mg/kg	
	m,p-Xylene	ND	0.00091	0.00020	mg/kg	
95-47-6	o-Xylene	ND	0.00091	0.00018	mg/kg	
1330-20-7	Xylene (total)	ND	0.00091	0.00018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-122%
17060-07-0	1,2-Dichloroethane-D4	114%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	109%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108709.D	1	11/06/16	KLS	11/05/16	OP98325	EP4822
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.071	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.023	mg/kg	
	3&4-Methylphenol	ND	0.071	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.095	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.071	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	ND	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	ND	0.035	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.071	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0775	0.035	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.0911	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.122	0.035	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0732	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0464	0.035	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.071	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.071	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.071	0.0049	mg/kg	
100-52-7	Benzaldehyde	ND	0.18	0.0088	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.071	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	ND	0.071	0.0051	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.071	0.014	mg/kg	
218-01-9	Chrysene	0.0944	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.071	0.0076	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.071	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.071	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.071	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.071	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0170	0.035	0.016	mg/kg	J
132-64-9	Dibenzofuran	ND	0.071	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0058	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.071	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.071	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.071	0.0083	mg/kg	
206-44-0	Fluoranthene	0.171	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.071	0.0090	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0724	0.035	0.017	mg/kg	
78-59-1	Isophorone	ND	0.071	0.0076	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.071	0.0080	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0084	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0089	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0092	mg/kg	
91-20-3	Naphthalene	ND	0.035	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.071	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.071	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.0785	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.151	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0090	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	75%		30-106%
118-79-6	2,4,6-Tribromophenol	109%		24-140%
4165-60-0	Nitrobenzene-d5	74%		26-122%
321-60-8	2-Fluorobiphenyl	86%		36-112%
1718-51-0	Terphenyl-d14	85%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40988.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00072	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00072	0.00039	mg/kg	
319-85-7	beta-BHC	ND	0.00072	0.00045	mg/kg	
319-86-8	delta-BHC	ND	0.00072	0.00033	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00072	0.00032	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0012	0.00072	0.00034	mg/kg	
5103-74-2	gamma-Chlordane [a]	0.00099	0.00072	0.00032	mg/kg	
60-57-1	Dieldrin	ND	0.00072	0.00036	mg/kg	
72-54-8	4,4'-DDD	ND	0.00072	0.00046	mg/kg	
72-55-9	4,4'-DDE	ND	0.00072	0.00038	mg/kg	
50-29-3	4,4'-DDT	ND	0.00072	0.00043	mg/kg	
72-20-8	Endrin	ND	0.00072	0.00034	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00072	0.00029	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00072	0.00043	mg/kg	
959-98-8	Endosulfan-I	ND	0.00072	0.00038	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00072	0.00038	mg/kg	
76-44-8	Heptachlor	ND	0.00072	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00072	0.00039	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00036	mg/kg	
53494-70-5	Endrin ketone	ND	0.00072	0.00055	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0075	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		24-136%
877-09-8	Tetrachloro-m-xylene	87%		24-136%
2051-24-3	Decachlorobiphenyl	83%		10-153%
2051-24-3	Decachlorobiphenyl	88%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138739.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.036	0.018	mg/kg	
11104-28-2	Aroclor 1221	ND	0.036	0.018	mg/kg	
11141-16-5	Aroclor 1232	ND	0.036	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.036	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.036	0.023	mg/kg	
11097-69-1	Aroclor 1254	ND	0.036	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.036	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.036	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.036	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%		20-152%
877-09-8	Tetrachloro-m-xylene	114%		20-152%
2051-24-3	Decachlorobiphenyl	85%		12-157%
2051-24-3	Decachlorobiphenyl	95%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	92.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4050	53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Arsenic	2.4	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Barium	< 21	21	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Beryllium	0.21	0.21	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Calcium	1660	530	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Chromium	9.0	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.3	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Copper	8.5	2.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Iron	7500	53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Lead	8.0	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Magnesium	904	530	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Manganese	112	1.6	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.035	0.035	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [4]
Nickel	7.3	4.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.53	0.53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Vanadium	9.7	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Zinc	23.2	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Prep QC Batch: MP97012
(4) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	92.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.22	0.22	mg/kg	1	11/07/16 10:47	YZ	SW846 9012B/LACHAT
Solids, Percent	92		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2B146018.D	5	11/22/16	EH	11/18/16	GP1455	V2B6476
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		76-120%
17060-07-0	1,2-Dichloroethane-D4	96%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	98%		72-122%

(a) Sample prepared outside the holding time.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31645.D	1	11/08/16	SB	11/07/16	OP98334	E6P1470
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	48%		14-88%
4165-62-2	Phenol-d5	31%		10-110%
118-79-6	2,4,6-Tribromophenol	109%		39-149%
4165-60-0	Nitrobenzene-d5	95%		32-128%
321-60-8	2-Fluorobiphenyl	81%		35-119%
1718-51-0	Terphenyl-d14	99%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104124.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	96%		50-142%
19719-28-9	2,4-DCAA	95%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74687.D	1	11/09/16	KD	11/07/16	OP98341	G4G1946
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%		30-137%
877-09-8	Tetrachloro-m-xylene	99%		30-137%
2051-24-3	Decachlorobiphenyl	97%		10-137%
2051-24-3	Decachlorobiphenyl	93%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	92.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB08-161101		
Lab Sample ID:	JC30944-1A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	92.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.32 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 12:43	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167672.D	1	11/08/16	PS	11/03/16 08:00	n/a	VY7286
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0069	0.013	0.0063	mg/kg	J
71-43-2	Benzene	ND	0.00063	0.00015	mg/kg	
74-97-5	Bromochloromethane	ND	0.0063	0.00040	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0025	0.00019	mg/kg	
75-25-2	Bromoform	ND	0.0063	0.00033	mg/kg	
74-83-9	Bromomethane	ND	0.0063	0.00061	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.013	0.0022	mg/kg	
75-15-0	Carbon disulfide	ND	0.0025	0.00021	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0025	0.00021	mg/kg	
108-90-7	Chlorobenzene	ND	0.0025	0.00020	mg/kg	
75-00-3	Chloroethane	ND	0.0063	0.00054	mg/kg	
67-66-3	Chloroform	ND	0.0025	0.00030	mg/kg	
74-87-3	Chloromethane	ND	0.0063	0.00026	mg/kg	
110-82-7	Cyclohexane	ND	0.0025	0.00068	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0025	0.00061	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0025	0.00019	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0013	0.00030	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0013	0.00021	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0013	0.00017	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0013	0.00019	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0063	0.00068	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0013	0.00023	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0013	0.00021	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0013	0.00019	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0013	0.00055	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0013	0.00020	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0025	0.00039	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0025	0.00025	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0025	0.00028	mg/kg	
100-41-4	Ethylbenzene	ND	0.0013	0.00019	mg/kg	
76-13-1	Freon 113	ND	0.0063	0.00061	mg/kg	
591-78-6	2-Hexanone	ND	0.0063	0.0017	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0025	0.00019	mg/kg	
79-20-9	Methyl Acetate	ND	0.0063	0.0025	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0025	0.00063	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0013	0.00033	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0063	0.0011	mg/kg	
75-09-2	Methylene chloride	0.0021	0.0063	0.0013	mg/kg	J
100-42-5	Styrene	ND	0.0025	0.00018	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.031	0.0038	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0025	0.00030	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0025	0.00035	mg/kg	
108-88-3	Toluene	ND	0.0013	0.00016	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0063	0.00028	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0063	0.00023	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0025	0.00021	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0025	0.00040	mg/kg	
79-01-6	Trichloroethene	ND	0.0013	0.00024	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0063	0.00079	mg/kg	
75-01-4	Vinyl chloride	ND	0.0025	0.00025	mg/kg	
	m,p-Xylene	ND	0.0013	0.00027	mg/kg	
95-47-6	o-Xylene	ND	0.0013	0.00025	mg/kg	
1330-20-7	Xylene (total)	ND	0.0013	0.00025	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-122%
17060-07-0	1,2-Dichloroethane-D4	112%		68-124%
2037-26-5	Toluene-D8	102%		77-125%
460-00-4	4-Bromofluorobenzene	109%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108710.D	1	11/06/16	KLS	11/05/16	OP98325	EP4822
Run #2							

	Initial Weight	Final Volume
Run #1	31.5 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.078	0.019	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.19	0.024	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.19	0.033	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.19	0.069	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.19	0.15	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.19	0.042	mg/kg	
95-48-7	2-Methylphenol	ND	0.078	0.025	mg/kg	
	3&4-Methylphenol	ND	0.078	0.032	mg/kg	
88-75-5	2-Nitrophenol	ND	0.19	0.026	mg/kg	
100-02-7	4-Nitrophenol	ND	0.39	0.10	mg/kg	
87-86-5	Pentachlorophenol	ND	0.16	0.037	mg/kg	
108-95-2	Phenol	ND	0.078	0.020	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.19	0.026	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.19	0.029	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.19	0.023	mg/kg	
83-32-9	Acenaphthene	ND	0.039	0.013	mg/kg	
208-96-8	Acenaphthylene	ND	0.039	0.020	mg/kg	
98-86-2	Acetophenone	ND	0.19	0.0084	mg/kg	
120-12-7	Anthracene	ND	0.039	0.024	mg/kg	
1912-24-9	Atrazine	ND	0.078	0.017	mg/kg	
56-55-3	Benzo(a)anthracene	0.0179	0.039	0.011	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0213	0.039	0.018	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0322	0.039	0.017	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	0.0223	0.039	0.019	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.039	0.018	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.078	0.015	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.078	0.0095	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.078	0.0053	mg/kg	
100-52-7	Benzaldehyde	ND	0.19	0.0096	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.078	0.0093	mg/kg	
106-47-8	4-Chloroaniline	ND	0.19	0.014	mg/kg	
86-74-8	Carbazole	ND	0.078	0.0056	mg/kg	

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.078	0.015	mg/kg	
218-01-9	Chrysene	0.0223	0.039	0.012	mg/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	0.078	0.0083	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.078	0.017	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.078	0.014	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.078	0.013	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.039	0.012	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.039	0.020	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.078	0.032	mg/kg	
123-91-1	1,4-Dioxane	ND	0.039	0.026	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.039	0.017	mg/kg	
132-64-9	Dibenzofuran	ND	0.078	0.016	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.078	0.0063	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.078	0.0097	mg/kg	
84-66-2	Diethyl phthalate	ND	0.078	0.0083	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.078	0.0069	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.078	0.0091	mg/kg	
206-44-0	Fluoranthene	0.0247	0.039	0.017	mg/kg	J
86-73-7	Fluorene	ND	0.039	0.018	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.078	0.0098	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.039	0.016	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.39	0.015	mg/kg	
67-72-1	Hexachloroethane	ND	0.19	0.019	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0204	0.039	0.018	mg/kg	J
78-59-1	Isophorone	ND	0.078	0.0083	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.078	0.0088	mg/kg	
88-74-4	2-Nitroaniline	ND	0.19	0.0092	mg/kg	
99-09-2	3-Nitroaniline	ND	0.19	0.0097	mg/kg	
100-01-6	4-Nitroaniline	ND	0.19	0.010	mg/kg	
91-20-3	Naphthalene	ND	0.039	0.011	mg/kg	
98-95-3	Nitrobenzene	ND	0.078	0.015	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.078	0.011	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.19	0.014	mg/kg	
85-01-8	Phenanthrene	ND	0.039	0.013	mg/kg	
129-00-0	Pyrene	0.0268	0.039	0.012	mg/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.19	0.0099	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	77%		30-106%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	80%		30-106%
118-79-6	2,4,6-Tribromophenol	114%		24-140%
4165-60-0	Nitrobenzene-d5	77%		26-122%
321-60-8	2-Fluorobiphenyl	94%		36-112%
1718-51-0	Terphenyl-d14	91%		36-132%

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40989.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00081	0.00039	mg/kg	
319-84-6	alpha-BHC	ND	0.00081	0.00043	mg/kg	
319-85-7	beta-BHC	ND	0.00081	0.00051	mg/kg	
319-86-8	delta-BHC	ND	0.00081	0.00036	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00081	0.00036	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00081	0.00038	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00081	0.00036	mg/kg	
60-57-1	Dieldrin	ND	0.00081	0.00040	mg/kg	
72-54-8	4,4'-DDD	ND	0.00081	0.00052	mg/kg	
72-55-9	4,4'-DDE	ND	0.00081	0.00042	mg/kg	
50-29-3	4,4'-DDT	ND	0.00081	0.00048	mg/kg	
72-20-8	Endrin	ND	0.00081	0.00038	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00081	0.00032	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00081	0.00048	mg/kg	
959-98-8	Endosulfan-I	ND	0.00081	0.00042	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00081	0.00042	mg/kg	
76-44-8	Heptachlor	ND	0.00081	0.00040	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00081	0.00043	mg/kg	
72-43-5	Methoxychlor	ND	0.0016	0.00040	mg/kg	
53494-70-5	Endrin ketone	ND	0.00081	0.00062	mg/kg	
8001-35-2	Toxaphene	ND	0.020	0.0084	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		24-136%
877-09-8	Tetrachloro-m-xylene	92%		24-136%
2051-24-3	Decachlorobiphenyl	91%		10-153%
2051-24-3	Decachlorobiphenyl	89%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138755.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.040	0.020	mg/kg	
11104-28-2	Aroclor 1221	ND	0.040	0.020	mg/kg	
11141-16-5	Aroclor 1232	ND	0.040	0.016	mg/kg	
53469-21-9	Aroclor 1242	ND	0.040	0.014	mg/kg	
12672-29-6	Aroclor 1248	ND	0.040	0.025	mg/kg	
11097-69-1	Aroclor 1254	ND	0.040	0.020	mg/kg	
11096-82-5	Aroclor 1260	ND	0.040	0.017	mg/kg	
11100-14-4	Aroclor 1268	ND	0.040	0.014	mg/kg	
37324-23-5	Aroclor 1262	ND	0.040	0.027	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	106%		20-152%
877-09-8	Tetrachloro-m-xylene	116%		20-152%
2051-24-3	Decachlorobiphenyl	85%		12-157%
2051-24-3	Decachlorobiphenyl	99%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	81.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1410	61	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.5	2.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Arsenic	< 2.5	2.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Barium	< 25	25	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.25	0.25	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.61	0.61	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Calcium	< 610	610	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Chromium	4.8	1.2	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 6.1	6.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Copper	6.3	3.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Iron	4960	61	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Lead	4.4	2.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Magnesium	< 610	610	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Manganese	81.2	1.8	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.038	0.038	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [4]
Nickel	5.0	4.9	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1200	1200	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.5	2.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.61	0.61	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1200	1200	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.2	1.2	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Vanadium	< 6.1	6.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Zinc	8.9	6.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Prep QC Batch: MP97012
(4) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	81.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	11/07/16 10:48	YZ	SW846 9012B/LACHAT
Solids, Percent	81.6		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131950.D	5	11/05/16	HA	11/03/16	GP1206	V3B5877
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		76-120%
17060-07-0	1,2-Dichloroethane-D4	115%		64-135%
2037-26-5	Toluene-D8	96%		76-117%
460-00-4	4-Bromofluorobenzene	92%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31706.D	1	11/08/16	SB	11/07/16	OP98334	E6P1472
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	53%		14-88%
4165-62-2	Phenol-d5	32%		10-110%
118-79-6	2,4,6-Tribromophenol	94%		39-149%
4165-60-0	Nitrobenzene-d5	78%		32-128%
321-60-8	2-Fluorobiphenyl	84%		35-119%
1718-51-0	Terphenyl-d14	116%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104125.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	107%		50-142%
19719-28-9	2,4-DCAA	102%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	81.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74826.D	1	11/14/16	KD	11/07/16	OP98341	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	108%		30-137%
877-09-8	Tetrachloro-m-xylene	102%		30-137%
2051-24-3	Decachlorobiphenyl	97%		10-137%
2051-24-3	Decachlorobiphenyl	94%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	81.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB10-161101		
Lab Sample ID:	JC30944-2A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	81.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.78 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 12	12	mg/kg	1	11/08/16 12:45	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 120	120	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167673.D	1	11/08/16	PS	11/03/16 08:00	n/a	VY7286
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.014	0.0069	mg/kg	
71-43-2	Benzene	ND	0.00069	0.00017	mg/kg	
74-97-5	Bromochloromethane	ND	0.0069	0.00044	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0028	0.00021	mg/kg	
75-25-2	Bromoform	ND	0.0069	0.00037	mg/kg	
74-83-9	Bromomethane	ND	0.0069	0.00067	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.014	0.0024	mg/kg	
75-15-0	Carbon disulfide	ND	0.0028	0.00024	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0028	0.00023	mg/kg	
108-90-7	Chlorobenzene	ND	0.0028	0.00022	mg/kg	
75-00-3	Chloroethane	ND	0.0069	0.00059	mg/kg	
67-66-3	Chloroform	ND	0.0028	0.00033	mg/kg	
74-87-3	Chloromethane	ND	0.0069	0.00029	mg/kg	
110-82-7	Cyclohexane	ND	0.0028	0.00076	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0028	0.00067	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0028	0.00021	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0014	0.00034	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0014	0.00024	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0014	0.00019	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0014	0.00021	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0069	0.00075	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0014	0.00026	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0014	0.00024	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0014	0.00021	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0014	0.00061	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0014	0.00022	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0028	0.00043	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0028	0.00027	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0028	0.00031	mg/kg	
100-41-4	Ethylbenzene	ND	0.0014	0.00021	mg/kg	
76-13-1	Freon 113	ND	0.0069	0.00067	mg/kg	
591-78-6	2-Hexanone	ND	0.0069	0.0019	mg/kg	

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0028	0.00021	mg/kg	
79-20-9	Methyl Acetate	ND	0.0069	0.0028	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0028	0.00070	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0014	0.00037	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0069	0.0012	mg/kg	
75-09-2	Methylene chloride	0.0037	0.0069	0.0014	mg/kg	J
100-42-5	Styrene	ND	0.0028	0.00020	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.035	0.0042	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0028	0.00033	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0028	0.00039	mg/kg	
108-88-3	Toluene	ND	0.0014	0.00017	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0069	0.00031	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0069	0.00025	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0028	0.00023	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0028	0.00045	mg/kg	
79-01-6	Trichloroethene	ND	0.0014	0.00026	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0069	0.00087	mg/kg	
75-01-4	Vinyl chloride	ND	0.0028	0.00028	mg/kg	
	m,p-Xylene	0.00031	0.0014	0.00030	mg/kg	J
95-47-6	o-Xylene	ND	0.0014	0.00028	mg/kg	
1330-20-7	Xylene (total)	0.00031	0.0014	0.00028	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	102%		77-125%
460-00-4	4-Bromofluorobenzene	107%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108711.D	1	11/06/16	KLS	11/05/16	OP98325	EP4822
Run #2							

	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.088	0.022	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.22	0.027	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.22	0.037	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.22	0.078	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.22	0.16	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.22	0.047	mg/kg	
95-48-7	2-Methylphenol	ND	0.088	0.028	mg/kg	
	3&4-Methylphenol	ND	0.088	0.036	mg/kg	
88-75-5	2-Nitrophenol	ND	0.22	0.029	mg/kg	
100-02-7	4-Nitrophenol	ND	0.44	0.12	mg/kg	
87-86-5	Pentachlorophenol	ND	0.18	0.041	mg/kg	
108-95-2	Phenol	ND	0.088	0.023	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.22	0.029	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.22	0.033	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.22	0.026	mg/kg	
83-32-9	Acenaphthene	ND	0.044	0.015	mg/kg	
208-96-8	Acenaphthylene	0.0798	0.044	0.022	mg/kg	
98-86-2	Acetophenone	ND	0.22	0.0094	mg/kg	
120-12-7	Anthracene	0.128	0.044	0.027	mg/kg	
1912-24-9	Atrazine	ND	0.088	0.019	mg/kg	
56-55-3	Benzo(a)anthracene	0.215	0.044	0.012	mg/kg	
50-32-8	Benzo(a)pyrene	0.230	0.044	0.020	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.546	0.044	0.019	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.172	0.044	0.022	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.192	0.044	0.020	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.088	0.017	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.088	0.011	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.088	0.0060	mg/kg	
100-52-7	Benzaldehyde	0.0366	0.22	0.011	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.088	0.010	mg/kg	
106-47-8	4-Chloroaniline	ND	0.22	0.016	mg/kg	
86-74-8	Carbazole	0.0544	0.088	0.0063	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.088	0.017	mg/kg	
218-01-9	Chrysene	0.376	0.044	0.014	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.088	0.0094	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.088	0.019	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.088	0.016	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.088	0.014	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.044	0.014	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.044	0.022	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.088	0.037	mg/kg	
123-91-1	1,4-Dioxane	ND	0.044	0.029	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0525	0.044	0.019	mg/kg	
132-64-9	Dibenzofuran	0.0299	0.088	0.018	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.088	0.0071	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.088	0.011	mg/kg	
84-66-2	Diethyl phthalate	ND	0.088	0.0093	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.088	0.0078	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.088	0.010	mg/kg	
206-44-0	Fluoranthene	0.360	0.044	0.020	mg/kg	
86-73-7	Fluorene	ND	0.044	0.020	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.088	0.011	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.044	0.018	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.44	0.017	mg/kg	
67-72-1	Hexachloroethane	ND	0.22	0.022	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.208	0.044	0.021	mg/kg	
78-59-1	Isophorone	ND	0.088	0.0094	mg/kg	
91-57-6	2-Methylnaphthalene	0.0531	0.088	0.0099	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.22	0.010	mg/kg	
99-09-2	3-Nitroaniline	ND	0.22	0.011	mg/kg	
100-01-6	4-Nitroaniline	ND	0.22	0.011	mg/kg	
91-20-3	Naphthalene	0.0381	0.044	0.012	mg/kg	J
98-95-3	Nitrobenzene	ND	0.088	0.017	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.088	0.013	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.22	0.016	mg/kg	
85-01-8	Phenanthrene	0.166	0.044	0.015	mg/kg	
129-00-0	Pyrene	0.334	0.044	0.014	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.22	0.011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		30-106%
118-79-6	2,4,6-Tribromophenol	119%		24-140%
4165-60-0	Nitrobenzene-d5	75%		26-122%
321-60-8	2-Fluorobiphenyl	90%		36-112%
1718-51-0	Terphenyl-d14	95%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40992.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00089	0.00043	mg/kg	
319-84-6	alpha-BHC	ND	0.00089	0.00048	mg/kg	
319-85-7	beta-BHC	ND	0.00089	0.00056	mg/kg	
319-86-8	delta-BHC	ND	0.00089	0.00040	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00089	0.00039	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00089	0.00042	mg/kg	
5103-74-2	gamma-Chlordane	0.0011	0.00089	0.00039	mg/kg	
60-57-1	Dieldrin	ND	0.00089	0.00045	mg/kg	
72-54-8	4,4'-DDD	ND	0.00089	0.00057	mg/kg	
72-55-9	4,4'-DDE	0.0047	0.00089	0.00047	mg/kg	
50-29-3	4,4'-DDT	0.0082	0.00089	0.00053	mg/kg	
72-20-8	Endrin	ND	0.00089	0.00042	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00089	0.00036	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00089	0.00053	mg/kg	
959-98-8	Endosulfan-I	ND	0.00089	0.00047	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00089	0.00047	mg/kg	
76-44-8	Heptachlor	ND	0.00089	0.00044	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00089	0.00048	mg/kg	
72-43-5	Methoxychlor	ND	0.0018	0.00045	mg/kg	
53494-70-5	Endrin ketone	ND	0.00089	0.00069	mg/kg	
8001-35-2	Toxaphene	ND	0.022	0.0093	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		24-136%
877-09-8	Tetrachloro-m-xylene	83%		24-136%
2051-24-3	Decachlorobiphenyl	76%		10-153%
2051-24-3	Decachlorobiphenyl	124%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138756.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.045	0.022	mg/kg	
11104-28-2	Aroclor 1221	ND	0.045	0.022	mg/kg	
11141-16-5	Aroclor 1232	ND	0.045	0.018	mg/kg	
53469-21-9	Aroclor 1242	ND	0.045	0.016	mg/kg	
12672-29-6	Aroclor 1248	ND	0.045	0.028	mg/kg	
11097-69-1	Aroclor 1254	ND	0.045	0.022	mg/kg	
11096-82-5	Aroclor 1260	ND	0.045	0.019	mg/kg	
11100-14-4	Aroclor 1268	ND	0.045	0.016	mg/kg	
37324-23-5	Aroclor 1262	ND	0.045	0.030	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		20-152%
877-09-8	Tetrachloro-m-xylene	94%		20-152%
2051-24-3	Decachlorobiphenyl	97%		12-157%
2051-24-3	Decachlorobiphenyl	98%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	73.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1910	68	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.7	2.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Arsenic	< 2.7	2.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Barium	< 27	27	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.27	0.27	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.68	0.68	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Calcium	< 680	680	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Chromium	5.4	1.4	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 6.8	6.8	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Copper	13.4	3.4	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Iron	5440	68	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Lead	17.7	2.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Magnesium	< 680	680	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Manganese	90.0	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Mercury	0.047	0.034	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [4]
Nickel	< 5.4	5.4	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1400	1400	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.7	2.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.68	0.68	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1400	1400	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.4	1.4	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Vanadium	< 6.8	6.8	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Zinc	27.2	6.8	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Prep QC Batch: MP97012
(4) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	73.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.29	0.29	mg/kg	1	11/07/16 10:49	YZ	SW846 9012B/LACHAT
Solids, Percent	73.7		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131951.D	5	11/05/16	HA	11/03/16	GP1206	V3B5877
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		76-120%
17060-07-0	1,2-Dichloroethane-D4	114%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	90%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31707.D	1	11/08/16	SB	11/07/16	OP98334	E6P1472
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		14-88%
4165-62-2	Phenol-d5	31%		10-110%
118-79-6	2,4,6-Tribromophenol	85%		39-149%
4165-60-0	Nitrobenzene-d5	72%		32-128%
321-60-8	2-Fluorobiphenyl	77%		35-119%
1718-51-0	Terphenyl-d14	113%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104126.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	94%		50-142%
19719-28-9	2,4-DCAA	88%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	73.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74827.D	1	11/14/16	KD	11/07/16	OP98341	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	116%		30-137%
877-09-8	Tetrachloro-m-xylene	110%		30-137%
2051-24-3	Decachlorobiphenyl	102%		10-137%
2051-24-3	Decachlorobiphenyl	97%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	73.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB11-161101		
Lab Sample ID:	JC30944-3A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	73.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	5.73 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 14	14	mg/kg	1	11/08/16 12:46	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 140	140	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167684.D	1	11/08/16	PS	11/03/16 08:00	n/a	VY7286
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0052	mg/kg	
71-43-2	Benzene	ND	0.00052	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0052	0.00033	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0052	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0052	0.00051	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0052	0.00045	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0052	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00057	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0021	0.00051	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00025	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0052	0.00057	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00020	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00046	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00017	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00032	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00021	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0052	0.00051	mg/kg	
591-78-6	2-Hexanone	ND	0.0052	0.0015	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0052	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00053	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00028	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0052	0.00089	mg/kg	
75-09-2	Methylene chloride	0.0024	0.0052	0.0010	mg/kg	J
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.026	0.0032	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00029	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0052	0.00024	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0052	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00034	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0052	0.00066	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0010	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-122%
17060-07-0	1,2-Dichloroethane-D4	109%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	109%		72-130%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108723.D	1	11/07/16	RL	11/05/16	OP98325	EP4824
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.068	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.022	mg/kg	
	3&4-Methylphenol	ND	0.068	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.091	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.068	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	ND	0.034	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0074	mg/kg	
120-12-7	Anthracene	0.0376	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.068	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0775	0.034	0.0097	mg/kg	
50-32-8	Benzo(a)pyrene	0.102	0.034	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.118	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0732	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0433	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.068	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.068	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.068	0.0047	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0085	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.068	0.0081	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	ND	0.068	0.0050	mg/kg	

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Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.068	0.014	mg/kg	
218-01-9	Chrysene	0.0911	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.068	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.068	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.068	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.068	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.068	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0204	0.034	0.015	mg/kg	J
132-64-9	Dibenzofuran	ND	0.068	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.068	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.068	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0359	0.068	0.0080	mg/kg	J
206-44-0	Fluoranthene	0.126	0.034	0.015	mg/kg	
86-73-7	Fluorene	ND	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.068	0.0087	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0671	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.068	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.068	0.0077	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0081	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0086	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0089	mg/kg	
91-20-3	Naphthalene	ND	0.034	0.0096	mg/kg	
98-95-3	Nitrobenzene	ND	0.068	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.068	0.0099	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.102	0.034	0.011	mg/kg	
129-00-0	Pyrene	0.129	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0087	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	85%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	88%		30-106%
118-79-6	2,4,6-Tribromophenol	121%		24-140%
4165-60-0	Nitrobenzene-d5	88%		26-122%
321-60-8	2-Fluorobiphenyl	98%		36-112%
1718-51-0	Terphenyl-d14	98%		36-132%

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40993.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00066	0.00032	mg/kg	
319-84-6	alpha-BHC	ND	0.00066	0.00036	mg/kg	
319-85-7	beta-BHC	ND	0.00066	0.00042	mg/kg	
319-86-8	delta-BHC	ND	0.00066	0.00030	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00066	0.00029	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00066	0.00031	mg/kg	
5103-74-2	gamma-Chlordane	0.00029	0.00066	0.00029	mg/kg	J
60-57-1	Dieldrin	ND	0.00066	0.00033	mg/kg	
72-54-8	4,4'-DDD	ND	0.00066	0.00042	mg/kg	
72-55-9	4,4'-DDE	ND	0.00066	0.00035	mg/kg	
50-29-3	4,4'-DDT	ND	0.00066	0.00039	mg/kg	
72-20-8	Endrin	ND	0.00066	0.00031	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00066	0.00027	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00066	0.00039	mg/kg	
959-98-8	Endosulfan-I	ND	0.00066	0.00035	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00066	0.00035	mg/kg	
76-44-8	Heptachlor	ND	0.00066	0.00032	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00066	0.00036	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00033	mg/kg	
53494-70-5	Endrin ketone	ND	0.00066	0.00051	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0069	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		24-136%
877-09-8	Tetrachloro-m-xylene	89%		24-136%
2051-24-3	Decachlorobiphenyl	67%		10-153%
2051-24-3	Decachlorobiphenyl	80%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138757.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.033	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.033	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.033	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.033	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.033	0.021	mg/kg	
11097-69-1	Aroclor 1254	ND	0.033	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.033	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.033	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.033	0.022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	97%		20-152%
877-09-8	Tetrachloro-m-xylene	107%		20-152%
2051-24-3	Decachlorobiphenyl	68%		12-157%
2051-24-3	Decachlorobiphenyl	79%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.5
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1890	50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.0	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Arsenic	3.0	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Barium	< 20	20	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.20	0.20	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.50	0.50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Calcium	3110	500	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Chromium	9.3	1.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.0	5.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Copper	10.4	2.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Iron	6400	50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Lead	13.8	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Magnesium	1470	500	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Manganese	143	1.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.034	0.034	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [4]
Nickel	8.0	4.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.0	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.50	0.50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Vanadium	8.5	5.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Zinc	31.7	5.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Prep QC Batch: MP97012
(4) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.5
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.22	0.22	mg/kg	1	11/07/16 10:50	YZ	SW846 9012B/LACHAT
Solids, Percent	95.5		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131952.D	5	11/05/16	HA	11/03/16	GP1206	V3B5877
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		76-120%
17060-07-0	1,2-Dichloroethane-D4	116%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	94%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31708.D	1	11/08/16	SB	11/07/16	OP98334	E6P1472
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%		14-88%
4165-62-2	Phenol-d5	30%		10-110%
118-79-6	2,4,6-Tribromophenol	82%		39-149%
4165-60-0	Nitrobenzene-d5	73%		32-128%
321-60-8	2-Fluorobiphenyl	73%		35-119%
1718-51-0	Terphenyl-d14	105%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104127.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	88%		50-142%
19719-28-9	2,4-DCAA	91%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74828.D	1	11/14/16	KD	11/07/16	OP98341	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	112%		30-137%
877-09-8	Tetrachloro-m-xylene	108%		30-137%
2051-24-3	Decachlorobiphenyl	100%		10-137%
2051-24-3	Decachlorobiphenyl	95%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.5
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB09-161101		
Lab Sample ID:	JC30944-4A	**Date Sampled:**	11/01/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.5
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	8.81 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/08/16 12:47	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167685.D	1	11/08/16	PS	11/03/16 08:00	n/a	VY7286
Run #2							

	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0099	0.0050	mg/kg	
71-43-2	Benzene	ND	0.00050	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0050	0.00032	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0020	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0050	0.00026	mg/kg	
74-83-9	Bromomethane	ND	0.0050	0.00048	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0099	0.0017	mg/kg	
75-15-0	Carbon disulfide	ND	0.0020	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0020	0.00016	mg/kg	
108-90-7	Chlorobenzene	ND	0.0020	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0050	0.00043	mg/kg	
67-66-3	Chloroform	ND	0.0020	0.00024	mg/kg	
74-87-3	Chloromethane	ND	0.0050	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00054	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0020	0.00048	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0020	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00099	0.00024	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00099	0.00017	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00099	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00099	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0050	0.00054	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00099	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00099	0.00017	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00099	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00099	0.00043	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00099	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0020	0.00031	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0020	0.00019	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0020	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.00099	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0050	0.00048	mg/kg	
591-78-6	2-Hexanone	ND	0.0050	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0020	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0050	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0020	0.00050	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00099	0.00026	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0050	0.00084	mg/kg	
75-09-2	Methylene chloride	0.0013	0.0050	0.00099	mg/kg	J
100-42-5	Styrene	ND	0.0020	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.025	0.0030	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0020	0.00024	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0020	0.00028	mg/kg	
108-88-3	Toluene	ND	0.00099	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0050	0.00022	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0050	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0020	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0020	0.00032	mg/kg	
79-01-6	Trichloroethene	ND	0.00099	0.00019	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0050	0.00062	mg/kg	
75-01-4	Vinyl chloride	ND	0.0020	0.00020	mg/kg	
	m,p-Xylene	ND	0.00099	0.00022	mg/kg	
95-47-6	o-Xylene	ND	0.00099	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.00099	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-122%
17060-07-0	1,2-Dichloroethane-D4	108%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	109%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108833.D	1	11/09/16	RL	11/07/16	OP98364	EP4828
Run #2							

	Initial Weight	Final Volume
Run #1	32.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.068	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	0.0462	0.068	0.022	mg/kg	J
	3&4-Methylphenol	0.101	0.068	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.091	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	0.151	0.068	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	0.0218	0.034	0.012	mg/kg	J
208-96-8	Acenaphthylene	0.166	0.034	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0073	mg/kg	
120-12-7	Anthracene	0.112	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.068	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.112	0.034	0.0096	mg/kg	
50-32-8	Benzo(a)pyrene	0.0732	0.034	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.230	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0602	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0649	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.068	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.068	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	0.108	0.068	0.0047	mg/kg	
100-52-7	Benzaldehyde	0.135	0.17	0.0085	mg/kg	J
91-58-7	2-Chloronaphthalene	0.0986	0.068	0.0081	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0315	0.068	0.0049	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.068	0.013	mg/kg	
218-01-9	Chrysene	0.322	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.068	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.068	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.068	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.068	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.068	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0342	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	0.138	0.068	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.068	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.068	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.068	0.0080	mg/kg	
206-44-0	Fluoranthene	0.332	0.034	0.015	mg/kg	
86-73-7	Fluorene	0.0541	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.068	0.0086	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0522	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.068	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	0.382	0.068	0.0077	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0080	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0085	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0088	mg/kg	
91-20-3	Naphthalene	0.726	0.034	0.0096	mg/kg	
98-95-3	Nitrobenzene	ND	0.068	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.068	0.0098	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.611	0.034	0.011	mg/kg	
129-00-0	Pyrene	0.298	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0087	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	70%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%		30-106%
118-79-6	2,4,6-Tribromophenol	92%		24-140%
4165-60-0	Nitrobenzene-d5	67%		26-122%
321-60-8	2-Fluorobiphenyl	83%		36-112%
1718-51-0	Terphenyl-d14	79%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40994.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00071	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00071	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00071	0.00045	mg/kg	
319-86-8	delta-BHC	ND	0.00071	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00071	0.00032	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00071	0.00034	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00071	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00071	0.00036	mg/kg	
72-54-8	4,4'-DDD	0.0109	0.00071	0.00046	mg/kg	
72-55-9	4,4'-DDE	0.0486	0.00071	0.00037	mg/kg	
50-29-3	4,4'-DDT	0.0281	0.00071	0.00042	mg/kg	
72-20-8	Endrin	ND	0.00071	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00071	0.00029	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00071	0.00042	mg/kg	
959-98-8	Endosulfan-I	ND	0.00071	0.00037	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00071	0.00037	mg/kg	
76-44-8	Heptachlor	ND	0.00071	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00071	0.00038	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00036	mg/kg	
53494-70-5	Endrin ketone	ND	0.00071	0.00055	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0074	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		24-136%
877-09-8	Tetrachloro-m-xylene	48%		24-136%
2051-24-3	Decachlorobiphenyl	56%		10-153%
2051-24-3	Decachlorobiphenyl	69%		10-153%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138758.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.036	0.018	mg/kg	
11104-28-2	Aroclor 1221	ND	0.036	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.036	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.036	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.036	0.023	mg/kg	
11097-69-1	Aroclor 1254	ND	0.036	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.036	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.036	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.036	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	52%		20-152%
877-09-8	Tetrachloro-m-xylene	51%		20-152%
2051-24-3	Decachlorobiphenyl	68%		12-157%
2051-24-3	Decachlorobiphenyl	53%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4850	55	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [3]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Arsenic	23.8	2.2	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Barium	56.3	22	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.26	0.22	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Calcium	< 550	550	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Chromium	9.9	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Copper	32.9	2.8	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Iron	12800	55	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [3]	SW846 3050B [4]
Lead	56.1	2.2	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Magnesium	578	550	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Manganese	101	1.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.044	0.035	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [5]
Nickel	9.9	4.4	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.55	0.55	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Vanadium	13.5	5.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Zinc	37.2	5.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Instrument QC Batch: MA40736
(4) Prep QC Batch: MP97012
(5) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.22	0.22	mg/kg	1	11/07/16 10:51	YZ	SW846 9012B/LACHAT
Solids, Percent	91.7		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131953.D	5	11/05/16	HA	11/03/16	GP1206	V3B5877
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		76-120%
17060-07-0	1,2-Dichloroethane-D4	115%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	92%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31709.D	1	11/08/16	SB	11/07/16	OP98334	E6P1472
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%		14-88%
4165-62-2	Phenol-d5	32%		10-110%
118-79-6	2,4,6-Tribromophenol	87%		39-149%
4165-60-0	Nitrobenzene-d5	76%		32-128%
321-60-8	2-Fluorobiphenyl	76%		35-119%
1718-51-0	Terphenyl-d14	117%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104105.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	95%		50-142%
19719-28-9	2,4-DCAA	96%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	91.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74852.D	1	11/14/16	KD	11/07/16	OP98341	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	122%		30-137%
877-09-8	Tetrachloro-m-xylene	114%		30-137%
2051-24-3	Decachlorobiphenyl	112%		10-137%
2051-24-3	Decachlorobiphenyl	99%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB12-161102		
Lab Sample ID:	JC30944-5A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	4.43 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 12:49	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C132942.D	1	11/09/16	PS	11/03/16 08:00	n/a	V3C6063
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0132	0.0096	0.0048	mg/kg	
71-43-2	Benzene	ND	0.00048	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0048	0.00031	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0019	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0048	0.00026	mg/kg	
74-83-9	Bromomethane	ND	0.0048	0.00047	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0096	0.0017	mg/kg	
75-15-0	Carbon disulfide	ND	0.0019	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0019	0.00016	mg/kg	
108-90-7	Chlorobenzene	ND	0.0019	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0048	0.00041	mg/kg	
67-66-3	Chloroform	ND	0.0019	0.00023	mg/kg	
74-87-3	Chloromethane	ND	0.0048	0.00020	mg/kg	
110-82-7	Cyclohexane	ND	0.0019	0.00053	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0019	0.00047	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0019	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00096	0.00023	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00096	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00096	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00096	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0048	0.00053	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00096	0.00018	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00096	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00096	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00096	0.00042	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00096	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0019	0.00030	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0019	0.00019	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0019	0.00021	mg/kg	
100-41-4	Ethylbenzene	ND	0.00096	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0048	0.00047	mg/kg	
591-78-6	2-Hexanone	ND	0.0048	0.0013	mg/kg	

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0019	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0048	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0019	0.00049	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00096	0.00026	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0048	0.00082	mg/kg	
75-09-2	Methylene chloride	0.0012	0.0048	0.00096	mg/kg	J
100-42-5	Styrene	ND	0.0019	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.024	0.0029	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0019	0.00023	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0019	0.00027	mg/kg	
108-88-3	Toluene	ND	0.00096	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0048	0.00022	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0048	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0019	0.00016	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0019	0.00031	mg/kg	
79-01-6	Trichloroethene	ND	0.00096	0.00018	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0048	0.00061	mg/kg	
75-01-4	Vinyl chloride	ND	0.0019	0.00019	mg/kg	
	m,p-Xylene	ND	0.00096	0.00021	mg/kg	
95-47-6	o-Xylene	ND	0.00096	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.00096	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-122%
17060-07-0	1,2-Dichloroethane-D4	101%		68-124%
2037-26-5	Toluene-D8	103%		77-125%
460-00-4	4-Bromofluorobenzene	93%		72-130%

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108832.D	1	11/09/16	RL	11/07/16	OP98364	EP4828
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.073	0.018	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.031	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.065	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.14	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.039	mg/kg	
95-48-7	2-Methylphenol	ND	0.073	0.023	mg/kg	
	3&4-Methylphenol	ND	0.073	0.030	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.024	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.097	mg/kg	
87-86-5	Pentachlorophenol	ND	0.15	0.034	mg/kg	
108-95-2	Phenol	ND	0.073	0.019	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.024	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.022	mg/kg	
83-32-9	Acenaphthene	0.0235	0.036	0.013	mg/kg	J
208-96-8	Acenaphthylene	0.127	0.036	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0078	mg/kg	
120-12-7	Anthracene	0.147	0.036	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.073	0.016	mg/kg	
56-55-3	Benzo(a)anthracene	0.175	0.036	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.137	0.036	0.017	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.361	0.036	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.129	0.036	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.122	0.036	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.073	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.073	0.0088	mg/kg	
92-52-4	1,1'-Biphenyl	0.0611	0.073	0.0050	mg/kg	J
100-52-7	Benzaldehyde	0.176	0.18	0.0090	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.073	0.0086	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0565	0.073	0.0053	mg/kg	J

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.073	0.014	mg/kg	
218-01-9	Chrysene	0.376	0.036	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.073	0.0078	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.073	0.016	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.073	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.073	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.036	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.036	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.073	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.036	0.024	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0380	0.036	0.016	mg/kg	
132-64-9	Dibenzofuran	0.120	0.073	0.015	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.073	0.0059	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.073	0.0090	mg/kg	
84-66-2	Diethyl phthalate	ND	0.073	0.0077	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.073	0.0065	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.073	0.0085	mg/kg	
206-44-0	Fluoranthene	0.454	0.036	0.016	mg/kg	
86-73-7	Fluorene	0.0310	0.036	0.017	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.073	0.0092	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.036	0.015	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.36	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.120	0.036	0.017	mg/kg	
78-59-1	Isophorone	ND	0.073	0.0078	mg/kg	
91-57-6	2-Methylnaphthalene	0.241	0.073	0.0082	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0086	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0091	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0094	mg/kg	
91-20-3	Naphthalene	0.324	0.036	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.073	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.073	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.510	0.036	0.012	mg/kg	
129-00-0	Pyrene	0.394	0.036	0.012	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0092	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	71%		30-106%

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	80%		30-106%
118-79-6	2,4,6-Tribromophenol	101%		24-140%
4165-60-0	Nitrobenzene-d5	78%		26-122%
321-60-8	2-Fluorobiphenyl	82%		36-112%
1718-51-0	Terphenyl-d14	80%		36-132%

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E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40995.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00073	0.00035	mg/kg	
319-84-6	alpha-BHC	ND	0.00073	0.00039	mg/kg	
319-85-7	beta-BHC	ND	0.00073	0.00046	mg/kg	
319-86-8	delta-BHC	ND	0.00073	0.00033	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00073	0.00032	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00073	0.00035	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00073	0.00032	mg/kg	
60-57-1	Dieldrin	ND	0.00073	0.00036	mg/kg	
72-54-8	4,4'-DDD	ND	0.00073	0.00047	mg/kg	
72-55-9	4,4'-DDE	0.0284	0.00073	0.00038	mg/kg	
50-29-3	4,4'-DDT	0.0313	0.00073	0.00043	mg/kg	
72-20-8	Endrin	ND	0.00073	0.00034	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00073	0.00029	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00073	0.00043	mg/kg	
959-98-8	Endosulfan-I	ND	0.00073	0.00038	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00073	0.00038	mg/kg	
76-44-8	Heptachlor	ND	0.00073	0.00036	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00073	0.00039	mg/kg	
72-43-5	Methoxychlor	ND	0.0015	0.00036	mg/kg	
53494-70-5	Endrin ketone	ND	0.00073	0.00056	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0076	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	91%		24-136%
877-09-8	Tetrachloro-m-xylene	83%		24-136%
2051-24-3	Decachlorobiphenyl	73%		10-153%
2051-24-3	Decachlorobiphenyl	99%		10-153%

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Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138759.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.036	0.018	mg/kg	
11104-28-2	Aroclor 1221	ND	0.036	0.018	mg/kg	
11141-16-5	Aroclor 1232	ND	0.036	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.036	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.036	0.023	mg/kg	
11097-69-1	Aroclor 1254	ND	0.036	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.036	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.036	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.036	0.025	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		20-152%
877-09-8	Tetrachloro-m-xylene	99%		20-152%
2051-24-3	Decachlorobiphenyl	78%		12-157%
2051-24-3	Decachlorobiphenyl	76%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7020	53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Arsenic	3.9	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Barium	27.9	21	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.31	0.21	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Calcium	< 530	530	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Chromium	12.2	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Copper	33.0	2.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Iron	11700	53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Lead	47.0	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Magnesium	1180	530	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Manganese	172	1.6	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.057	0.033	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [5]
Nickel	11.3	4.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.53	0.53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Vanadium	15.8	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]
Zinc	35.6	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Instrument QC Batch: MA40736
(4) Prep QC Batch: MP97012
(5) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.24	0.24	mg/kg	1	11/07/16 10:52	YZ	SW846 9012B/LACHAT
Solids, Percent	91		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131954.D	5	11/05/16	HA	11/03/16	GP1206	V3B5877
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		76-120%
17060-07-0	1,2-Dichloroethane-D4	116%		64-135%
2037-26-5	Toluene-D8	95%		76-117%
460-00-4	4-Bromofluorobenzene	92%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31710.D	1	11/08/16	SB	11/07/16	OP98334	E6P1472
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		14-88%
4165-62-2	Phenol-d5	29%		10-110%
118-79-6	2,4,6-Tribromophenol	89%		39-149%
4165-60-0	Nitrobenzene-d5	62%		32-128%
321-60-8	2-Fluorobiphenyl	67%		35-119%
1718-51-0	Terphenyl-d14	104%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104106.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	109%		50-142%
19719-28-9	2,4-DCAA	99%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	91.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74855.D	1	11/14/16	KD	11/07/16	OP98341	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	122%		30-137%
877-09-8	Tetrachloro-m-xylene	119%		30-137%
2051-24-3	Decachlorobiphenyl	100%		10-137%
2051-24-3	Decachlorobiphenyl	94%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB13-161102		
Lab Sample ID:	JC30944-6A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	91.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	4.69 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 12:50	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167696A.D	1	11/09/16	PS	11/03/16 08:00	n/a	VY7286
Run #2							

	Initial Weight
Run #1	5.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0093	0.0047	mg/kg	
71-43-2	Benzene	ND	0.00047	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0047	0.00030	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0019	0.00014	mg/kg	
75-25-2	Bromoform	ND	0.0047	0.00025	mg/kg	
74-83-9	Bromomethane	ND	0.0047	0.00045	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0093	0.0016	mg/kg	
75-15-0	Carbon disulfide	ND	0.0019	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0019	0.00015	mg/kg	
108-90-7	Chlorobenzene	ND	0.0019	0.00015	mg/kg	
75-00-3	Chloroethane	ND	0.0047	0.00040	mg/kg	
67-66-3	Chloroform	ND	0.0019	0.00022	mg/kg	
74-87-3	Chloromethane	ND	0.0047	0.00020	mg/kg	
110-82-7	Cyclohexane	ND	0.0019	0.00051	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0019	0.00045	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0019	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00093	0.00023	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00093	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00093	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00093	0.00014	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0047	0.00051	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00093	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00093	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00093	0.00014	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00093	0.00041	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00093	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0019	0.00029	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0019	0.00018	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0019	0.00021	mg/kg	
100-41-4	Ethylbenzene	ND	0.00093	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0047	0.00045	mg/kg	
591-78-6	2-Hexanone	ND	0.0047	0.0013	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0019	0.00014	mg/kg	
79-20-9	Methyl Acetate	ND	0.0047	0.0019	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0019	0.00047	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00093	0.00025	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0047	0.00079	mg/kg	
75-09-2	Methylene chloride	0.0020	0.0047	0.00093	mg/kg	J
100-42-5	Styrene	ND	0.0019	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.023	0.0028	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0019	0.00022	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0019	0.00026	mg/kg	
108-88-3	Toluene	ND	0.00093	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0047	0.00021	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0047	0.00017	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0019	0.00016	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0019	0.00030	mg/kg	
79-01-6	Trichloroethene	ND	0.00093	0.00018	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0047	0.00059	mg/kg	
75-01-4	Vinyl chloride	ND	0.0019	0.00019	mg/kg	
	m,p-Xylene	0.00022	0.00093	0.00020	mg/kg	J
95-47-6	o-Xylene	ND	0.00093	0.00019	mg/kg	
1330-20-7	Xylene (total)	0.00022	0.00093	0.00019	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-122%
17060-07-0	1,2-Dichloroethane-D4	106%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	107%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108834.D	1	11/09/16	RL	11/07/16	OP98364	EP4828
Run #2							

	Initial Weight	Final Volume
Run #1	32.1 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.065	0.016	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.16	0.020	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.16	0.028	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.16	0.058	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.16	0.12	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.16	0.035	mg/kg	
95-48-7	2-Methylphenol	ND	0.065	0.021	mg/kg	
	3&4-Methylphenol	ND	0.065	0.027	mg/kg	
88-75-5	2-Nitrophenol	ND	0.16	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.33	0.087	mg/kg	
87-86-5	Pentachlorophenol	ND	0.13	0.031	mg/kg	
108-95-2	Phenol	ND	0.065	0.017	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.16	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.16	0.024	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.16	0.019	mg/kg	
83-32-9	Acenaphthene	ND	0.033	0.011	mg/kg	
208-96-8	Acenaphthylene	0.0221	0.033	0.017	mg/kg	J
98-86-2	Acetophenone	ND	0.16	0.0070	mg/kg	
120-12-7	Anthracene	0.0427	0.033	0.020	mg/kg	
1912-24-9	Atrazine	ND	0.065	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.0417	0.033	0.0092	mg/kg	
50-32-8	Benzo(a)pyrene	0.0463	0.033	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.119	0.033	0.014	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0398	0.033	0.016	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0429	0.033	0.015	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.065	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.065	0.0079	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.065	0.0045	mg/kg	
100-52-7	Benzaldehyde	ND	0.16	0.0081	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.065	0.0077	mg/kg	
106-47-8	4-Chloroaniline	ND	0.16	0.012	mg/kg	
86-74-8	Carbazole	0.0148	0.065	0.0047	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.065	0.013	mg/kg	
218-01-9	Chrysene	0.0591	0.033	0.010	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.065	0.0070	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.065	0.014	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.065	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.065	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.033	0.010	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.033	0.016	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.065	0.027	mg/kg	
123-91-1	1,4-Dioxane	ND	0.033	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0143	0.033	0.014	mg/kg	J
132-64-9	Dibenzofuran	ND	0.065	0.013	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.065	0.0053	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.065	0.0081	mg/kg	
84-66-2	Diethyl phthalate	ND	0.065	0.0069	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.065	0.0058	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.065	0.0076	mg/kg	
206-44-0	Fluoranthene	0.0563	0.033	0.015	mg/kg	
86-73-7	Fluorene	ND	0.033	0.015	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.065	0.0082	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.033	0.013	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.33	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.16	0.016	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0483	0.033	0.015	mg/kg	
78-59-1	Isophorone	ND	0.065	0.0070	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.065	0.0074	mg/kg	
88-74-4	2-Nitroaniline	ND	0.16	0.0077	mg/kg	
99-09-2	3-Nitroaniline	ND	0.16	0.0081	mg/kg	
100-01-6	4-Nitroaniline	ND	0.16	0.0084	mg/kg	
91-20-3	Naphthalene	ND	0.033	0.0092	mg/kg	
98-95-3	Nitrobenzene	ND	0.065	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.065	0.0094	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.16	0.012	mg/kg	
85-01-8	Phenanthrene	0.0263	0.033	0.011	mg/kg	J
129-00-0	Pyrene	0.0620	0.033	0.010	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.16	0.0083	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	78%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	83%		30-106%
118-79-6	2,4,6-Tribromophenol	111%		24-140%
4165-60-0	Nitrobenzene-d5	85%		26-122%
321-60-8	2-Fluorobiphenyl	86%		36-112%
1718-51-0	Terphenyl-d14	98%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40996.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00069	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00069	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00069	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00069	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00069	0.00031	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00069	0.00033	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00069	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00069	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00069	0.00044	mg/kg	
72-55-9	4,4'-DDE	ND	0.00069	0.00036	mg/kg	
50-29-3	4,4'-DDT	ND	0.00069	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00069	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00069	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00069	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00069	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00069	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00069	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00069	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00069	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	87%		24-136%
877-09-8	Tetrachloro-m-xylene	88%		24-136%
2051-24-3	Decachlorobiphenyl	74%		10-153%
2051-24-3	Decachlorobiphenyl	80%		10-153%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138760.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	101%		20-152%
877-09-8	Tetrachloro-m-xylene	110%		20-152%
2051-24-3	Decachlorobiphenyl	78%		12-157%
2051-24-3	Decachlorobiphenyl	88%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1680	53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Arsenic	< 2.1	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Barium	< 21	21	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.21	0.21	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Calcium	< 530	530	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Chromium	5.3	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.3	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Copper	10.8	2.7	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Iron	5260	53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Lead	4.2	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Magnesium	< 530	530	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Manganese	171	1.6	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.034	0.034	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [4]
Nickel	5.2	4.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.53	0.53	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Vanadium	5.5	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Zinc	11.1	5.3	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Prep QC Batch: MP97012
(4) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.21	0.21	mg/kg	1	11/07/16 10:53	YZ	SW846 9012B/LACHAT
Solids, Percent	95.7		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2B146019.D	5	11/22/16	EH	11/18/16	GP1455	V2B6476
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		76-120%
17060-07-0	1,2-Dichloroethane-D4	92%		64-135%
2037-26-5	Toluene-D8	99%		76-117%
460-00-4	4-Bromofluorobenzene	100%		72-122%

(a) Sample prepared outside the holding time.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31711.D	1	11/08/16	SB	11/07/16	OP98334	E6P1472
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	53%		14-88%
4165-62-2	Phenol-d5	32%		10-110%
118-79-6	2,4,6-Tribromophenol	85%		39-149%
4165-60-0	Nitrobenzene-d5	71%		32-128%
321-60-8	2-Fluorobiphenyl	73%		35-119%
1718-51-0	Terphenyl-d14	101%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104107.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	110%		50-142%
19719-28-9	2,4-DCAA	103%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74856.D	1	11/14/16	KD	11/07/16	OP98341	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	104%		30-137%
877-09-8	Tetrachloro-m-xylene	101%		30-137%
2051-24-3	Decachlorobiphenyl	79%		10-137%
2051-24-3	Decachlorobiphenyl	74%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB14-161102		
Lab Sample ID:	JC30944-7A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.98 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/08/16 12:51	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167697.D	1	11/09/16	PS	11/03/16 08:00	n/a	VY7286
Run #2							

	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0103	0.0095	0.0048	mg/kg	
71-43-2	Benzene	ND	0.00048	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0048	0.00030	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0019	0.00014	mg/kg	
75-25-2	Bromoform	ND	0.0048	0.00025	mg/kg	
74-83-9	Bromomethane	ND	0.0048	0.00046	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0095	0.0017	mg/kg	
75-15-0	Carbon disulfide	0.00080	0.0019	0.00016	mg/kg	J
56-23-5	Carbon tetrachloride	ND	0.0019	0.00016	mg/kg	
108-90-7	Chlorobenzene	ND	0.0019	0.00015	mg/kg	
75-00-3	Chloroethane	ND	0.0048	0.00041	mg/kg	
67-66-3	Chloroform	ND	0.0019	0.00023	mg/kg	
74-87-3	Chloromethane	ND	0.0048	0.00020	mg/kg	
110-82-7	Cyclohexane	ND	0.0019	0.00052	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0019	0.00046	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0019	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00095	0.00023	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00095	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00095	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00095	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0048	0.00052	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00095	0.00018	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00095	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00095	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00095	0.00042	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00095	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0019	0.00029	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0019	0.00019	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0019	0.00021	mg/kg	
100-41-4	Ethylbenzene	ND	0.00095	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0048	0.00046	mg/kg	
591-78-6	2-Hexanone	ND	0.0048	0.0013	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0019	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0048	0.0019	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0019	0.00048	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00095	0.00025	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0048	0.00081	mg/kg	
75-09-2	Methylene chloride	ND	0.0048	0.00095	mg/kg	
100-42-5	Styrene	ND	0.0019	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.024	0.0029	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0019	0.00023	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0019	0.00027	mg/kg	
108-88-3	Toluene	ND	0.00095	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0048	0.00022	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0048	0.00017	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0019	0.00016	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0019	0.00031	mg/kg	
79-01-6	Trichloroethene	ND	0.00095	0.00018	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0048	0.00060	mg/kg	
75-01-4	Vinyl chloride	ND	0.0019	0.00019	mg/kg	
	m,p-Xylene	ND	0.00095	0.00021	mg/kg	
95-47-6	o-Xylene	ND	0.00095	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.00095	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	98%		77-125%
460-00-4	4-Bromofluorobenzene	119%		72-130%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P108835.D	1	11/09/16	RL	11/07/16	OP98364	EP4828
Run #2							

	Initial Weight	Final Volume
Run #1	31.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.066	0.016	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.020	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.028	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.059	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.12	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.035	mg/kg	
95-48-7	2-Methylphenol	ND	0.066	0.021	mg/kg	
	3&4-Methylphenol	ND	0.066	0.027	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.33	0.089	mg/kg	
87-86-5	Pentachlorophenol	ND	0.13	0.031	mg/kg	
108-95-2	Phenol	ND	0.066	0.017	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.033	0.011	mg/kg	
208-96-8	Acenaphthylene	0.0305	0.033	0.017	mg/kg	J
98-86-2	Acetophenone	ND	0.17	0.0071	mg/kg	
120-12-7	Anthracene	0.0583	0.033	0.020	mg/kg	
1912-24-9	Atrazine	ND	0.066	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.126	0.033	0.0094	mg/kg	
50-32-8	Benzo(a)pyrene	0.174	0.033	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.200	0.033	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.179	0.033	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0682	0.033	0.015	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.066	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.066	0.0081	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.066	0.0045	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0082	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.066	0.0079	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0177	0.066	0.0048	mg/kg	J

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.066	0.013	mg/kg	
218-01-9	Chrysene	0.167	0.033	0.010	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.066	0.0071	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.066	0.014	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.066	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.066	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.033	0.010	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.033	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.066	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.033	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0287	0.033	0.015	mg/kg	J
132-64-9	Dibenzofuran	ND	0.066	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.066	0.0054	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.066	0.0083	mg/kg	
84-66-2	Diethyl phthalate	ND	0.066	0.0071	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.066	0.0059	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.066	0.0078	mg/kg	
206-44-0	Fluoranthene	0.225	0.033	0.015	mg/kg	
86-73-7	Fluorene	ND	0.033	0.015	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.066	0.0084	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.033	0.013	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.33	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.016	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.114	0.033	0.016	mg/kg	
78-59-1	Isophorone	ND	0.066	0.0071	mg/kg	
91-57-6	2-Methylnaphthalene	0.0255	0.066	0.0075	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0078	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0083	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0086	mg/kg	
91-20-3	Naphthalene	0.0171	0.033	0.0094	mg/kg	J
98-95-3	Nitrobenzene	ND	0.066	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.066	0.0096	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.132	0.033	0.011	mg/kg	
129-00-0	Pyrene	0.232	0.033	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0084	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	86%		30-106%

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Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	92%		30-106%
118-79-6	2,4,6-Tribromophenol	114%		24-140%
4165-60-0	Nitrobenzene-d5	92%		26-122%
321-60-8	2-Fluorobiphenyl	96%		36-112%
1718-51-0	Terphenyl-d14	92%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G40997.D	1	11/08/16	JR	11/05/16	OP98344	G6G1173
Run #2							

	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00067	0.00032	mg/kg	
319-84-6	alpha-BHC	ND	0.00067	0.00036	mg/kg	
319-85-7	beta-BHC	ND	0.00067	0.00042	mg/kg	
319-86-8	delta-BHC	ND	0.00067	0.00030	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00067	0.00030	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00067	0.00032	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00067	0.00029	mg/kg	
60-57-1	Dieldrin	ND	0.00067	0.00033	mg/kg	
72-54-8	4,4'-DDD	ND	0.00067	0.00043	mg/kg	
72-55-9	4,4'-DDE	ND	0.00067	0.00035	mg/kg	
50-29-3	4,4'-DDT	ND	0.00067	0.00040	mg/kg	
72-20-8	Endrin	ND	0.00067	0.00031	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00067	0.00027	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00067	0.00040	mg/kg	
959-98-8	Endosulfan-I	ND	0.00067	0.00035	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00067	0.00035	mg/kg	
76-44-8	Heptachlor	ND	0.00067	0.00033	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00067	0.00036	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00033	mg/kg	
53494-70-5	Endrin ketone	ND	0.00067	0.00051	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0069	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		24-136%
877-09-8	Tetrachloro-m-xylene	87%		24-136%
2051-24-3	Decachlorobiphenyl	61%		10-153%
2051-24-3	Decachlorobiphenyl	78%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G138761.D	1	11/07/16	KM	11/05/16	OP98336	G2G3862
Run #2							

	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.033	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.033	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.033	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.033	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.033	0.021	mg/kg	
11097-69-1	Aroclor 1254	ND	0.033	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.033	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.033	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.033	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	97%		20-152%
877-09-8	Tetrachloro-m-xylene	103%		20-152%
2051-24-3	Decachlorobiphenyl	71%		12-157%
2051-24-3	Decachlorobiphenyl	76%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.4
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1780	50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.0	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Arsenic	2.5	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Barium	29.6	20	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.20	0.20	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.50	0.50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Calcium	13000	500	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Chromium	5.1	1.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.0	5.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Copper	21.3	2.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Iron	6110	50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Lead	23.1	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Magnesium	6880	500	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Manganese	275	1.5	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Mercury	0.036	0.032	mg/kg	1	11/08/16	11/08/16	JPM	SW846 7471B [1]	SW846 7471B [4]
Nickel	5.3	4.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.0	2.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.50	0.50	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Vanadium	7.5	5.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]
Zinc	26.0	5.0	mg/kg	1	11/07/16	11/09/16	KS	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40721
(2) Instrument QC Batch: MA40725
(3) Prep QC Batch: MP97012
(4) Prep QC Batch: MP97040

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.4
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.22	0.22	mg/kg	1	11/07/16 10:56	YZ	SW846 9012B/LACHAT
Solids, Percent	95.4		%	1	11/04/16 16:00	AC	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131956.D	5	11/05/16	HA	11/03/16	GP1206	V3B5877
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		76-120%
17060-07-0	1,2-Dichloroethane-D4	117%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	92%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31712.D	1	11/09/16	SB	11/07/16	OP98334	E6P1472
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	47%		14-88%
4165-62-2	Phenol-d5	30%		10-110%
118-79-6	2,4,6-Tribromophenol	79%		39-149%
4165-60-0	Nitrobenzene-d5	62%		32-128%
321-60-8	2-Fluorobiphenyl	67%		35-119%
1718-51-0	Terphenyl-d14	96%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104108.D	1	11/08/16	VDT	11/07/16	OP98342	G3G3639
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	97%		50-142%
19719-28-9	2,4-DCAA	100%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74857.D	1	11/14/16	KD	11/07/16	OP98341	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	112%		30-137%
877-09-8	Tetrachloro-m-xylene	107%		30-137%
2051-24-3	Decachlorobiphenyl	92%		10-137%
2051-24-3	Decachlorobiphenyl	85%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.4
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/04/16	11/04/16	JA	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/04/16	11/05/16	DE	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40693
(2) Instrument QC Batch: MA40707
(3) Prep QC Batch: MP96982
(4) Prep QC Batch: MP96986

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB16-161102		
Lab Sample ID:	JC30944-8A	**Date Sampled:**	11/02/16
Matrix:	SO - Soil	**Date Received:**	11/02/16
		Percent Solids:	95.4
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.69 NC		su	1	11/10/16 16:58	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 12:53	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/12/16 12:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Parameter Certification Exceptions

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Cyanide Reactivity		**SW846 CHAP7/9012 B**	SO	Accutest is not certified for this parameter.[a]
Sulfide Reactivity		**SW846 CHAP7/9034**	SO	Accutest is not certified for this parameter.[a]

(a) Reactivity analyzed following SW846 Chapter 7 is no longer recognized by regulatory agencies. Use of results should be verified through the program to which the data is being submitted.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

SGS ACCUTEST

SLL

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC30944 X

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City State Zip: Florham Park NJ 07932
Project Contact: Brian Crespi
E-mail: Bcrespi@matrixnewworld.com
Phone #: 212 324 4251
Sampler(s) Name(s): M. Clelland
Phone #:

Project Information

Project Name: LIRR Expansion
Street:
City State: Long Island NY
Project #: 16-144
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (FULL)	TCLP (FULL)	Ignitability	Dioxin								LAB USE ONLY
1	SB08-161101	0	11/1/16	0945	MC	S	7					4			3	X	X	X	X								D16
2	SB10-161101	0	11/1/16	1127	MC	S	7					4			3	X	X	X	X								800
3	SB11-161101	0	11/1/16	1306	MC	S	7					4			3	X	X	X	X								P25
4	SB09-161101	0	11/1/16	1425	MC	S	7					4			3	X	X	X	X								1484
5	SB12-161102	0	11/2/16	0855	MC	S	7					4			3	X	X	X	X								4090
6	SB13-161102	0	11/2/16	0925	MC	S	7					4			3	X	X	X	X								
7	SB14-161102	0	11/2/16	1045	MC	S	7					4			3	X	X	X	X								
8	SB16-161102	0	11/2/16	1236	MC	S	7					4			3	X	X	X	X								

INITIAL ASESSMENT
LABEL VERIFICATION

Turnaround Time (Business days)

- [X] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [X] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

samples on ice.
o 3 encores received 11/2/16

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	1344 11/2/16	1 Chris	2 Chris	11/2/16 1655	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 328 [X] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [X] Cooler Temp 4.2°C IP

4.2
4

JC30944: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC30944 **Client:** **Project:**

Date / Time Received: 11/2/2016 4:55:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (4.2);

Cooler Temps (Corrected) °C: Cooler 1: (5.1);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30944-1 Collected: 01-NOV-16 09:45 By: MC Received: 02-NOV-16 By: AS SB08-161101						
JC30944-1	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-1	SW846 8270D	06-NOV-16 21:36	KLS	05-NOV-16	SA	AB8270TCL20
JC30944-1	SW846 9012B/LACHAT	07-NOV-16 10:47	YZ	06-NOV-16	HS	CN
JC30944-1	SW846 8082A	07-NOV-16 11:59	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-1	SW846 8081B	08-NOV-16 01:08	JR	05-NOV-16	MA	P8081PESTTCL
JC30944-1	SW846 7471B	08-NOV-16 11:52	JPM	08-NOV-16	JPM	HG
JC30944-1	SW846 8260C	08-NOV-16 13:36	PS			V8260TCL20
JC30944-1	SW846 6010C	09-NOV-16 03:36	KS	07-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC30944-2 Collected: 01-NOV-16 11:27 By: MC Received: 02-NOV-16 By: AS SB10-161101						
JC30944-2	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-2	SW846 8270D	06-NOV-16 22:05	KLS	05-NOV-16	SA	AB8270TCL20
JC30944-2	SW846 9012B/LACHAT	07-NOV-16 10:48	YZ	06-NOV-16	HS	CN
JC30944-2	SW846 8082A	07-NOV-16 17:39	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-2	SW846 8081B	08-NOV-16 01:24	JR	05-NOV-16	MA	P8081PESTTCL
JC30944-2	SW846 7471B	08-NOV-16 11:54	JPM	08-NOV-16	JPM	HG
JC30944-2	SW846 8260C	08-NOV-16 14:04	PS			V8260TCL20
JC30944-2	SW846 6010C	09-NOV-16 03:42	KS	07-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC30944-3 Collected: 01-NOV-16 13:06 By: MC Received: 02-NOV-16 By: AS SB11-161101						
JC30944-3	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-3	SW846 8270D	06-NOV-16 22:33	KLS	05-NOV-16	SA	AB8270TCL20
JC30944-3	SW846 9012B/LACHAT	07-NOV-16 10:49	YZ	06-NOV-16	HS	CN
JC30944-3	SW846 8082A	07-NOV-16 17:56	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-3	SW846 8081B	08-NOV-16 02:13	JR	05-NOV-16	MA	P8081PESTTCL
JC30944-3	SW846 7471B	08-NOV-16 11:55	JPM	08-NOV-16	JPM	HG
JC30944-3	SW846 8260C	08-NOV-16 14:33	PS			V8260TCL20

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30944-3	SW846 6010C	09-NOV-16 03:48	KS	07-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30944-4 Collected: 01-NOV-16 14:25 By: MC Received: 02-NOV-16 By: AS SB09-161101						
JC30944-4	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-4	SW846 9012B/LACHAT	07-NOV-16 10:50	YZ	06-NOV-16	HS	CN
JC30944-4	SW846 8270D	07-NOV-16 12:50	RL	05-NOV-16	SA	AB8270TCL20
JC30944-4	SW846 8082A	07-NOV-16 18:12	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-4	SW846 8081B	08-NOV-16 02:30	JR	05-NOV-16	MA	P8081PESTTCL
JC30944-4	SW846 7471B	08-NOV-16 11:56	JPM	08-NOV-16	JPM	HG
JC30944-4	SW846 8260C	08-NOV-16 20:16	PS			V8260TCL20
JC30944-4	SW846 6010C	09-NOV-16 03:54	KS	07-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30944-5 Collected: 02-NOV-16 08:55 By: MC Received: 02-NOV-16 By: AS SB12-161102						
JC30944-5	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-5	SW846 9012B/LACHAT	07-NOV-16 10:51	YZ	06-NOV-16	HS	CN
JC30944-5	SW846 8082A	07-NOV-16 18:29	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-5	SW846 8081B	08-NOV-16 02:46	JR	05-NOV-16	MA	P8081PESTTCL
JC30944-5	SW846 7471B	08-NOV-16 11:57	JPM	08-NOV-16	JPM	HG
JC30944-5	SW846 8260C	08-NOV-16 20:45	PS			V8260TCL20
JC30944-5	SW846 6010C	09-NOV-16 04:00	KS	07-NOV-16	DM	AG,AS,BA,BE,CA,CD,CO,CR,CU,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30944-5	SW846 8270D	09-NOV-16 19:11	RL	07-NOV-16	SA	AB8270TCL20
JC30944-5	SW846 6010C	09-NOV-16 22:12	KS	07-NOV-16	DM	AL,FE
JC30944-6 Collected: 02-NOV-16 09:25 By: MC Received: 02-NOV-16 By: AS SB13-161102						
JC30944-6	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-6	SW846 9012B/LACHAT	07-NOV-16 10:52	YZ	06-NOV-16	HS	CN
JC30944-6	SW846 8082A	07-NOV-16 18:46	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-6	SW846 8081B	08-NOV-16 03:03	JR	05-NOV-16	MA	P8081PESTTCL

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30944-6	SW846 7471B	08-NOV-16 11:59	JPM	08-NOV-16	JPM	HG
JC30944-6	SW846 6010C	09-NOV-16 04:18	KS	07-NOV-16	DM	AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30944-6	SW846 8270D	09-NOV-16 18:43	RL	07-NOV-16	SA	AB8270TCL20
JC30944-6	SW846 8260C	09-NOV-16 20:38	PS			V8260TCL20
JC30944-6	SW846 6010C	09-NOV-16 21:24	KS	07-NOV-16	DM	AG
JC30944-7 Collected: 02-NOV-16 10:45 By: MC Received: 02-NOV-16 By: AS SB14-161102						
JC30944-7	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-7	SW846 9012B/LACHAT	07-NOV-16 10:53	YZ	06-NOV-16	HS	CN
JC30944-7	SW846 8082A	07-NOV-16 19:03	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-7	SW846 8081B	08-NOV-16 03:19	JR	05-NOV-16	MA	P8081PESTTCL
JC30944-7	SW846 7471B	08-NOV-16 12:00	JPM	08-NOV-16	JPM	HG
JC30944-7	SW846 8260C	09-NOV-16 01:31	PS			V8260TCL20
JC30944-7	SW846 6010C	09-NOV-16 04:24	KS	07-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30944-7	SW846 8270D	09-NOV-16 19:40	RL	07-NOV-16	SA	AB8270TCL20
JC30944-8 Collected: 02-NOV-16 12:36 By: MC Received: 02-NOV-16 By: AS SB16-161102						
JC30944-8	SM2540 G-97	04-NOV-16 16:00	AC			SOL104
JC30944-8	SW846 9012B/LACHAT	07-NOV-16 10:56	YZ	06-NOV-16	HS	CN
JC30944-8	SW846 8082A	07-NOV-16 19:20	KM	05-NOV-16	MA	P8082PCB11AO
JC30944-8	SW846 8081B	08-NOV-16 03:36	JR	05-NOV-16	MA	P8081PESTTCL
JC30944-8	SW846 7471B	08-NOV-16 12:04	JPM	08-NOV-16	JPM	HG
JC30944-8	SW846 8260C	09-NOV-16 01:59	PS			V8260TCL20
JC30944-8	SW846 6010C	09-NOV-16 04:30	KS	07-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC30944-8	SW846 8270D	09-NOV-16 20:08	RL	07-NOV-16	SA	AB8270TCL20
JC30944-1A Collected: 01-NOV-16 09:45 By: MC Received: 02-NOV-16 By: AS SB08-161101						
JC30944-1A	SW846 7470A	04-NOV-16 14:31	JA	04-NOV-16	JA	EHG

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30944-1A	SW846 6010C	05-NOV-16 14:24	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-1A	SW846 8270D	08-NOV-16 00:29	SB	07-NOV-16	MP	AB8270TCLP
JC30944-1A	SW846 CHAP7/9012 B	08-NOV-16 12:43	BM	08-NOV-16	CB	CREAC
JC30944-1A	SW846 8151	08-NOV-16 22:07	VDT	07-NOV-16	GM	H8151TCLP
JC30944-1A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-1A	SW846 8081B	09-NOV-16 12:34	KD	07-NOV-16	GM	P8081TCLP
JC30944-1A	SW846 9045D	10-NOV-16 16:58	PO			CORR
JC30944-1A	SW846 1010A/ASTM D93	22-NOV-16 12:00	AT			IGN
JC30944-1A	SW846 8260C	22-NOV-16 12:07	EH	18-NOV-16	GD	V8260TCLP
JC30944-2A	Collected: 01-NOV-16 11:27 By: MC		Received: 02-NOV-16 By: AS			
SB10-161101						
JC30944-2A	SW846 7470A	04-NOV-16 14:32	JA	04-NOV-16	JA	EHG
JC30944-2A	SW846 8260C	05-NOV-16 07:43	HA	03-NOV-16	GD	V8260TCLP
JC30944-2A	SW846 6010C	05-NOV-16 14:28	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-2A	SW846 CHAP7/9012 B	08-NOV-16 12:45	BM	08-NOV-16	CB	CREAC
JC30944-2A	SW846 8270D	08-NOV-16 20:05	SB	07-NOV-16	MP	AB8270TCLP
JC30944-2A	SW846 8151	08-NOV-16 22:38	VDT	07-NOV-16	GM	H8151TCLP
JC30944-2A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-2A	SW846 9045D	10-NOV-16 16:58	PO			CORR
JC30944-2A	SW846 1010A/ASTM D93	22-NOV-16 12:00	AT			IGN
JC30944-2A	SW846 8081B	14-NOV-16 13:32	KD	07-NOV-16	GM	P8081TCLP
JC30944-3A	Collected: 01-NOV-16 13:06 By: MC		Received: 02-NOV-16 By: AS			
SB11-161101						
JC30944-3A	SW846 7470A	04-NOV-16 14:33	JA	04-NOV-16	JA	EHG
JC30944-3A	SW846 8260C	05-NOV-16 08:13	HA	03-NOV-16	GD	V8260TCLP
JC30944-3A	SW846 6010C	05-NOV-16 15:50	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-3A	SW846 CHAP7/9012 B	08-NOV-16 12:46	BM	08-NOV-16	CB	CREAC
JC30944-3A	SW846 8270D	08-NOV-16 20:29	SB	07-NOV-16	MP	AB8270TCLP
JC30944-3A	SW846 8151	08-NOV-16 23:09	VDT	07-NOV-16	GM	H8151TCLP
JC30944-3A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-3A	SW846 9045D	10-NOV-16 16:58	PO			CORR
JC30944-3A	SW846 1010A/ASTM D93	22-NOV-16 12:00	AT			IGN
JC30944-3A	SW846 8081B	14-NOV-16 13:47	KD	07-NOV-16	GM	P8081TCLP

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30944-4A	Collected: 01-NOV-16 14:25 By: MC		Received: 02-NOV-16 By: AS			
SB09-161101						
JC30944-4A	SW846 7470A	04-NOV-16 14:35	JA	04-NOV-16	JA	EHG
JC30944-4A	SW846 8260C	05-NOV-16 08:43	HA	03-NOV-16	GD	V8260TCLP
JC30944-4A	SW846 6010C	05-NOV-16 15:54	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-4A	SW846 CHAP7/9012 B	08-NOV-16 12:47	BM	08-NOV-16	CB	CREAC
JC30944-4A	SW846 8270D	08-NOV-16 20:52	SB	07-NOV-16	MP	AB8270TCLP
JC30944-4A	SW846 8151	08-NOV-16 23:40	VDT	07-NOV-16	GM	H8151TCLP
JC30944-4A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-4A	SW846 9045D	10-NOV-16 16:58	PO			CORR
JC30944-4A	SW846 1010A/ASTM D93	12-NOV-16 12:00	AT			IGN
JC30944-4A	SW846 8081B	14-NOV-16 14:01	KD	07-NOV-16	GM	P8081TCLP
JC30944-5A	Collected: 02-NOV-16 08:55 By: MC		Received: 02-NOV-16 By: AS			
SB12-161102						
JC30944-5A	SW846 7470A	04-NOV-16 14:36	JA	04-NOV-16	JA	EHG
JC30944-5A	SW846 8260C	05-NOV-16 09:13	HA	03-NOV-16	GD	V8260TCLP
JC30944-5A	SW846 6010C	05-NOV-16 15:59	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-5A	SW846 8151	08-NOV-16 12:20	VDT	07-NOV-16	GM	H8151TCLP
JC30944-5A	SW846 CHAP7/9012 B	08-NOV-16 12:49	BM	08-NOV-16	CB	CREAC
JC30944-5A	SW846 8270D	08-NOV-16 21:16	SB	07-NOV-16	MP	AB8270TCLP
JC30944-5A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-5A	SW846 9045D	10-NOV-16 16:58	PO			CORR
JC30944-5A	SW846 1010A/ASTM D93	12-NOV-16 12:00	AT			IGN
JC30944-5A	SW846 8081B	14-NOV-16 21:16	KD	07-NOV-16	GM	P8081TCLP
JC30944-6A	Collected: 02-NOV-16 09:25 By: MC		Received: 02-NOV-16 By: AS			
SB13-161102						
JC30944-6A	SW846 7470A	04-NOV-16 14:37	JA	04-NOV-16	JA	EHG
JC30944-6A	SW846 8260C	05-NOV-16 09:44	HA	03-NOV-16	GD	V8260TCLP
JC30944-6A	SW846 6010C	05-NOV-16 16:03	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-6A	SW846 CHAP7/9012 B	08-NOV-16 12:50	BM	08-NOV-16	CB	CREAC
JC30944-6A	SW846 8151	08-NOV-16 12:51	VDT	07-NOV-16	GM	H8151TCLP
JC30944-6A	SW846 8270D	08-NOV-16 21:40	SB	07-NOV-16	MP	AB8270TCLP
JC30944-6A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-6A	SW846 9045D	10-NOV-16 16:58	PO			CORR

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC30944

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC30944-6A	SW846 1010A/ASTM D93	12-NOV-16 12:00	AT			IGN
JC30944-6A	SW846 8081B	14-NOV-16 22:00	KD	07-NOV-16	GM	P8081TCLP
JC30944-7A	Collected: 02-NOV-16 10:45 By: MC		Received: 02-NOV-16 By: AS			
SB14-161102						
JC30944-7A	SW846 7470A	04-NOV-16 14:41	JA	04-NOV-16	JA	EHG
JC30944-7A	SW846 6010C	05-NOV-16 16:08	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-7A	SW846 CHAP7/9012 B	08-NOV-16 12:51	BM	08-NOV-16	CB	CREAC
JC30944-7A	SW846 8151	08-NOV-16 13:22	VDT	07-NOV-16	GM	H8151TCLP
JC30944-7A	SW846 8270D	08-NOV-16 23:43	SB	07-NOV-16	MP	AB8270TCLP
JC30944-7A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-7A	SW846 9045D	10-NOV-16 16:58	PO			CORR
JC30944-7A	SW846 1010A/ASTM D93	12-NOV-16 12:00	AT			IGN
JC30944-7A	SW846 8081B	14-NOV-16 22:14	KD	07-NOV-16	GM	P8081TCLP
JC30944-7A	SW846 8260C	22-NOV-16 12:37	EH	18-NOV-16	GD	V8260TCLP
JC30944-8A	Collected: 02-NOV-16 12:36 By: MC		Received: 02-NOV-16 By: AS			
SB16-161102						
JC30944-8A	SW846 7470A	04-NOV-16 14:43	JA	04-NOV-16	JA	EHG
JC30944-8A	SW846 8260C	05-NOV-16 10:43	HA	03-NOV-16	GD	V8260TCLP
JC30944-8A	SW846 6010C	05-NOV-16 16:12	DE	04-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC30944-8A	SW846 CHAP7/9012 B	08-NOV-16 12:53	BM	08-NOV-16	CB	CREAC
JC30944-8A	SW846 8151	08-NOV-16 13:53	VDT	07-NOV-16	GM	H8151TCLP
JC30944-8A	SW846 8270D	09-NOV-16 00:07	SB	07-NOV-16	MP	AB8270TCLP
JC30944-8A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC30944-8A	SW846 9045D	10-NOV-16 16:58	PO			CORR
JC30944-8A	SW846 1010A/ASTM D93	12-NOV-16 12:00	AT			IGN
JC30944-8A	SW846 8081B	14-NOV-16 22:28	KD	07-NOV-16	GM	P8081TCLP

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-1.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-1.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-1.1	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-1.1	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-1.1	Secured Storage	Sauvelson Auguste	11/05/16 06:22	Retrieve from Storage
JC30944-1.1	Sauvelson Auguste	Rebecca Gluckman	11/05/16 08:07	Custody Transfer
JC30944-1.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-1.1	Secured Storage	Alfredo Crespo	11/07/16 07:28	Retrieve from Storage
JC30944-1.1	Alfredo Crespo	Secured Staging Area	11/07/16 07:28	Return to Storage
JC30944-1.1	Secured Staging Area	James Patrick McIlvaine	11/07/16 08:24	Retrieve from Storage
JC30944-1.1	James Patrick McIlvaine	Secured Storage	11/07/16 10:28	Return to Storage
JC30944-1.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-1.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC30944-1.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-1.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-1.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-1.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-1.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-1.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-1.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-1.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-1.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-1.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-1.1	Secured Storage	Sahara Feliciano	11/18/16 14:00	Retrieve from Storage
JC30944-1.1	Sahara Feliciano	Secured Staging Area	11/18/16 14:00	Return to Storage
JC30944-1.1	Sahara Feliciano	Secured Storage	11/18/16 14:06	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-1.1.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-1.1
JC30944-1.1.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-1.1
JC30944-1.1.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-1.1.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-1.1.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-1.1.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-1.1.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-1.1
JC30944-1.1.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-1.1.2	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-1.1.2	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage
JC30944-1.1.2	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-1.1.2	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-1.1.3	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-1.1.1
JC30944-1.1.3	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-1.1.1
JC30944-1.1.3	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-1.1.4	Sauvelson Auguste	Organics Prep	11/05/16 06:25	Extract from JC30944-1.1
JC30944-1.1.4	Organics Prep	Sauvelson Auguste	11/05/16 15:15	Extract from JC30944-1.1
JC30944-1.1.4	Sauvelson Auguste	Extract Storage	11/05/16 15:15	Return to Storage
JC30944-1.1.4	Extract Storage	Kristi Schollenberger	11/06/16 12:43	Retrieve from Storage
JC30944-1.1.4	Kristi Schollenberger	GCMSP	11/06/16 12:43	Load on Instrument
JC30944-1.1.4	GCMSP	Robert LaPosta	11/08/16 08:30	Unload from Instrument
JC30944-1.1.4	Robert LaPosta	Extract Freezer	11/08/16 08:30	Return to Storage
JC30944-1.1.5	Rebecca Gluckman	Organics Prep	11/05/16 08:15	Extract from JC30944-1.1
JC30944-1.1.5	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-1.1
JC30944-1.1.5	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-1.1.5	Extract Storage	Kevin Moyle	11/07/16 11:07	Retrieve from Storage
JC30944-1.1.5	Kevin Moyle	GC2G	11/07/16 11:07	Load on Instrument
JC30944-1.1.5	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-1.1.5	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-1.1.6	Rebecca Gluckman	Organics Prep	11/05/16 08:16	Extract from JC30944-1.1
JC30944-1.1.6	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-1.1
JC30944-1.1.6	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-1.1.6	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-1.1.6	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-1.1.7	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-1.1.2
JC30944-1.1.7	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-1.1.2
JC30944-1.1.7	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage
JC30944-1.1.7	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-1.1.7	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-1.1.7	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-1.1.7	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-1.1.8	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-1.1.2
JC30944-1.1.8	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-1.1.2
JC30944-1.1.8	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-1.1.8	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-1.1.8	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument
JC30944-1.1.8	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-1.1.8	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30944-1.1.9	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-1.1.2
JC30944-1.1.9	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-1.1.2

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-1.1.9	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-1.1.9	Extract Storage	Kristen Drake	11/09/16 11:03	Retrieve from Storage
JC30944-1.1.9	Kristen Drake	GC4G	11/09/16 11:03	Load on Instrument
JC30944-1.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-1.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-1.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-1.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-1.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-1.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-1.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-1.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-1.3	Secured Storage	Sahara Feliciano	11/18/16 14:12	Retrieve from Storage
JC30944-1.3	Sahara Feliciano	Secured Staging Area	11/18/16 14:12	Return to Storage
JC30944-1.3	Jamie J. Yakes	Secured Storage	11/21/16 10:08	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-1.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-1.3
JC30944-1.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-1.3
JC30944-1.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-1.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-1.3
JC30944-1.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-1.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-1.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-1.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-1.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-1.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage
JC30944-1.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-1.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-1.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-1.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage
JC30944-1.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-1.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-1.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-1.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-1.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-1.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-1.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-1.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage
JC30944-1.4	Secured Storage	Minhaj Hashmi	11/19/16 09:42	Retrieve from Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-1.4	Minhaj Hashmi	Secured Storage	11/19/16 09:43	Return to Storage
JC30944-1.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-1.4
JC30944-1.4.1	Radhika Mistry		11/07/16 16:00	Depleted
JC30944-1.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-1.4
JC30944-1.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-1.4
JC30944-1.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-1.4
JC30944-1.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-1.4.4	Minhaj Hashmi	TCLP	11/19/16 09:42	Leachate from JC30944-1.4
JC30944-1.4.4	TCLP	Minhaj Hashmi	11/19/16 09:43	Leachate from JC30944-1.4
JC30944-1.4.4	Minhaj Hashmi	Secured Storage	11/19/16 09:43	Return to Storage
JC30944-1.4.5	TCLP	Minhaj Hashmi	11/19/16 09:43	Leachate from JC30944-1.4
JC30944-1.4.5	Minhaj Hashmi	Secured Storage	11/19/16 09:43	Return to Storage
JC30944-1.6	Secured Storage	Joshua Reitan	11/02/16 20:35	Retrieve from Storage
JC30944-1.6	Joshua Reitan	Secured Storage	11/02/16 20:35	Return to Storage
JC30944-1.7	Secured Storage	Joshua Reitan	11/02/16 20:35	Retrieve from Storage
JC30944-1.7	Joshua Reitan	Secured Storage	11/02/16 20:35	Return to Storage
JC30944-1.7	Secured Storage	Prashant Shukla	11/08/16 12:57	Retrieve from Storage
JC30944-1.7	Prashant Shukla	GCMSY	11/08/16 12:57	Load on Instrument
JC30944-1.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-1.7	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-1.8	Secured Storage	Joshua Reitan	11/02/16 20:35	Retrieve from Storage
JC30944-1.8	Joshua Reitan	Secured Storage	11/02/16 20:35	Return to Storage
JC30944-1.8	Secured Storage	Prashant Shukla	11/08/16 14:06	Retrieve from Storage
JC30944-1.8	Prashant Shukla	GCMSY	11/08/16 14:06	Load on Instrument
JC30944-1.8	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-1.8	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-2.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-2.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-2.1	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-2.1	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-2.1	Secured Storage	Sauvelson Auguste	11/05/16 06:22	Retrieve from Storage
JC30944-2.1	Sauvelson Auguste	Rebecca Gluckman	11/05/16 08:07	Custody Transfer
JC30944-2.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-2.1	Secured Storage	Alfredo Crespo	11/07/16 07:28	Retrieve from Storage
JC30944-2.1	Alfredo Crespo	Secured Staging Area	11/07/16 07:28	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-2.1	Secured Staging Area	James Patrick McIlvaine	11/07/16 08:24	Retrieve from Storage
JC30944-2.1	James Patrick McIlvaine	Secured Storage	11/07/16 10:28	Return to Storage
JC30944-2.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-2.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC30944-2.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-2.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-2.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-2.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-2.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-2.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-2.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-2.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-2.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-2.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-2.1.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-2.1
JC30944-2.1.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-2.1
JC30944-2.1.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-2.1.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-2.1.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-2.1.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-2.1.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-2.1
JC30944-2.1.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-2.1.2	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-2.1.2	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage
JC30944-2.1.2	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-2.1.2	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage
JC30944-2.1.3	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-2.1.1
JC30944-2.1.3	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-2.1.1
JC30944-2.1.3	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-2.1.4	Sauvelson Auguste	Organics Prep	11/05/16 06:25	Extract from JC30944-2.1
JC30944-2.1.4	Organics Prep	Sauvelson Auguste	11/05/16 15:15	Extract from JC30944-2.1
JC30944-2.1.4	Sauvelson Auguste	Extract Storage	11/05/16 15:15	Return to Storage
JC30944-2.1.4	Extract Storage	Kristi Schollenberger	11/06/16 12:43	Retrieve from Storage
JC30944-2.1.4	Kristi Schollenberger	GCMSP	11/06/16 12:43	Load on Instrument
JC30944-2.1.4	GCMSP	Robert LaPosta	11/08/16 08:30	Unload from Instrument
JC30944-2.1.4	Robert LaPosta	Extract Freezer	11/08/16 08:30	Return to Storage
JC30944-2.1.5	Rebecca Gluckman	Organics Prep	11/05/16 08:15	Extract from JC30944-2.1

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-2.1.5	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-2.1
JC30944-2.1.5	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-2.1.5	Extract Storage	Kevin Moyle	11/07/16 15:46	Retrieve from Storage
JC30944-2.1.5	Kevin Moyle	GC2G	11/07/16 15:46	Load on Instrument
JC30944-2.1.5	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-2.1.5	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-2.1.6	Rebecca Gluckman	Organics Prep	11/05/16 08:16	Extract from JC30944-2.1
JC30944-2.1.6	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-2.1
JC30944-2.1.6	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-2.1.6	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-2.1.6	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-2.1.7	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-2.1.2
JC30944-2.1.7	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-2.1.2
JC30944-2.1.7	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage
JC30944-2.1.7	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-2.1.7	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-2.1.7	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-2.1.7	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-2.1.8	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-2.1.2
JC30944-2.1.8	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-2.1.2
JC30944-2.1.8	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-2.1.8	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-2.1.8	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument
JC30944-2.1.8	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-2.1.8	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30944-2.1.9	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-2.1.2
JC30944-2.1.9	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-2.1.2
JC30944-2.1.9	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-2.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-2.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-2.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-2.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-2.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-2.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-2.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-2.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-2.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-2.3
JC30944-2.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-2.3
JC30944-2.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-2.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-2.3
JC30944-2.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-2.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-2.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-2.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-2.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-2.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage
JC30944-2.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-2.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-2.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-2.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage
JC30944-2.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-2.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-2.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-2.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-2.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-2.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-2.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-2.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage
JC30944-2.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-2.4
JC30944-2.4.1	Radhika Mistry		11/07/16 16:00	Depleted
JC30944-2.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-2.4
JC30944-2.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-2.4
JC30944-2.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-2.4
JC30944-2.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-2.6	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-2.6	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-2.7	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-2.7	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-2.7	Secured Storage	Prashant Shukla	11/08/16 12:57	Retrieve from Storage
JC30944-2.7	Prashant Shukla	GCMSY	11/08/16 12:57	Load on Instrument
JC30944-2.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-2.7	Prashant Shukla		11/09/16 09:35	Depleted

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-2.8	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-2.8	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-2.8	Secured Storage	Prashant Shukla	11/08/16 14:40	Retrieve from Storage
JC30944-2.8	Prashant Shukla	GCMSY	11/08/16 14:40	Load on Instrument
JC30944-2.8	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-2.8	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-3.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-3.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-3.1	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-3.1	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-3.1	Secured Storage	Sauvelson Auguste	11/05/16 06:22	Retrieve from Storage
JC30944-3.1	Sauvelson Auguste	Rebecca Gluckman	11/05/16 08:07	Custody Transfer
JC30944-3.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-3.1	Secured Storage	Alfredo Crespo	11/07/16 07:28	Retrieve from Storage
JC30944-3.1	Alfredo Crespo	Secured Staging Area	11/07/16 07:28	Return to Storage
JC30944-3.1	Secured Staging Area	James Patrick McIlvaine	11/07/16 08:24	Retrieve from Storage
JC30944-3.1	James Patrick McIlvaine	Secured Storage	11/07/16 10:28	Return to Storage
JC30944-3.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-3.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC30944-3.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-3.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-3.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-3.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-3.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-3.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-3.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-3.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-3.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-3.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-3.1.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-3.1
JC30944-3.1.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-3.1
JC30944-3.1.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-3.1.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-3.1.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-3.1.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-3.1.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-3.1
JC30944-3.1.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-3.1.2	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-3.1.2	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-3.1.2	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-3.1.2	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage
JC30944-3.1.3	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-3.1.1
JC30944-3.1.3	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-3.1.1
JC30944-3.1.3	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-3.1.4	Sauvelson Auguste	Organics Prep	11/05/16 06:25	Extract from JC30944-3.1
JC30944-3.1.4	Organics Prep	Sauvelson Auguste	11/05/16 15:15	Extract from JC30944-3.1
JC30944-3.1.4	Sauvelson Auguste	Extract Storage	11/05/16 15:15	Return to Storage
JC30944-3.1.4	Extract Storage	Kristi Schollenberger	11/06/16 12:43	Retrieve from Storage
JC30944-3.1.4	Kristi Schollenberger	GCMSP	11/06/16 12:43	Load on Instrument
JC30944-3.1.4	GCMSP	Robert LaPosta	11/08/16 08:30	Unload from Instrument
JC30944-3.1.4	Robert LaPosta	Extract Freezer	11/08/16 08:30	Return to Storage
JC30944-3.1.5	Rebecca Gluckman	Organics Prep	11/05/16 08:15	Extract from JC30944-3.1
JC30944-3.1.5	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-3.1
JC30944-3.1.5	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-3.1.5	Extract Storage	Kevin Moyle	11/07/16 15:46	Retrieve from Storage
JC30944-3.1.5	Kevin Moyle	GC2G	11/07/16 15:46	Load on Instrument
JC30944-3.1.5	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-3.1.5	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-3.1.6	Rebecca Gluckman	Organics Prep	11/05/16 08:16	Extract from JC30944-3.1
JC30944-3.1.6	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-3.1
JC30944-3.1.6	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-3.1.6	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-3.1.6	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-3.1.7	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-3.1.2
JC30944-3.1.7	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-3.1.2
JC30944-3.1.7	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage
JC30944-3.1.7	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-3.1.7	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-3.1.7	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-3.1.7	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-3.1.8	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-3.1.2
JC30944-3.1.8	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-3.1.2
JC30944-3.1.8	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-3.1.8	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-3.1.8	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument
JC30944-3.1.8	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-3.1.8	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-3.1.9	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-3.1.2
JC30944-3.1.9	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-3.1.2
JC30944-3.1.9	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-3.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-3.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-3.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-3.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-3.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-3.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-3.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-3.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-3.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-3.3
JC30944-3.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-3.3
JC30944-3.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-3.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-3.3
JC30944-3.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-3.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-3.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-3.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-3.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-3.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage
JC30944-3.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-3.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-3.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-3.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage
JC30944-3.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-3.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-3.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-3.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-3.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-3.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-3.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-3.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage
JC30944-3.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-3.4
JC30944-3.4.1	Radhika Mistry		11/07/16 16:00	Depleted

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-3.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-3.4
JC30944-3.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-3.4
JC30944-3.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-3.4
JC30944-3.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-3.6	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-3.6	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-3.7	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-3.7	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-3.7	Secured Storage	Prashant Shukla	11/08/16 12:57	Retrieve from Storage
JC30944-3.7	Prashant Shukla	GCMSY	11/08/16 12:57	Load on Instrument
JC30944-3.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-3.7	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-3.8	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-3.8	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-4.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-4.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-4.1	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-4.1	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-4.1	Secured Storage	Sauvelson Auguste	11/05/16 06:22	Retrieve from Storage
JC30944-4.1	Sauvelson Auguste	Rebecca Gluckman	11/05/16 08:07	Custody Transfer
JC30944-4.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-4.1	Secured Storage	Alfredo Crespo	11/07/16 07:28	Retrieve from Storage
JC30944-4.1	Alfredo Crespo	Secured Staging Area	11/07/16 07:28	Return to Storage
JC30944-4.1	Secured Staging Area	James Patrick McIlvaine	11/07/16 08:24	Retrieve from Storage
JC30944-4.1	James Patrick McIlvaine	Secured Storage	11/07/16 10:28	Return to Storage
JC30944-4.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-4.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC30944-4.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-4.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-4.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-4.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-4.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-4.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-4.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-4.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-4.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-4.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-4.1.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-4.1
JC30944-4.1.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-4.1
JC30944-4.1.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-4.1.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-4.1.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-4.1.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-4.1.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-4.1
JC30944-4.1.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-4.1.2	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-4.1.2	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage
JC30944-4.1.2	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-4.1.2	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage
JC30944-4.1.3	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-4.1.1
JC30944-4.1.3	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-4.1.1
JC30944-4.1.3	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-4.1.4	Sauvelson Auguste	Organics Prep	11/05/16 06:25	Extract from JC30944-4.1
JC30944-4.1.4	Organics Prep	Sauvelson Auguste	11/05/16 15:15	Extract from JC30944-4.1
JC30944-4.1.4	Sauvelson Auguste	Extract Storage	11/05/16 15:15	Return to Storage
JC30944-4.1.4	Extract Storage	Kristi Schollenberger	11/06/16 12:43	Retrieve from Storage
JC30944-4.1.4	Kristi Schollenberger	GCMSP	11/06/16 12:43	Load on Instrument
JC30944-4.1.4	GCMSP	Robert LaPosta	11/08/16 08:30	Unload from Instrument
JC30944-4.1.4	Robert LaPosta	Extract Freezer	11/08/16 08:30	Return to Storage
JC30944-4.1.5	Rebecca Gluckman	Organics Prep	11/05/16 08:15	Extract from JC30944-4.1
JC30944-4.1.5	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-4.1
JC30944-4.1.5	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-4.1.5	Extract Storage	Kevin Moyle	11/07/16 15:46	Retrieve from Storage
JC30944-4.1.5	Kevin Moyle	GC2G	11/07/16 15:46	Load on Instrument
JC30944-4.1.5	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-4.1.5	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-4.1.6	Rebecca Gluckman	Organics Prep	11/05/16 08:16	Extract from JC30944-4.1
JC30944-4.1.6	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-4.1
JC30944-4.1.6	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-4.1.6	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-4.1.6	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-4.1.7	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-4.1.2
JC30944-4.1.7	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-4.1.2
JC30944-4.1.7	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-4.1.7	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-4.1.7	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-4.1.7	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-4.1.7	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-4.1.8	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-4.1.2
JC30944-4.1.8	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-4.1.2
JC30944-4.1.8	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-4.1.8	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-4.1.8	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument
JC30944-4.1.8	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-4.1.8	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30944-4.1.9	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-4.1.2
JC30944-4.1.9	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-4.1.2
JC30944-4.1.9	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-4.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-4.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-4.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-4.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-4.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-4.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-4.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-4.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-4.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-4.3
JC30944-4.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-4.3
JC30944-4.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-4.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-4.3
JC30944-4.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-4.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-4.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-4.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-4.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-4.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage
JC30944-4.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-4.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-4.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-4.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-4.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-4.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-4.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-4.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-4.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-4.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-4.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-4.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage
JC30944-4.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-4.4
JC30944-4.4.1	Radhika Mistry		11/07/16 16:00	Depleted
JC30944-4.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-4.4
JC30944-4.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-4.4
JC30944-4.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-4.4
JC30944-4.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-4.6	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-4.6	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-4.7	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-4.7	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-4.7	Secured Storage	Prashant Shukla	11/08/16 15:59	Retrieve from Storage
JC30944-4.7	Prashant Shukla	GCMSY	11/08/16 15:59	Load on Instrument
JC30944-4.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-4.7	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-4.8	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-4.8	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-5.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-5.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-5.1	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-5.1	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-5.1	Secured Storage	Sauvelson Auguste	11/04/16 05:49	Retrieve from Storage
JC30944-5.1	Sauvelson Auguste	Rebecca Gluckman	11/04/16 09:54	Custody Transfer
JC30944-5.1	Rebecca Gluckman	Secured Storage	11/04/16 11:58	Return to Storage
JC30944-5.1	Secured Storage	Rebecca Gluckman	11/05/16 07:48	Retrieve from Storage
JC30944-5.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-5.1	Secured Storage	Sauvelson Auguste	11/07/16 04:54	Retrieve from Storage
JC30944-5.1	Sauvelson Auguste	Secured Storage	11/07/16 10:08	Return to Storage
JC30944-5.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-5.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-5.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-5.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-5.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-5.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-5.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-5.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-5.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-5.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-5.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-5.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-5.1.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-5.1
JC30944-5.1.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-5.1
JC30944-5.1.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-5.1.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-5.1.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-5.1.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-5.1.2	Sauvelson Auguste	Organics Prep	11/04/16 05:49	Extract from JC30944-5.1
JC30944-5.1.2	Organics Prep	Albert Quayson	11/04/16 13:20	Extract from JC30944-5.1
JC30944-5.1.2	Albert Quayson	Extract Storage	11/04/16 13:20	Return to Storage
JC30944-5.1.3	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-5.1
JC30944-5.1.3	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-5.1.3	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-5.1.3	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage
JC30944-5.1.3	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-5.1.3	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage
JC30944-5.1.4	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-5.1.1
JC30944-5.1.4	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-5.1.1
JC30944-5.1.4	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-5.1.5	Rebecca Gluckman	Organics Prep	11/05/16 08:02	Extract from JC30944-5.1
JC30944-5.1.5	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-5.1
JC30944-5.1.5	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-5.1.5	Extract Storage	Kevin Moyle	11/07/16 15:46	Retrieve from Storage
JC30944-5.1.5	Kevin Moyle	GC2G	11/07/16 15:46	Load on Instrument
JC30944-5.1.5	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-5.1.5	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-5.1.6	Rebecca Gluckman	Organics Prep	11/05/16 08:04	Extract from JC30944-5.1

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-5.1.6	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-5.1
JC30944-5.1.6	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-5.1.6	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-5.1.6	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-5.1.7	Sauvelson Auguste	Organics Prep	11/07/16 04:56	Extract from JC30944-5.1
JC30944-5.1.7	Organics Prep	Sauvelson Auguste	11/07/16 11:44	Extract from JC30944-5.1
JC30944-5.1.7	Sauvelson Auguste	Extract Storage	11/07/16 11:44	Return to Storage
JC30944-5.1.7	Extract Storage	Shanice Grant	11/08/16 12:56	Retrieve from Storage
JC30944-5.1.7	Shanice Grant	GCMSF	11/08/16 12:56	Load on Instrument
JC30944-5.1.7	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC30944-5.1.7	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC30944-5.1.8	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-5.1.3
JC30944-5.1.8	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-5.1.3
JC30944-5.1.8	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage
JC30944-5.1.8	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-5.1.8	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-5.1.8	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-5.1.8	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-5.1.9	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-5.1.3
JC30944-5.1.9	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-5.1.3
JC30944-5.1.9	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-5.1.9	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-5.1.9	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument
JC30944-5.1.9	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-5.1.9	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30944-5.1.10	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-5.1.3
JC30944-5.1.10	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-5.1.3
JC30944-5.1.10	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-5.1.10	Extract Storage	Christine Phillips	11/14/16 15:55	Retrieve from Storage
JC30944-5.1.10	Christine Phillips	GC4G	11/14/16 15:55	Load on Instrument
JC30944-5.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-5.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-5.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-5.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-5.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-5.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-5.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-5.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-5.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-5.3
JC30944-5.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-5.3
JC30944-5.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-5.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-5.3
JC30944-5.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-5.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-5.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-5.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-5.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-5.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage
JC30944-5.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-5.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-5.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-5.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage
JC30944-5.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-5.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-5.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-5.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-5.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-5.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-5.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-5.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage
JC30944-5.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-5.4
JC30944-5.4.1	Radhika Mistry		11/07/16 16:00	Depleted
JC30944-5.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-5.4
JC30944-5.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-5.4
JC30944-5.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-5.4
JC30944-5.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-5.6	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-5.6	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-5.7	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-5.7	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-5.7	Secured Storage	Prashant Shukla	11/08/16 15:59	Retrieve from Storage
JC30944-5.7	Prashant Shukla	GCMSY	11/08/16 15:59	Load on Instrument
JC30944-5.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument

SGS Accutest Internal Chain of Custody

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-5.7	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-5.8	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-5.8	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-6.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-6.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-6.1	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-6.1	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-6.1	Secured Storage	Sauvelson Auguste	11/04/16 05:49	Retrieve from Storage
JC30944-6.1	Sauvelson Auguste	Rebecca Gluckman	11/04/16 09:54	Custody Transfer
JC30944-6.1	Rebecca Gluckman	Secured Storage	11/04/16 11:58	Return to Storage
JC30944-6.1	Secured Storage	Rebecca Gluckman	11/05/16 07:48	Retrieve from Storage
JC30944-6.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-6.1	Secured Storage	Sauvelson Auguste	11/07/16 04:54	Retrieve from Storage
JC30944-6.1	Sauvelson Auguste	Secured Storage	11/07/16 10:08	Return to Storage
JC30944-6.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-6.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC30944-6.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-6.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-6.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-6.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-6.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-6.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-6.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-6.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-6.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-6.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-6.1.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-6.1
JC30944-6.1.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-6.1
JC30944-6.1.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-6.1.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-6.1.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-6.1.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-6.1.2	Sauvelson Auguste	Organics Prep	11/04/16 05:49	Extract from JC30944-6.1
JC30944-6.1.2	Organics Prep	Albert Quayson	11/04/16 13:20	Extract from JC30944-6.1
JC30944-6.1.2	Albert Quayson	Extract Storage	11/04/16 13:20	Return to Storage
JC30944-6.1.3	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-6.1
JC30944-6.1.3	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage

SGS Accutest Internal Chain of Custody

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-6.1.3	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-6.1.3	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage
JC30944-6.1.3	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-6.1.3	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage
JC30944-6.1.4	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-6.1.1
JC30944-6.1.4	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-6.1.1
JC30944-6.1.4	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-6.1.5	Rebecca Gluckman	Organics Prep	11/05/16 08:02	Extract from JC30944-6.1
JC30944-6.1.5	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-6.1
JC30944-6.1.5	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-6.1.5	Extract Storage	Kevin Moyle	11/07/16 15:46	Retrieve from Storage
JC30944-6.1.5	Kevin Moyle	GC2G	11/07/16 15:46	Load on Instrument
JC30944-6.1.5	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-6.1.5	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-6.1.6	Rebecca Gluckman	Organics Prep	11/05/16 08:04	Extract from JC30944-6.1
JC30944-6.1.6	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-6.1
JC30944-6.1.6	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-6.1.6	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-6.1.6	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-6.1.7	Sauvelson Auguste	Organics Prep	11/07/16 04:56	Extract from JC30944-6.1
JC30944-6.1.7	Organics Prep	Sauvelson Auguste	11/07/16 11:44	Extract from JC30944-6.1
JC30944-6.1.7	Sauvelson Auguste	Extract Storage	11/07/16 11:44	Return to Storage
JC30944-6.1.7	Extract Storage	Shanice Grant	11/08/16 12:56	Retrieve from Storage
JC30944-6.1.7	Shanice Grant	GCMSF	11/08/16 12:56	Load on Instrument
JC30944-6.1.7	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC30944-6.1.7	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC30944-6.1.8	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-6.1.3
JC30944-6.1.8	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-6.1.3
JC30944-6.1.8	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage
JC30944-6.1.8	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-6.1.8	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-6.1.8	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-6.1.8	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-6.1.9	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-6.1.3
JC30944-6.1.9	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-6.1.3
JC30944-6.1.9	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-6.1.9	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-6.1.9	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument

SGS Accutest Internal Chain of Custody

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Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-6.1.9	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-6.1.9	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30944-6.1.10	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-6.1.3
JC30944-6.1.10	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-6.1.3
JC30944-6.1.10	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-6.1.10	Extract Storage	Christine Phillips	11/14/16 15:55	Retrieve from Storage
JC30944-6.1.10	Christine Phillips	GC4G	11/14/16 15:55	Load on Instrument
JC30944-6.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-6.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-6.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-6.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-6.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-6.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-6.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-6.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-6.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-6.3
JC30944-6.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-6.3
JC30944-6.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-6.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-6.3
JC30944-6.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-6.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-6.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-6.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-6.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-6.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage
JC30944-6.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-6.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-6.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-6.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage
JC30944-6.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-6.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-6.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-6.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-6.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-6.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-6.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-6.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-6.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-6.4
JC30944-6.4.1	Radhika Mistry		11/07/16 16:00	Depleted
JC30944-6.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-6.4
JC30944-6.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-6.4
JC30944-6.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-6.4
JC30944-6.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-6.6	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-6.6	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-6.7	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-6.7	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-6.7	Secured Storage	Prashant Shukla	11/08/16 15:59	Retrieve from Storage
JC30944-6.7	Prashant Shukla	GCMSY	11/08/16 15:59	Load on Instrument
JC30944-6.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-6.7	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-6.8	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-6.8	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-6.8	Secured Storage	Prashant Shukla	11/09/16 16:09	Retrieve from Storage
JC30944-6.8	Prashant Shukla	GCMS3C	11/09/16 16:09	Load on Instrument
JC30944-6.8	GCMS3C	Prashant Shukla	11/10/16 09:09	Unload from Instrument
JC30944-6.8	Prashant Shukla		11/10/16 09:09	Depleted
JC30944-7.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-7.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-7.1	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-7.1	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-7.1	Secured Storage	Sauvelson Auguste	11/04/16 05:49	Retrieve from Storage
JC30944-7.1	Sauvelson Auguste	Rebecca Gluckman	11/04/16 09:54	Custody Transfer
JC30944-7.1	Rebecca Gluckman	Secured Storage	11/04/16 11:58	Return to Storage
JC30944-7.1	Secured Storage	Rebecca Gluckman	11/05/16 07:48	Retrieve from Storage
JC30944-7.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-7.1	Secured Storage	Sauvelson Auguste	11/07/16 04:54	Retrieve from Storage
JC30944-7.1	Sauvelson Auguste	Secured Storage	11/07/16 10:08	Return to Storage
JC30944-7.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-7.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC30944-7.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-7.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-7.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-7.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage

SGS Accutest Internal Chain of Custody

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-7.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-7.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-7.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-7.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-7.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-7.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-7.1	Secured Storage	Sahara Feliciano	11/18/16 14:00	Retrieve from Storage
JC30944-7.1	Sahara Feliciano	Secured Staging Area	11/18/16 14:00	Return to Storage
JC30944-7.1	Sahara Feliciano	Secured Storage	11/18/16 14:06	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-7.1.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-7.1
JC30944-7.1.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-7.1
JC30944-7.1.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-7.1.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-7.1.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-7.1.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-7.1.2	Sauvelson Auguste	Organics Prep	11/04/16 05:49	Extract from JC30944-7.1
JC30944-7.1.2	Organics Prep	Albert Quayson	11/04/16 13:20	Extract from JC30944-7.1
JC30944-7.1.2	Albert Quayson	Extract Storage	11/04/16 13:20	Return to Storage
JC30944-7.1.3	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-7.1
JC30944-7.1.3	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-7.1.3	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-7.1.3	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage
JC30944-7.1.3	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-7.1.3	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage
JC30944-7.1.4	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-7.1.1
JC30944-7.1.4	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-7.1.1
JC30944-7.1.4	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-7.1.5	Rebecca Gluckman	Organics Prep	11/05/16 08:02	Extract from JC30944-7.1
JC30944-7.1.5	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-7.1
JC30944-7.1.5	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-7.1.5	Extract Storage	Kevin Moyle	11/07/16 15:46	Retrieve from Storage
JC30944-7.1.5	Kevin Moyle	GC2G	11/07/16 15:46	Load on Instrument
JC30944-7.1.5	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-7.1.5	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-7.1.6	Rebecca Gluckman	Organics Prep	11/05/16 08:04	Extract from JC30944-7.1

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-7.1.6	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-7.1
JC30944-7.1.6	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-7.1.6	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-7.1.6	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-7.1.7	Sauvelson Auguste	Organics Prep	11/07/16 04:56	Extract from JC30944-7.1
JC30944-7.1.7	Organics Prep	Sauvelson Auguste	11/07/16 11:44	Extract from JC30944-7.1
JC30944-7.1.7	Sauvelson Auguste	Extract Storage	11/07/16 11:44	Return to Storage
JC30944-7.1.7	Extract Storage	Shanice Grant	11/08/16 12:56	Retrieve from Storage
JC30944-7.1.7	Shanice Grant	GCMSF	11/08/16 12:56	Load on Instrument
JC30944-7.1.7	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC30944-7.1.7	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC30944-7.1.8	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-7.1.3
JC30944-7.1.8	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-7.1.3
JC30944-7.1.8	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage
JC30944-7.1.8	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-7.1.8	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-7.1.8	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-7.1.8	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-7.1.9	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-7.1.3
JC30944-7.1.9	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-7.1.3
JC30944-7.1.9	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-7.1.9	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-7.1.9	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument
JC30944-7.1.9	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-7.1.9	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30944-7.1.10	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-7.1.3
JC30944-7.1.10	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-7.1.3
JC30944-7.1.10	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-7.1.10	Extract Storage	Christine Phillips	11/14/16 15:55	Retrieve from Storage
JC30944-7.1.10	Christine Phillips	GC4G	11/14/16 15:55	Load on Instrument
JC30944-7.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-7.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-7.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-7.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-7.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-7.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-7.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-7.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-7.3	Secured Storage	Sahara Feliciano	11/18/16 14:12	Retrieve from Storage
JC30944-7.3	Sahara Feliciano	Secured Staging Area	11/18/16 14:12	Return to Storage
JC30944-7.3	Jamie J. Yakes	Secured Storage	11/21/16 10:08	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-7.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-7.3
JC30944-7.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-7.3
JC30944-7.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-7.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-7.3
JC30944-7.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-7.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-7.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-7.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-7.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-7.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage
JC30944-7.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-7.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-7.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-7.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage
JC30944-7.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-7.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-7.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-7.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-7.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-7.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-7.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-7.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage
JC30944-7.4	Secured Storage	Minhaj Hashmi	11/19/16 09:42	Retrieve from Storage
JC30944-7.4	Minhaj Hashmi	Secured Storage	11/19/16 09:43	Return to Storage
JC30944-7.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-7.4
JC30944-7.4.1	Radhika Mistry		11/07/16 16:00	Depleted
JC30944-7.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-7.4
JC30944-7.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-7.4
JC30944-7.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-7.4
JC30944-7.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-7.4.4	Minhaj Hashmi	TCLP	11/19/16 09:42	Leachate from JC30944-7.4
JC30944-7.4.4	TCLP	Minhaj Hashmi	11/19/16 09:43	Leachate from JC30944-7.4

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-7.4.4	Minhaj Hashmi	Secured Storage	11/19/16 09:43	Return to Storage
JC30944-7.4.5	TCLP	Minhaj Hashmi	11/19/16 09:43	Leachate from JC30944-7.4
JC30944-7.4.5	Minhaj Hashmi	Secured Storage	11/19/16 09:43	Return to Storage
JC30944-7.6	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-7.6	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-7.7	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-7.7	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-7.7	Secured Storage	Prashant Shukla	11/08/16 16:27	Retrieve from Storage
JC30944-7.7	Prashant Shukla	GCMSY	11/08/16 16:27	Load on Instrument
JC30944-7.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-7.7	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-7.8	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-7.8	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-8.1	Secured Storage	Sahara Feliciano	11/03/16 11:26	Retrieve from Storage
JC30944-8.1	Sahara Feliciano	Secured Staging Area	11/03/16 11:26	Return to Storage
JC30944-8.1	Secured Staging Area	Sauvelson Auguste	11/04/16 05:51	Retrieve from Storage
JC30944-8.1	Sauvelson Auguste	Rebecca Gluckman	11/04/16 09:54	Custody Transfer
JC30944-8.1	Rebecca Gluckman	Secured Storage	11/04/16 11:58	Return to Storage
JC30944-8.1	Secured Storage	Rebecca Gluckman	11/05/16 07:48	Retrieve from Storage
JC30944-8.1	Rebecca Gluckman	Secured Storage	11/05/16 11:11	Return to Storage
JC30944-8.1	Secured Storage	Sauvelson Auguste	11/07/16 04:54	Retrieve from Storage
JC30944-8.1	Sauvelson Auguste	Secured Storage	11/07/16 10:08	Return to Storage
JC30944-8.1	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC30944-8.1	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC30944-8.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC30944-8.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC30944-8.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC30944-8.1	Secured Storage	Alfredo Crespo	11/10/16 07:52	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-8.1	Alfredo Crespo	Secured Staging Area	11/10/16 07:52	Return to Storage
JC30944-8.1	Secured Staging Area	Paul Ojugo	11/10/16 08:25	Retrieve from Storage
JC30944-8.1	Paul Ojugo	Secured Storage	11/10/16 17:28	Return to Storage
JC30944-8.1	Secured Storage	Amir Takla	11/12/16 06:15	Retrieve from Storage
JC30944-8.1	Amir Takla	Secured Staging Area	11/12/16 13:41	Return to Storage
JC30944-8.1	Bernadette Vassilatos	Secured Storage	11/13/16 07:57	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-8.1.1	Sauvelson Auguste	Organics Prep	11/04/16 05:51	Extract from JC30944-8.1
JC30944-8.1.1	Organics Prep	Albert Quayson	11/04/16 13:20	Extract from JC30944-8.1

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-8.1.1	Albert Quayson	Extract Storage	11/04/16 13:20	Return to Storage
JC30944-8.1.2	Rebecca Gluckman	Organics Prep	11/05/16 08:02	Extract from JC30944-8.1
JC30944-8.1.2	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-8.1
JC30944-8.1.2	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-8.1.2	Extract Storage	Kevin Moyle	11/07/16 15:46	Retrieve from Storage
JC30944-8.1.2	Kevin Moyle	GC2G	11/07/16 15:46	Load on Instrument
JC30944-8.1.2	GC2G	Kevin Moyle	11/09/16 10:54	Unload from Instrument
JC30944-8.1.2	Kevin Moyle	Extract Freezer	11/09/16 10:54	Return to Storage
JC30944-8.1.3	Rebecca Gluckman	Organics Prep	11/05/16 08:04	Extract from JC30944-8.1
JC30944-8.1.3	Organics Prep	Meilly Arbelo	11/05/16 12:18	Extract from JC30944-8.1
JC30944-8.1.3	Meilly Arbelo	Extract Storage	11/05/16 12:18	Return to Storage
JC30944-8.1.3	Extract Storage	Christine Phillips	11/07/16 16:10	Retrieve from Storage
JC30944-8.1.3	Christine Phillips	GC4G	11/07/16 16:10	Load on Instrument
JC30944-8.1.4	Sauvelson Auguste	Organics Prep	11/07/16 04:56	Extract from JC30944-8.1
JC30944-8.1.4	Organics Prep	Sauvelson Auguste	11/07/16 11:44	Extract from JC30944-8.1
JC30944-8.1.4	Sauvelson Auguste	Extract Storage	11/07/16 11:44	Return to Storage
JC30944-8.1.4	Extract Storage	Shanice Grant	11/08/16 12:56	Retrieve from Storage
JC30944-8.1.4	Shanice Grant	GCMSF	11/08/16 12:56	Load on Instrument
JC30944-8.1.4	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC30944-8.1.4	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC30944-8.2	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-8.2	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-8.2	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-8.2	Secured Storage	Bernadette Vassilatos	11/03/16 12:06	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC30944-8.2	Bernadette Vassilatos		11/03/16 12:06	Subcontract
JC30944-8.2.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-8.2
JC30944-8.2.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-8.2
JC30944-8.2.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-8.2.1	Secured Storage	Martin Serwatka	11/04/16 11:58	Retrieve from Storage
JC30944-8.2.1	Martin Serwatka	Deval Patel	11/04/16 15:38	Custody Transfer
JC30944-8.2.1	Deval Patel	Secured Storage	11/04/16 18:08	Return to Storage
JC30944-8.2.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-8.2
JC30944-8.2.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-8.2.2	Secured Storage	Ryan Fantasia	11/04/16 14:57	Retrieve from Storage
JC30944-8.2.2	Ryan Fantasia	Secured Storage	11/04/16 23:08	Return to Storage
JC30944-8.2.2	Secured Storage	Vikas Parikh	11/07/16 06:50	Retrieve from Storage
JC30944-8.2.2	Vikas Parikh	Secured Storage	11/07/16 11:34	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-8.2.3	Deval Patel	Metals Digestion	11/04/16 18:04	Digestate from JC30944-8.2.1
JC30944-8.2.3	Metals Digestion	Deval Patel	11/04/16 18:04	Digestate from JC30944-8.2.1
JC30944-8.2.3	Deval Patel	Metals Digestate Storage	11/04/16 18:04	Return to Storage
JC30944-8.2.4	Vikas Parikh	Organics Prep	11/07/16 06:53	Extract from JC30944-8.2.2
JC30944-8.2.4	Organics Prep	Malay Parekh	11/07/16 15:17	Extract from JC30944-8.2.2
JC30944-8.2.4	Malay Parekh	Extract Storage	11/07/16 15:17	Return to Storage
JC30944-8.2.4	Extract Storage	Sean Block	11/07/16 22:09	Retrieve from Storage
JC30944-8.2.4	Sean Block	GCMS6P	11/07/16 22:09	Load on Instrument
JC30944-8.2.4	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC30944-8.2.4	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC30944-8.2.5	Vikas Parikh	Organics Prep	11/07/16 06:54	Extract from JC30944-8.2.2
JC30944-8.2.5	Organics Prep	Greg Mayer	11/07/16 17:18	Extract from JC30944-8.2.2
JC30944-8.2.5	Greg Mayer	Extract Storage	11/07/16 17:18	Return to Storage
JC30944-8.2.5	Extract Storage	Vincent Drago	11/08/16 13:41	Retrieve from Storage
JC30944-8.2.5	Vincent Drago	GC3G	11/08/16 13:41	Load on Instrument
JC30944-8.2.5	GC3G	Vincent Drago	11/10/16 10:22	Unload from Instrument
JC30944-8.2.5	Vincent Drago	Extract Freezer	11/10/16 10:22	Return to Storage
JC30944-8.2.6	Vikas Parikh	Organics Prep	11/07/16 06:55	Extract from JC30944-8.2.2
JC30944-8.2.6	Organics Prep	Greg Mayer	11/07/16 15:38	Extract from JC30944-8.2.2
JC30944-8.2.6	Greg Mayer	Extract Storage	11/07/16 15:38	Return to Storage
JC30944-8.2.6	Extract Storage	Christine Phillips	11/14/16 15:55	Retrieve from Storage
JC30944-8.2.6	Christine Phillips	GC4G	11/14/16 15:55	Load on Instrument
JC30944-8.3	Secured Storage	Sahara Feliciano	11/03/16 10:17	Retrieve from Storage
JC30944-8.3	Sahara Feliciano	Secured Staging Area	11/03/16 10:17	Return to Storage
JC30944-8.3	Secured Staging Area	Gage Donahue	11/03/16 11:29	Retrieve from Storage
JC30944-8.3	Gage Donahue	Secured Storage	11/03/16 15:00	Return to Storage
JC30944-8.3.1	Gage Donahue	TCLP	11/03/16 11:30	Leachate from JC30944-8.3
JC30944-8.3.1	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-8.3
JC30944-8.3.1	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-8.3.2	TCLP	Yogesh Rane	11/04/16 08:34	Leachate from JC30944-8.3
JC30944-8.3.2	Yogesh Rane	Secured Storage	11/04/16 10:11	Return to Storage
JC30944-8.3.2	Secured Storage	HeeEun Ahn	11/04/16 11:12	Retrieve from Storage
JC30944-8.3.2	HeeEun Ahn	Secured Storage	11/04/16 15:39	Return to Storage
JC30944-8.4	Secured Storage	Todd Shoemaker	11/04/16 11:32	Retrieve from Storage
JC30944-8.4	Todd Shoemaker	Secured Staging Area	11/04/16 11:32	Return to Storage
JC30944-8.4	Secured Staging Area	Luis Villanueva	11/04/16 14:03	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC30944
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/02/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC30944-8.4	Luis Villanueva	Secured Storage	11/04/16 15:27	Return to Storage
JC30944-8.4	Secured Storage	Jennifer Voitovitch	11/06/16 08:43	Retrieve from Storage
JC30944-8.4	Jennifer Voitovitch	Secured Staging Area	11/06/16 08:43	Return to Storage
JC30944-8.4	Secured Staging Area	Hans Seignon	11/06/16 08:45	Retrieve from Storage
JC30944-8.4	Hans Seignon	Secured Storage	11/06/16 18:22	Return to Storage
JC30944-8.4	Secured Storage	Alfredo Crespo	11/07/16 07:23	Retrieve from Storage
JC30944-8.4	Alfredo Crespo	Secured Staging Area	11/07/16 07:23	Return to Storage
JC30944-8.4	Secured Staging Area	Diana Mathes	11/07/16 08:02	Retrieve from Storage
JC30944-8.4	Diana Mathes	Radhika Mistry	11/07/16 14:52	Custody Transfer
JC30944-8.4	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC30944-8.4	Secured Storage	James Patrick McIlvaine	11/08/16 07:08	Retrieve from Storage
JC30944-8.4	James Patrick McIlvaine	Secured Storage	11/08/16 14:30	Return to Storage
JC30944-8.4.1	Radhika Mistry	Radhika Mistry	11/07/16 15:17	Aliquot from JC30944-8.4
JC30944-8.4.1	Radhika Mistry		11/07/16 16:00	Depleted
JC30944-8.4.2	Radhika Mistry	Metals Digestion	11/07/16 15:55	Digestate from JC30944-8.4
JC30944-8.4.3	Radhika Mistry	Metals Digestion	11/07/16 15:56	Digestate from JC30944-8.4
JC30944-8.4.3	Metals Digestion	Radhika Mistry	11/07/16 15:57	Digestate from JC30944-8.4
JC30944-8.4.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:57	Return to Storage
JC30944-8.6	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-8.6	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-8.7	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-8.7	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage
JC30944-8.7	Secured Storage	Prashant Shukla	11/08/16 16:27	Retrieve from Storage
JC30944-8.7	Prashant Shukla	GCMSY	11/08/16 16:27	Load on Instrument
JC30944-8.7	GCMSY	Prashant Shukla	11/09/16 09:35	Unload from Instrument
JC30944-8.7	Prashant Shukla		11/09/16 09:35	Depleted
JC30944-8.8	Secured Storage	Jayna Patel	11/03/16 08:10	Retrieve from Storage
JC30944-8.8	Jayna Patel	Secured Storage	11/03/16 08:10	Return to Storage

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Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144 LIRR Expansion

SGS Accutest Job Number: JC30944X

Sampling Dates: 11/01/16 - 11/02/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **233**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC30944X

LIRR Expansion, Long Island, NY
Project No: 16-144 LIRR Expansion

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC30944-1X	11/01/16	09:45	MC	11/02/16	SO	Soil	SB08-161101
JC30944-2X	11/01/16	11:27	MC	11/02/16	SO	Soil	SB10-161101
JC30944-3X	11/01/16	13:06	MC	11/02/16	SO	Soil	SB11-161101
JC30944-4X	11/01/16	14:25	MC	11/02/16	SO	Soil	SB09-161101
JC30944-5X	11/02/16	08:55	MC	11/02/16	SO	Soil	SB12-161102
JC30944-6X	11/02/16	09:25	MC	11/02/16	SO	Soil	SB13-161102
JC30944-7X	11/02/16	10:45	MC	11/02/16	SO	Soil	SB14-161102
JC30944-8X	11/02/16	12:36	MC	11/02/16	SO	Soil	SB16-161102

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Subcontract Lab Data

Report of Analysis

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FINAL LAB REPORT

JC30944X

A9395

30-Nov-2016

Prepared by

SGS NORTH AMERICA

Prepared for

Accutest

Tammy McCloskey

Fresh Ponds Crp Village Bldg B 2235 Route 130
Dayton, NJ 08810
Phone: 732.329.0200
Email: Tammy.McCloskey@sgs.com

This report is approved by

Tamara Morgan
2016.12.01 14:31:39 -05'00'

Tamara Morgan

Senior Project Manager

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Results reported relate only to the items tested.

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PROJECT INFORMATION SUMMARY *(When applicable, see QC Annotations for details)*

Client Project	JC30944X
SGS Project #	A9395
Analytical Protocol(s)	8290 TCDD only
No. Samples Submitted	8
Additional QC Sample(s)	0
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
Date Received	04-Nov-16
Condition Received	Good
Temperature upon Receipt (ºC)	1.1
Extraction within Holding Time	Yes
Analysis within Holding Time	Yes

QC ANNOTATIONS:

1. Please see Appendices attached for data qualifier/attribute and lab identifier descriptions which may be contained in the project.

APPENDIX A: GENERAL DATA QUALIFIERS / DATA ATTRIBUTES

B	The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
C	Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve) and is an estimated value.
EMPC	Represents an Estimated Maximum Possible Concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
H/h	If the standard recovery is below the method or SOP specified value “H” is assigned. If the obtained value is less than half the specified value “h” is assigned.
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve) and is an estimated value.
ND	Indicates a non-detect.
NR or R	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
SI	Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.

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APPENDIX B: DRBC/TMDL SPECIFIC DATA QUALIFIERS / DATA ATTRIBUTES

J	The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL).
U	The analyte was not detected in the sample at the estimated detection limit (EDL).
E	The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).
D	Dilution Data. Result was obtained from the analysis of a dilution.
B	Analyte found in the sample and associated method blank.
C	Co-eluting congener
Cxx	Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. 'Xx' denotes the IUPAC number with the lowest numerical designated congener.
NR	Analyte is not reportable because of problems in sample preparation or analysis.
V	Labeled standard recovery is not within method control limits.
X	Results from re-injection/repeat/second-column analysis.
EMPC	Estimated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

APPENDIX C: LAB IDENTIFIERS

AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

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SGS CERTIFICATIONS

Arkansas	88-0682
California (ELAP)	ELAP Cert #2914
CLIA	34D1013708
Connecticut	PH-0258
USDA Soil Permit	P330-14-00135
DoD	2726.01
Florida (Primary NELAP)	E87634
ISO 17025/IEC	2726.01
Louisiana	4115
Maine	#2016028
Massachusetts	M-NC919
Minnesota (Primary NELAP For Method 23)	Lab #037-999-459 Cert #981125
New Jersey	NC100
New York	11685
North Carolina DWR	481
North Dakota	R-197
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	Lab #99029 Cert #99029002
Texas	T104704260-16-9
US Coast Guard	16714/159.317/SGS
Virginia	Lab #460214 Cert #8722
Washington	C913
West Virginia	293

Rev. 12-Sep-2016

Sample ID: SB08-161101 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	9.35 g	Lab Sample ID	A9395_14501_DF_001	Date Extracted:	08-Nov-2016
Date Collected:	01-Nov-2016	% Solid:	91.4	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	3:14:56

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.0744			ES 2378-TCDD	90.1	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	80.8	

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Sample ID: SB10-161101 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	10.03 g	Lab Sample ID	A9395_14501_DF_002	Date Extracted:	08-Nov-2016
Date Collected:	01-Nov-2016	% Solid:	94.6	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	4:07:07

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.0894			ES 2378-TCDD	89.4	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	79.7	

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Sample ID: SB11-161101 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	9.66 g	Lab Sample ID	A9395_14501_DF_003	Date Extracted:	08-Nov-2016
Date Collected:	01-Nov-2016	% Solid:	89.1	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	4:59:17

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		0.461	J	ES 2378-TCDD	88.7	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	86.4	

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Sample ID: SB09-161101 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	9.78 g	Lab Sample ID	A9395_14501_DF_004	Date Extracted:	08-Nov-2016
Date Collected:	01-Nov-2016	% Solid:	95.6	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	5:51:34

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.212			ES 2378-TCDD	76.1	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	78.2	

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Sample ID: SB12-161102 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	9.74 g	Lab Sample ID	A9395_14501_DF_005	Date Extracted:	08-Nov-2016
Date Collected:	02-Nov-2016	% Solid:	91.5	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	9:26:30

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		1.24		ES 2378-TCDD	79.1	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	82.6	

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Wilmington, NC 28405, USA
www.us.sgs.com
Tel: +1 910 794-1613; Toll-Free 866 846-8290

Sample ID: SB13-161102 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	9.31 g	Lab Sample ID	A9395_14501_DF_006	Date Extracted:	08-Nov-2016
Date Collected:	02-Nov-2016	% Solid:	91.0	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	10:18:42

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.653			ES 2378-TCDD	82.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	81.9	

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Sample ID: SB14-161102 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	9.70 g	Lab Sample ID	A9395_14501_DF_007	Date Extracted:	08-Nov-2016
Date Collected:	02-Nov-2016	% Solid:	94.5	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	11:10:53

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.132			ES 2378-TCDD	78.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	78	

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5500 Business Drive
Wilmington, NC 28405, USA
www.us.sgs.com
Tel: +1 910 794-1613; Toll-Free 866 846-8290

Sample ID: SB16-161102 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	04-Nov-2016
Project ID:	JC30944X	Weight/Volume:	10.61 g	Lab Sample ID	A9395_14501_DF_008	Date Extracted:	08-Nov-2016
Date Collected:	02-Nov-2016	% Solid:	95.1	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	12:03:04

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.111			ES 2378-TCDD	91.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	83.8	

SGS
5500 Business Drive
Wilmington, NC 28405, USA
www.us.sgs.com
Tel: +1 910 794-1613; Toll-Free 866 846-8290

Sample ID: Method Blank A9395_14501 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9395	Date Received:	n/a
Project ID:	JC30944X	Weight/Volume:	10.00 g	Lab Sample ID	MB1_14501_DF_SDS	Date Extracted:	08-Nov-2016
Date Collected:	n/a	% Solid:	n/a	QC Batch No:	14501	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	2:22:39

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.135			ES 2378-TCDD	91.1	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	91.4	

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5500 Business Drive
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Tel: +1 910 794-1613; Toll-Free 866 846-8290

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161124P02	Analysis Date:	24-NOV-2016 00:38:17
Lab ID:	OPR1_14501_DF		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	8.99	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 28 Nov 2016 13:51 Analyst: pw

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161124P02	Analysis Date:	24-NOV-2016 00:38:17
Lab ID:	OPR1_14501_DF		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	84	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	32	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 28 Nov 2016 13:51 Analyst: pw

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*04-Nov-16 at 09:45*
AP Project name:	*A9395*
Requested TAT:	*14 days*
Projected due date:	*18-Nov-16*
Matrix:	*Solid*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	*Tammy McCloskey*
Company:	*Accutest*
Project Name & Site:	*JC30944X*
Project PO#:	*JC30944X*
QAAP/Contract #:	*N/A*
Requested Analysis:	*Method 8290 TCDD*
Phone#:	*732-329-0200*
Email Address:	*tammy.mccloskey@sgs.com*

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB08-161101	A9395_001	SO	1	16oz Clear	01-Nov-16	09:45	1.1	1	5633 9349 6137
SB10-161101	A9395_002	SO	1	16oz Clear	01-Nov-16	11:27	1.1	1	5633 9349 6137
SB11-161101	A9395_003	SO	1	16oz Clear	01-Nov-16	13:06	1.1	1	5633 9349 6137
SB09-161101	A9395_004	SO	1	16oz Clear	01-Nov-16	14:25	1.1	1	5633 9349 6137
SB12-161102	A9395_005	SO	1	16oz Clear	02-Nov-16	08:55	1.1	1	5633 9349 6137
SB13-161102	A9395_006	SO	1	16oz Clear	02-Nov-16	09:25	1.1	1	5633 9349 6137
SB14-161102	A9395_007	SO	1	16oz Clear	02-Nov-16	10:45	1.1	1	5633 9349 6137
SB16-161102	A9395_008	SO	1	16oz Clear	02-Nov-16	12:36	1.1	1	5633 9349 6137

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AK 4 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

SGS ACCUTEST

CHAIN OF CUSTODY

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TEL. 732-329-0200 FAX: 732-329-3499/3480
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FED-EX Tracking # 5633 9349 6137
Bottle Order Control #
SGS Accutest Quote #
SGS Accutest Job JC30944X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: Tammy.McCloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR Expansion, Long Island, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:
Attention:

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD ,	LAB USE ONLY
1X	SB08-161101		11/1/16	9:45:00 AM	MC	SO	1					1				X	
2X	SB10-161101		11/1/16	11:27:00 AM	MC	SO	1					1				X	
3X	SB11-161101		11/1/16	1:06:00 PM	MC	SO	1					1				X	
4X	SB09-161101		11/1/16	2:25:00 PM	MC	SO	1					1				X	
5X	SB12-161102		11/2/16	8:55:00 AM	MC	SO	1					1				X	
6X	SB13-161102		11/2/16	9:25:00 AM	MC	SO	1					1				X	
7X	SB14-161102		11/2/16	10:45:00 AM	MC	SO	1					1				X	
8X	SB16-161102		11/2/16	12:36:00 PM	MC	SO	1					1				X	

Number of preserved Bottles

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 14

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	11/3/16 17:00	1 Fed Ex	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 11/4/16 9:45	Received By: 4 Ashley Owens
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[X] Intact [ ] Not intact	Preserved where applicable [ ] Cooler Temp. 1.0

2

SGS

Project Initiation Form

Project Number: A9395

Initiation Date: 04-Nov-16

Client Name: Accutest

Analysis Method: 8290 PCDD/F

Sample Matrix: Solid

TAT: 14 days

Project Manager: Tamara

Special Instructions

8290 w/ OPR
2378 TCDD only

Reporting Instructions

8290 w/ OPR
2378 TCDD only

PM Initials: akornega Date: 04-Nov-2016

SGS

Methods: PCB, PAH, PCDD/F, WHO-2, QUANTICS, USV, PEST

Extraction Type: SDS, CLL, TALEX, Carbon SPE

Solid

Final Volume:

Batch# 14501 | Split: 1/2 1/4 | Extract Initial/Date: AW 11/8/16 | Clean-up Initial/Date: 11/16/16 | Transfer Init/Date:

Lab Sample ID	Extraction Position (Solvent: TOL)	Extraction Weight/Volume (g / mL)	20mL (Td) 250mL	~~ASECS #~~	manual column	Observations	Supply IDs	
A9391_14501_001	21	10.58	AW			tan, fine powder ~~fine~~ EE AW 11/8/16	Toluene	158853
A9391_14501_002	22	10.16	AW			tan, fine powder	MeCHL	163037
A9391_14501_003	24	10.11	AW			tan, fine powder	Florisil	753779
A9391_14501_004	25	10.75	AW			tan, fine powder	Hexane	163429
A9395_14501_001	26	10.23	AW			brown soil, rocks, grain-like	Silica	06272016
A9395_14501_002	27	10.60	AW			brown soil, grain-like, rocks	S Nitrate	11 10 2016
A9395_14501_003	28	10.84	AW			drk br soil, grain-like, om, rocks	Base Silica	10212016
A9395_14501_004	29	10.23	AW			brown soil, grain-like, rocks	HydroMatrix	63256623-01
A9395_14501_005	30	10.64	AW			drk br soil, grain-like, om, rocks	Tetradecane	08042016
A9395_14501_006	31	10.22	AW			brown soil, grain-like, rocks, om	H_2SO_4	—
A9395_14501_007	32	10.27	AW			brown soil, grain-like, rocks	A Silica	11 10 2016
A9395_14501_008	33	10.69	AW			brown soil, grain-like, rocks	Sodium Sulfate	06302016
MB1_14501	19	10.00	AW			Hydromatrix 63256623-01		
OPR1_14501	20	10.00	AW			Hydromatrix 63256623-01		
			11/9/16 11/8/16	11/16/16				
			11/14/16					

Additional Cleanup	
Acid Partition Date/Initial:	11/22/16
Mini-Acid Date/Initial:	
Carbon Column Date/Initial:	
GPC Date/Initial:	
Bond-Elute Date/Initial:	

Cycle Time		
TOL	Start:	1321
	Stop:	0850
~~HEX~~	Start:	
	Stop:	AW
DCM	Start:	11/8/16
	Stop:	

SGS

Methods: PCB PCDD/F QUANTICS PAH WHO-2 USV PEST

Solid

Batch# 14501

Inter-Department Communication Sheet

NO AS Spike used. OMC 11/15/16

11/29/2016 Samples & QCs acquired on HRMS 3; incorrect instrument alpha designation used in datafile sequence. LKB

TRANSFER: AAN 11/18/16

RECEIVED:

% Solid Determination WorkSheet

SGS

Batch: 14501

Lab Sample ID	Boat Wt.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	% solid Comments	Final Wt
A9391_14501_001	1.10	3.22	3.21		
A9391_14501_002	1.09	3.16	3.15		
A9391_14501_003	1.10	3.31	3.30		
A9391_14501_004	1.10	3.16	3.14		
A9395_14501_001	1.09	3.42	3.22	91.41%	9.35
A9395_14501_002	1.10	3.15	3.04	94.63%	10.03
A9395_14501_003	1.10	3.39	3.14	89.08%	9.66
A9395_14501_004	1.10	3.38	3.28	95.61%	9.78
A9395_14501_005	1.10	3.22	3.04	91.51%	9.74
A9395_14501_006	1.10	3.11	2.93	91.04%	9.31
A9395_14501_007	1.09	3.45	3.32	94.49%	9.70
A9395_14501_008	1.11	3.54	3.42	95.06%	10.61
Date/Initials: AW 11/8/16					

2

SGS

Methods: PCB, PAH, PCDD/F, WHO-2, QUANTICS, USV, PEST

Solid

Batch # 14501

Spiker Initials/Date:	11/8/16	11/8/16	11/8/16	11/15/16	11/18/16		
	Ax-A	Ax-B	ES	CS	JS		
Lab Sample ID	Amount: 20ul	Amount: 20ul	Amount: 20ul	Amount: 20ul	Amount: 20ul	Amount:	Amount:
	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials
A9391_14501_001	—	—	AW	[illegible]	ADW		
A9391_14501_002	—	—	AW	[illegible]	ADW		
A9391_14501_003	—	—	AW	[illegible]	ADW		
A9391_14501_004	—	—	AW	[illegible]	ADW		
A9395_14501_001	—	—	AW	[illegible]	ADW		
A9395_14501_002	—	—	AW	[illegible]	ADW		
A9395_14501_003	—	—	AW	[illegible]	ADW		
A9395_14501_004	—	—	AW	[illegible]	ADW		
A9395_14501_005	—	—	AW	[illegible]	ADW		
A9395_14501_006	—	—	AW	[illegible]	ADW		
A9395_14501_007	—	—	AW	[illegible]	ADW		
A9395_14501_008	—	—	AW	[illegible]	ADW		
MB1_14501	—	—	AW	[illegible]	ADW		
OPR1_14501	AW	AW	AW	[illegible]	ADW		
	11/8/16	11/8/16	11/8/16	11/15/16	11/18/16		

Standard Information

Spike ID	DF Ax-A	DF Ax-B	DF ES	DF CS/SS	DF JS		
SIL #	2163	15-175-2	2230	15-152-1	15-112-4		
Concentration	10ng/ml	10pg/ul	100pg/ul	40 pg/ul	10pg/ul		
Expiration Date	11/7/17	7/29/17	11/2021	6/17/17	12/2/16		

SGS

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*04-Nov-16 at 09:45*
AP Project name:	*A9395*
Requested TAT:	*14 days*
Projected due date:	*18-Nov-16*
Matrix:	*Solid*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	~~Viktoriya Pushkova~~ Tammy McCloskey
Company:	*Accutest*
Project Name & Site:	*JC30944X*
Project PO#:	*JC30944X*
QAAP/Contract #:	
Requested Analysis:	M8290 TCDD
Phone#:	*732-329-0200*
Email Address:	~~viktoriya.pushkova~~@sgs.com tammy.mccloskey

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB08-161101	A9395_001	SO	1	16oz Clear	01-Nov-16	09:45	1.1	1	5633 9349 6137
SB10-161101	A9395_002	SO	1	16oz Clear	01-Nov-16	11:27	1.1	1	5633 9349 6137
SB11-161101	A9395_003	SO	1	16oz Clear	01-Nov-16	13:06	1.1	1	5633 9349 6137
SB09-161101	A9395_004	SO	1	16oz Clear	01-Nov-16	14:25	1.1	1	5633 9349 6137
SB12-161102	A9395_005	SO	1	16oz Clear	02-Nov-16	08:55	1.1	1	5633 9349 6137
SB13-161102	A9395_006	SO	1	16oz Clear	02-Nov-16	09:25	1.1	1	5633 9349 6137
SB14-161102	A9395_007	SO	1	16oz Clear	02-Nov-16	10:45	1.1	1	5633 9349 6137
SB16-161102	A9395_008	SO	1	16oz Clear	02-Nov-16	12:36	1.1	1	5633 9349 6137

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact.

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AL 4 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

 A9395

SGS ACCUTEST

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking # 5163 3 9349 6137
Bottle Order Control #
SGS Accutest Quote #
SGS Accutest Job JC30944X

Client / Reporting Information	Project Information
Company Name: SGS Accutest	Project Name: LIRR Expansion, Long Island, NY
Street Address: 2235 Route 130	Street
City State Zip: Dayton NJ 08810	City State
Project Contact E-mail: Tammy.McCloskey@sgs.com	Project #
Phone # 732-329-0200 Fax #	Client Purchase Order #
Sampler(s) Name(s): MC Phone	Project Manager

Billing Information (if different from Report to)
Company Name
Street Address
City State Zip
Attention:

Requested Analysis (see TEST CODE sheet): B8290TCDD

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD	LAB USE ONLY
1X	SB08-161101		11/1/16	9:45:00 AM	MC	SO	1					1				X	
2X	SB10-161101		11/1/16	11:27:00 AM	MC	SO	1					1				X	
3X	SB11-161101		11/1/16	1:06:00 PM	MC	SO	1					1				X	
4X	SB09-161101		11/1/16	2:25:00 PM	MC	SO	1					1				X	
5X	SB12-161102		11/2/16	8:55:00 AM	MC	SO	1					1				X	
6X	SB13-161102		11/2/16	9:25:00 AM	MC	SO	1					1				X	
7X	SB14-161102		11/2/16	10:45:00 AM	MC	SO	1					1				X	
8X	SB16-161102		11/2/16	12:36:00 PM	MC	SO	1					1				X	

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 14

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time	Received By:	Relinquished By:	Date Time:	Received By:
1 B Russelow	11/3/16 17:00	1 Fed Ex	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 11/4/16 9:45	Received By: 4 Ashley Owens
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[X] Intact [ ] Not intact	Preserved where applicable [ ]

Cooler Temp. 1.0

SGS Environmental Services — Run Log **Project: A9395_14501_DF**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
1	161124P01	3	CS3_161124_DF_PA	1.00	SIL 15-104-2	ARL, PSW	285-949	23-Nov-2016	23:47:55
2	161124P02	16	OPR1_14501_DF	1.00	0_14501_OPR001	ARL, PSW	391-017	24-Nov-2016	00:38:17
3	161124P03	2	SBS_161124_DF_PA	1.00	SIL 15-49-1	ARL, PSW	674-712	24-Nov-2016	01:30:29
4	161124P04	15	MB1_14501_DF_SDS	10.00	Method Blank	ARL, PSW	419-513	24-Nov-2016	02:22:39
5	161124P05	17	A9395_14501_DF_001	9.35	SB08-161101	ARL, LKB	707-567	24-Nov-2016	03:14:56
6	161124P06	18	A9395_14501_DF_002	10.03	SB10-161101	ARL, LKB	186-746	24-Nov-2016	04:07:07
7	161124P07	19	A9395_14501_DF_003	9.66	SB11-161101	ARL, LKB	951-335	24-Nov-2016	04:59:17
8	161124P08	20	A9395_14501_DF_004	9.78	SB09-161101	ARL, LKB	340-068	24-Nov-2016	05:51:34
9	161124P09	2	SBS_161124_DF_PB	1.00	SIL 15-49-1	ARL, PSW	272-552	24-Nov-2016	06:43:50
10	161124P10	3	CS3_161124_DF_PB	1.00	SIL 15-104-2	ARL, PSW	661-634	24-Nov-2016	07:36:00
11	161124P11	16	OPR1_14501_RJ	1.00	0_14501_OPR001	ARL, PSW	401-618	24-Nov-2016	08:36:12
12	161124P12	21	A9395_14501_DF_005	9.74	SB12-161102	ARL, LKB	480-488	24-Nov-2016	09:26:30
13	161124P13	22	A9395_14501_DF_006	9.31	SB13-161102	ARL, LKB	697-581	24-Nov-2016	10:18:42
14	161124P14	23	A9395_14501_DF_007	9.70	SB14-161102	ARL, LKB	240-936	24-Nov-2016	11:10:53
15	161124P15	24	A9395_14501_DF_008	10.61	SB16-161102	ARL, LKB	669-469	24-Nov-2016	12:03:04
16	161124P16	2	SBS_161124_DF_PC	1.00	SIL 15-49-1	ARL, PSW	783-726	24-Nov-2016	12:55:15
17	161124P17	3	CS3_161124_DF_PC	1.00	SIL 15-104-2	ARL, PSW	419-274	24-Nov-2016	13:47:25

REVIEWED

Laura_Boivin , 11:17:52, 30/11/2016

11/30/2016 All extracts run on instrument HRMS-3 LKB

REVIEWED

By Amber Kornegay at 1:36 pm, Nov 30, 2016

Project file: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF.utp_prj, saved 30-Nov-2016 11:17
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933

Printed: 30-Nov-2016 11:17

Lab ID: MB1_14501_DF_SDS | Acq'd: 24 Nov 2016 02:22 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9395_14501 | UTP: 28-Nov-2016 13:34:57 PSW | J-level: 0.5 pg/g | Split: 1 | Checkcode: 419-513-BFV

Datafile: 161124P04 | Report: 28 Nov 2016 13:48 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	2542	0.135

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.41	1.0253	1.0254	+0.2	3.42E+07	0.80	Y	1.06	91.1

Lab ID: MB1_14501_DF_SDS | Acq'd: 24 Nov 2016 02:22 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9395_14501 | UTP: 28-Nov-2016 13:34:57 PSW | J-level: 0.5 pg/g | Split: 1 | Checkcode: 419-513-BFV

Datafile: 161124P04 | Report: 28 Nov 2016 13:48 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.73		-	-	-	3.53E+07	0.80	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	1.35E+07	1.25	Y	-	-
CS 37Cl-2378-TCDD	27.43		1.0261	1.0263	+0.3	1.60E+07	n/a	-	1.24	91.4

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: MB1_14501_DF_SDS | **Sample ID: Method Blank** | **Acq: 24-Nov-2016 02:22:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 15** | **User: ARL Datafile: 161124P04**

Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\MB1_14501_DF_SDS.utp_res, saved 28-Nov-2016 13:34 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 7934, 1738, 2471 scc: 419-513 | *PKD: 28-Nov-2016 09:56 Printed: 28-Nov-2016 14:14 Page 1 of 1*

Lab ID: A9395_14501_DF_001 | Acq'd: 24 Nov 2016 03:14 ARL | Wt/Vol: 9.35 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB08-161101 | UTP: 30-Nov-2016 11:08:13 LKB | J-level: 0.535 pg/g | Split: 1 | Checkcode: 707-567-HCN

Datafile: 161124P05 | Report: 30 Nov 2016 11:13 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	2615	0.0744

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.39	1.0253	1.0254	+0.2	6.92E+07	0.79	Y	1.06	90.1

Lab ID: A9395_14501_DF_001 | Acq'd: 24 Nov 2016 03:14 ARL | Wt/Vol: 9.35 g | ICAL: HRMS3_DF_12212015_06JAN2016

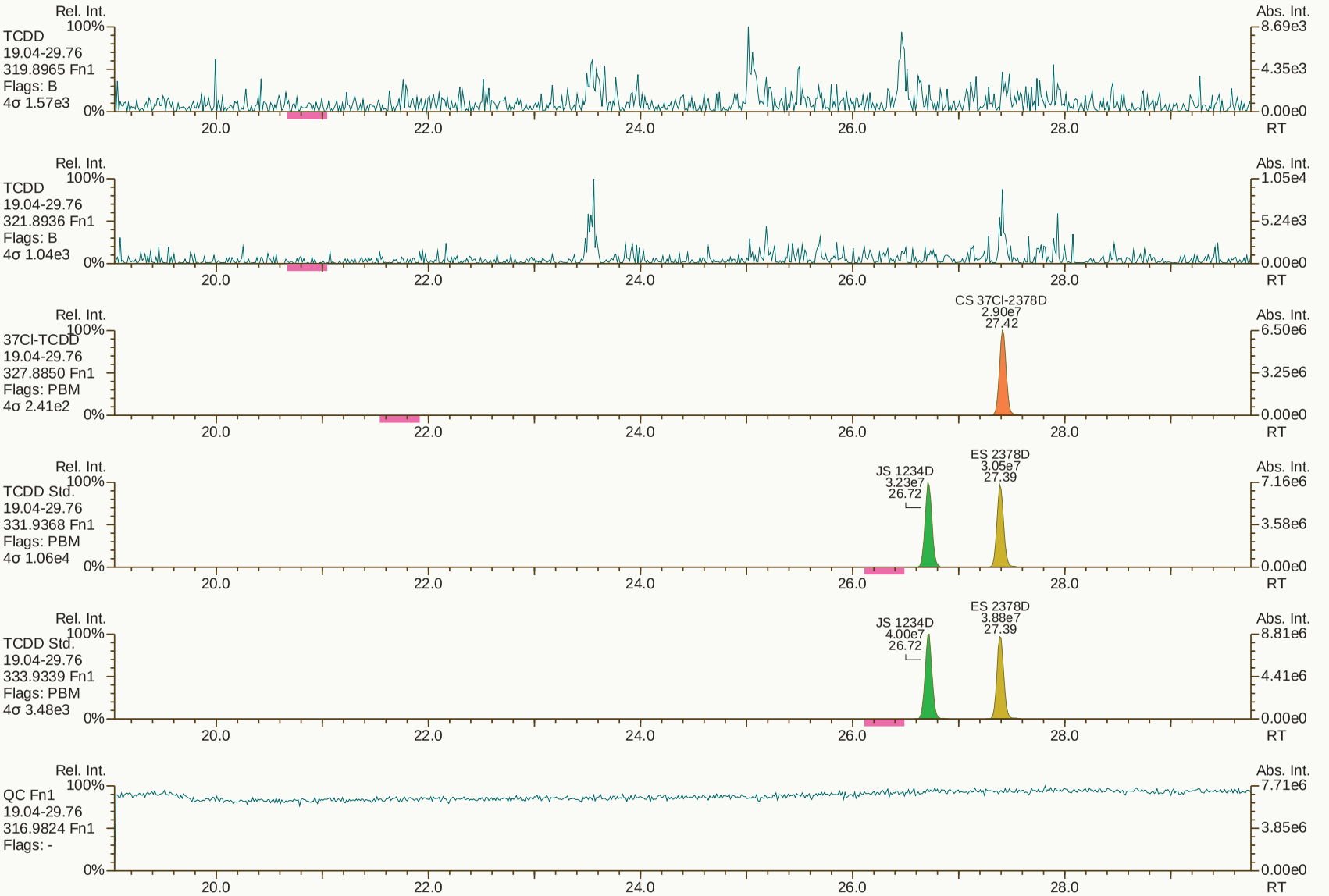
Client ID: SB08-161101 | UTP: 30-Nov-2016 11:08:13 LKB | J-level: 0.535 pg/g | Split: 1 | Checkcode: 707-567-HCN

Datafile: 161124P05 | Report: 30 Nov 2016 11:13 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.72		-	-	-	7.23E+07	0.81	Y	-	-
JS 123467-HxCDD	37.28		-	-	-	2.98E+07	1.24	Y	-	-
CS 37Cl-2378-TCDD	27.42		1.0261	1.0262	+0.2	2.90E+07	n/a	-	1.24	80.8

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: A9395_14501_DF_001 | **Sample ID: SB08-161101** | **Acq: 24-Nov-2016 03:14:56**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 17** | **User: ARL Datafile: 161124P05**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_001.utp_res, saved 30-Nov-2016 11:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4987, 4176, 7383 scc: 707-567 *Revised: 28-Nov-2016 13:32 (PSW) Printed: 30-Nov-2016 11:15 Page 1 of 1*

Lab ID: A9395_14501_DF_002 | Acq'd: 24 Nov 2016 04:07 ARL | Wt/Vol: 10.03 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB10-161101 | UTP: 30-Nov-2016 11:08:04 LKB | J-level: 0.499 pg/g | Split: 1 | Checkcode: 186-746-PWZ

Datafile: 161124P06 | Report: 30 Nov 2016 11:13 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	2256	0.0894

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.39	1.0253	1.0254	+0.2	4.60E+07	0.79	Y	1.06	89.4

Lab ID: A9395_14501_DF_002 | Acq'd: 24 Nov 2016 04:07 ARL | Wt/Vol: 10.03 g | ICAL: HRMS3_DF_12212015_06JAN2016

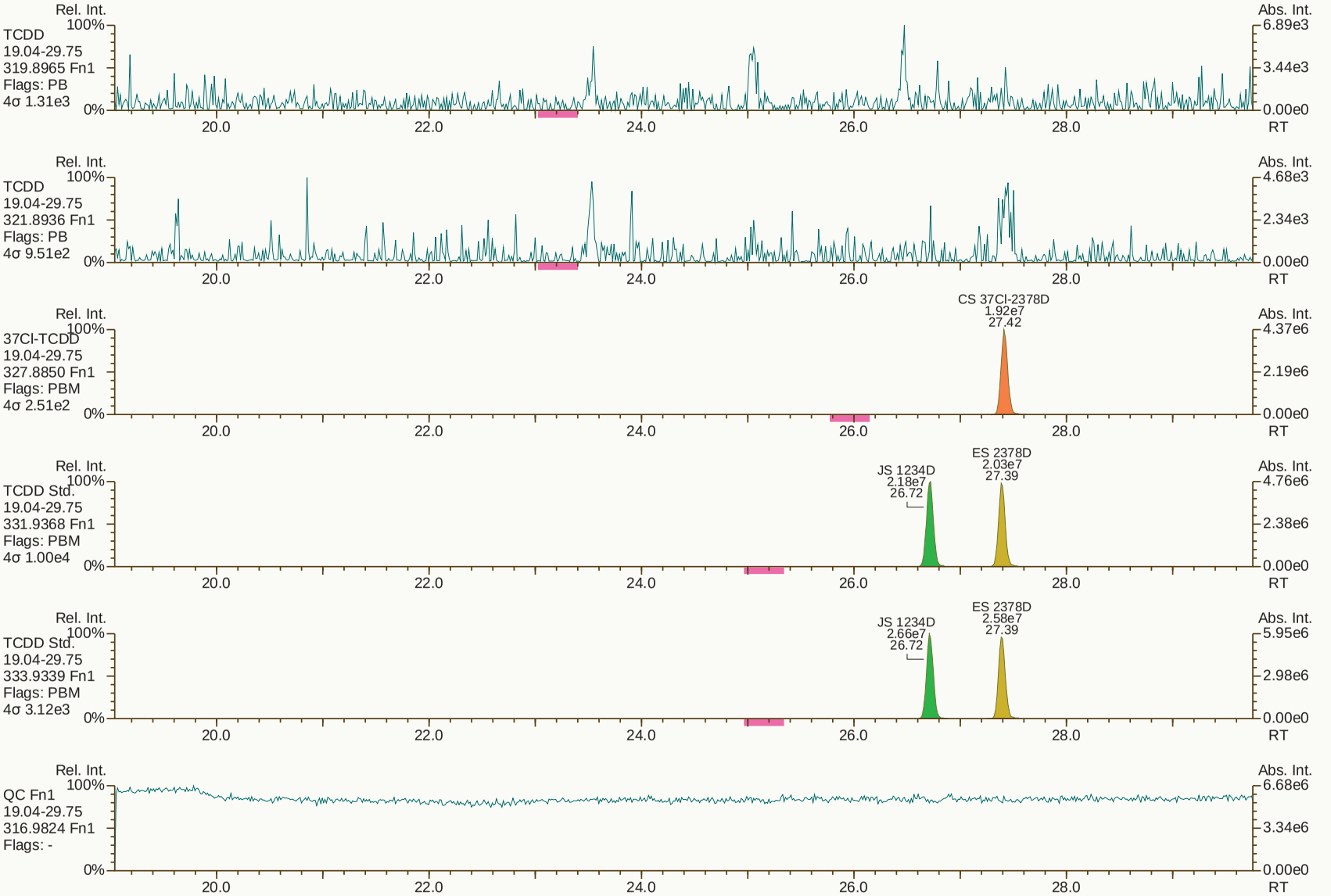
Client ID: SB10-161101 | UTP: 30-Nov-2016 11:08:04 LKB | J-level: 0.499 pg/g | Split: 1 | Checkcode: 186-746-PWZ

Datafile: 161124P06 | Report: 30 Nov 2016 11:13 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.72		-	-	-	4.84E+07	0.82	Y	-	-
JS 123467-HxCDD	37.28		-	-	-	2.08E+07	1.27	Y	-	-
CS 37Cl-2378-TCDD	27.42		1.0261	1.0263	+0.3	1.92E+07	n/a	-	1.24	79.7

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: A9395_14501_DF_002 | **Sample ID: SB10-161101** | **Acq: 24-Nov-2016 04:07:07**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 18** | **User: ARL Datafile: 161124P06**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_002.utp_res, saved 30-Nov-2016 11:08 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0367, 7152, 7349 scc: 186-746 | *PKD: 28-Nov-2016 09:58 Printed: 30-Nov-2016 11:15 Page 1 of 1*

Lab ID: A9395_14501_DF_003 | Acq'd: 24 Nov 2016 04:59 ARL | Wt/Vol: 9.66 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB11-161101 | UTP: 30-Nov-2016 11:08:23 LKB | J-level: 0.518 pg/g | Split: 1 | Checkcode: 951-335-DVB

Datafile: 161124P07 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.41	J EMPC	1.0009	1.0008	-0.2	1.58E+05	0.65	N	1.19	0.461	2435	0.0805

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.39	1.0253	1.0255	+0.3	5.96E+07	0.79	Y	1.06	88.7

Lab ID: A9395_14501_DF_003 | Acq'd: 24 Nov 2016 04:59 ARL | Wt/Vol: 9.66 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB11-161101 | UTP: 30-Nov-2016 11:08:23 LKB | J-level: 0.518 pg/g | Split: 1 | Checkcode: 951-335-DVB

Datafile: 161124P07 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

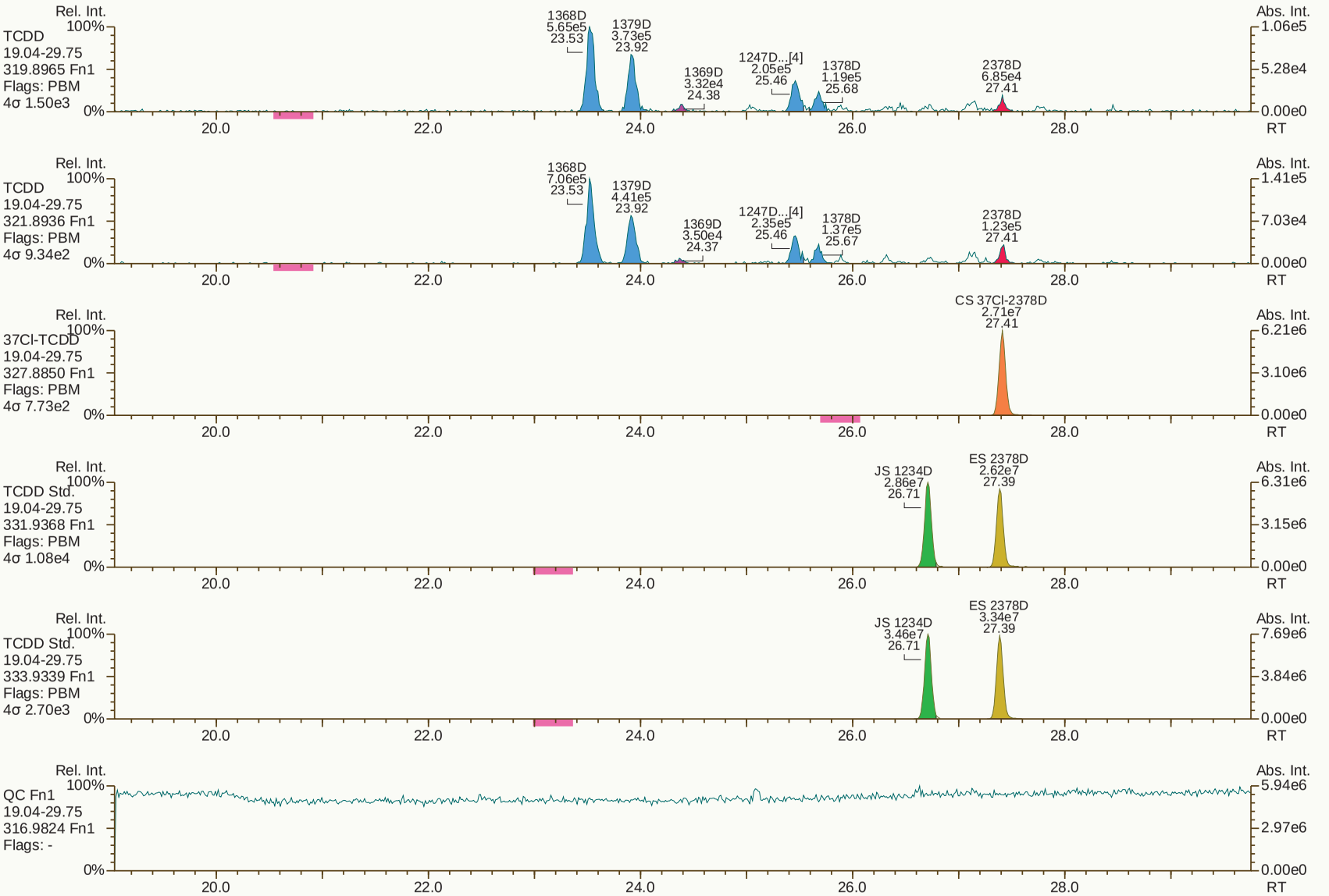
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.71		-	-	-	6.32E+07	0.82	Y	-	-
JS 123467-HxCDD	37.28		-	-	-	2.77E+07	1.28	Y	-	-
CS 37Cl-2378-TCDD	27.41		1.0261	1.0264	+0.5	2.71E+07	n/a	-	1.24	86.4

Totals	Conc	EMPC
Total TCDD	8.13	8.78

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.56	0.65
Response	1.91E+05	1.75E+05

SGS ID: A9395_14501_DF_003 | **Sample ID: SB11-161101** | **Acq: 24-Nov-2016 04:59:17**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 19** | **User: ARL Datafile: 161124P07**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_003.utp_res, saved 30-Nov-2016 11:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0361, 2327, 6169 scc: 951-335 *Revised: 28-Nov-2016 09:59 (PSW) Printed: 30-Nov-2016 11:15 Page 1 of 1*

Lab ID: A9395_14501_DF_004 | Acq'd: 24 Nov 2016 05:51 ARL | Wt/Vol: 9.78 g | ICAL: HRMS3_DF_12212015_06JAN2016
Client ID: SB09-161101 | UTP: 30-Nov-2016 11:08:33 LKB | J-level: 0.511 pg/g | Split: 1 | Checkcode: 340-068-NFK
Datafile: 161124P08 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	3077	0.212

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.41	1.0253	1.0254	+0.2	2.82E+07	0.81	Y	1.06	76.1

Lab ID: A9395_14501_DF_004 | Acq'd: 24 Nov 2016 05:51 ARL | Wt/Vol: 9.78 g | ICAL: HRMS3_DF_12212015_06JAN2016

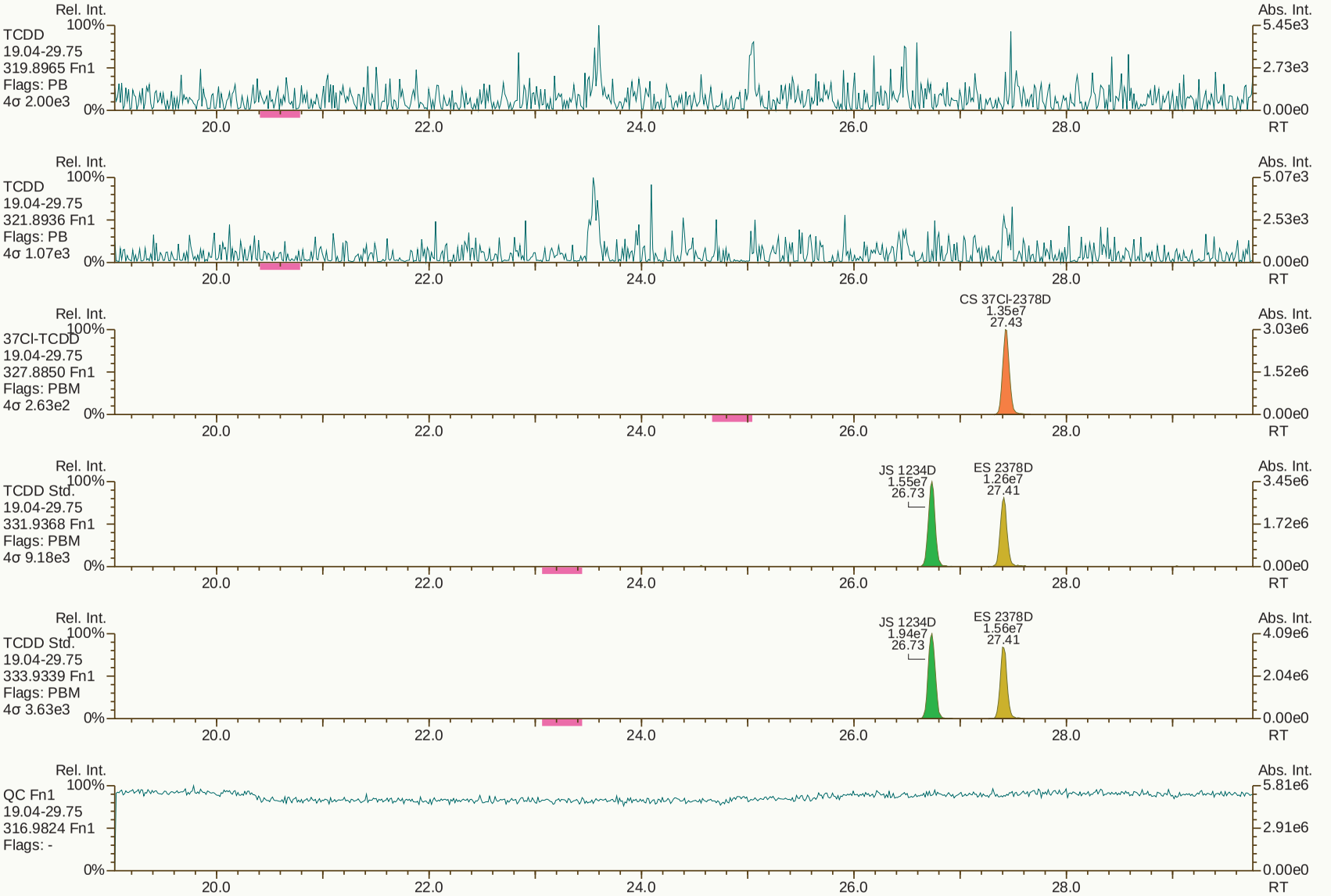
Client ID: SB09-161101 | UTP: 30-Nov-2016 11:08:33 LKB | J-level: 0.511 pg/g | Split: 1 | Checkcode: 340-068-NFK

Datafile: 161124P08 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.73		-	-	-	3.49E+07	0.80	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	1.33E+07	1.21	Y	-	-
CS 37Cl-2378-TCDD	27.43		1.0261	1.0262	+0.2	1.35E+07	n/a	-	1.24	78.2

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: A9395_14501_DF_004 | **Sample ID: SB09-161101** | **Acq: 24-Nov-2016 05:51:34**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 20** | **User: ARL Datafile: 161124P08**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_004.utp_res, saved 30-Nov-2016 11:08 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3563, 5716, 1238 scc: 340-068 | *PKD: 28-Nov-2016 10:00 Printed: 30-Nov-2016 11:15 Page 1 of 1*

Lab ID: A9395_14501_DF_005 | Acq'd: 24 Nov 2016 09:26 ARL | Wt/Vol: 9.74 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB12-161102 | UTP: 30-Nov-2016 11:08:46 LKB | J-level: 0.513 pg/g | Split: 1 | Checkcode: 480-488-JQR

Datafile: 161124P12 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.42	EMPC	1.0009	1.0009	0	2.24E+05	1.23	N	1.19	1.24	7251	0.44

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.40	1.0253	1.0253	0	3.12E+07	0.78	Y	1.06	79.1

Lab ID: A9395_14501_DF_005 | Acq'd: 24 Nov 2016 09:26 ARL | Wt/Vol: 9.74 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB12-161102 | UTP: 30-Nov-2016 11:08:46 LKB | J-level: 0.513 pg/g | Split: 1 | Checkcode: 480-488-JQR

Datafile: 161124P12 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

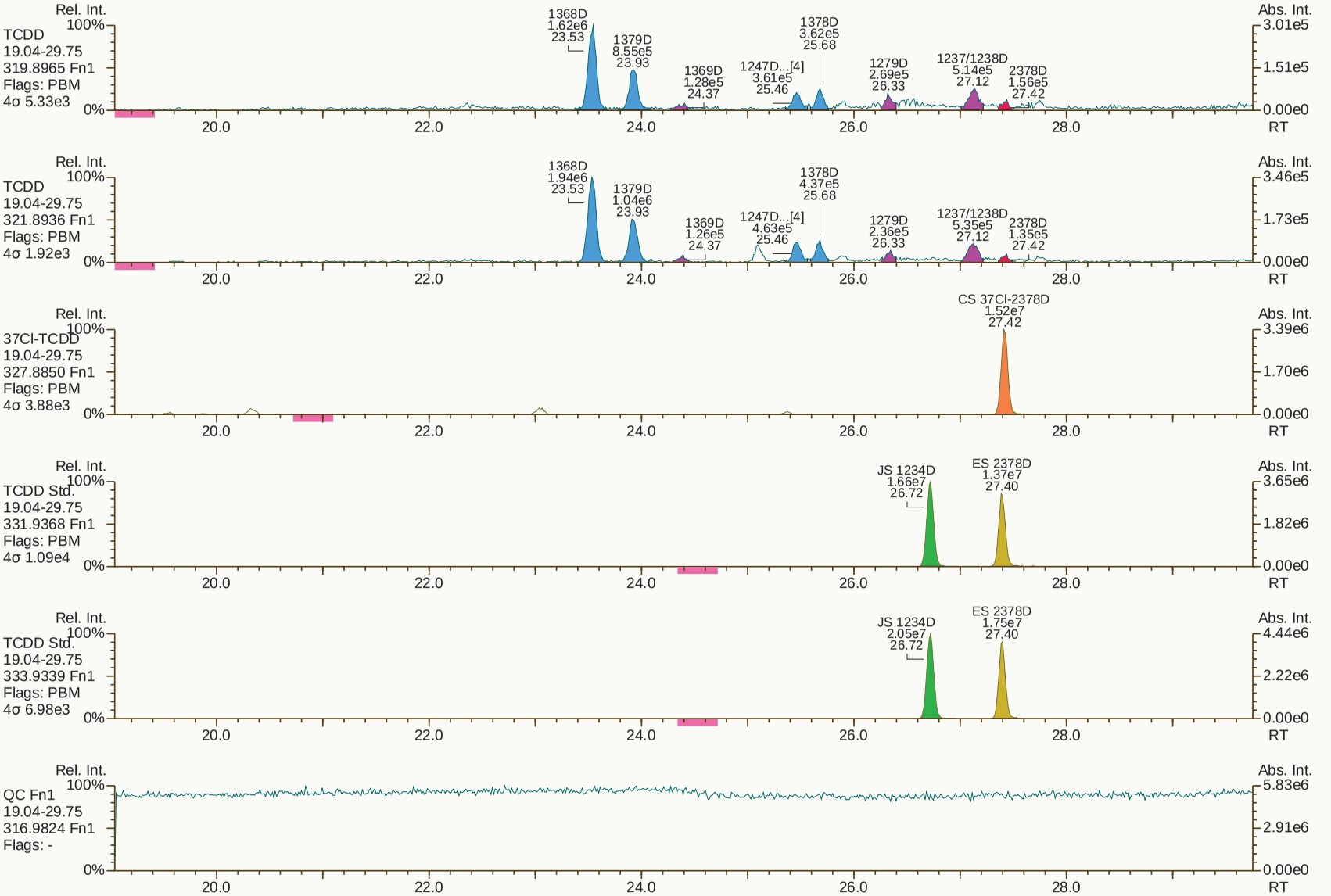
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.72		-	-	-	3.71E+07	0.81	Y	-	-
JS 123467-HxCDD	37.28		-	-	-	1.57E+07	1.23	Y	-	-
CS 37Cl-2378-TCDD	27.42		1.0261	1.0262	+0.2	1.52E+07	n/a	-	1.24	82.6

Totals	Conc	EMPC
Total TCDD	39.3	49.3

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	1.15	1.23
Response	2.91E+05	2.82E+05

SGS ID: A9395_14501_DF_005 | **Sample ID: SB12-161102** | **Acq: 24-Nov-2016 09:26:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 21** | **User: ARL Datafile: 161124P12**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_005.utp_res, saved 30-Nov-2016 11:08 (LKB)
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1595, 9455, 2339 scc: 480-488

Peak annotation: Areas, Centroids
PKD: 28-Nov-2016 10:02 Printed: 30-Nov-2016 11:16 Page 1 of 1

Lab ID: A9395_14501_DF_006 | Acq'd: 24 Nov 2016 10:18 ARL | Wt/Vol: 9.31 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB13-161102 | UTP: 30-Nov-2016 11:08:56 LKB | J-level: 0.537 pg/g | Split: 1 | Checkcode: 697-581-NKM

Datafile: 161124P13 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	4002	0.653

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.40	1.0253	1.0253	0	1.16E+07	0.77	Y	1.06	82.8

Lab ID: A9395_14501_DF_006 | Acq'd: 24 Nov 2016 10:18 ARL | Wt/Vol: 9.31 g | ICAL: HRMS3_DF_12212015_06JAN2016

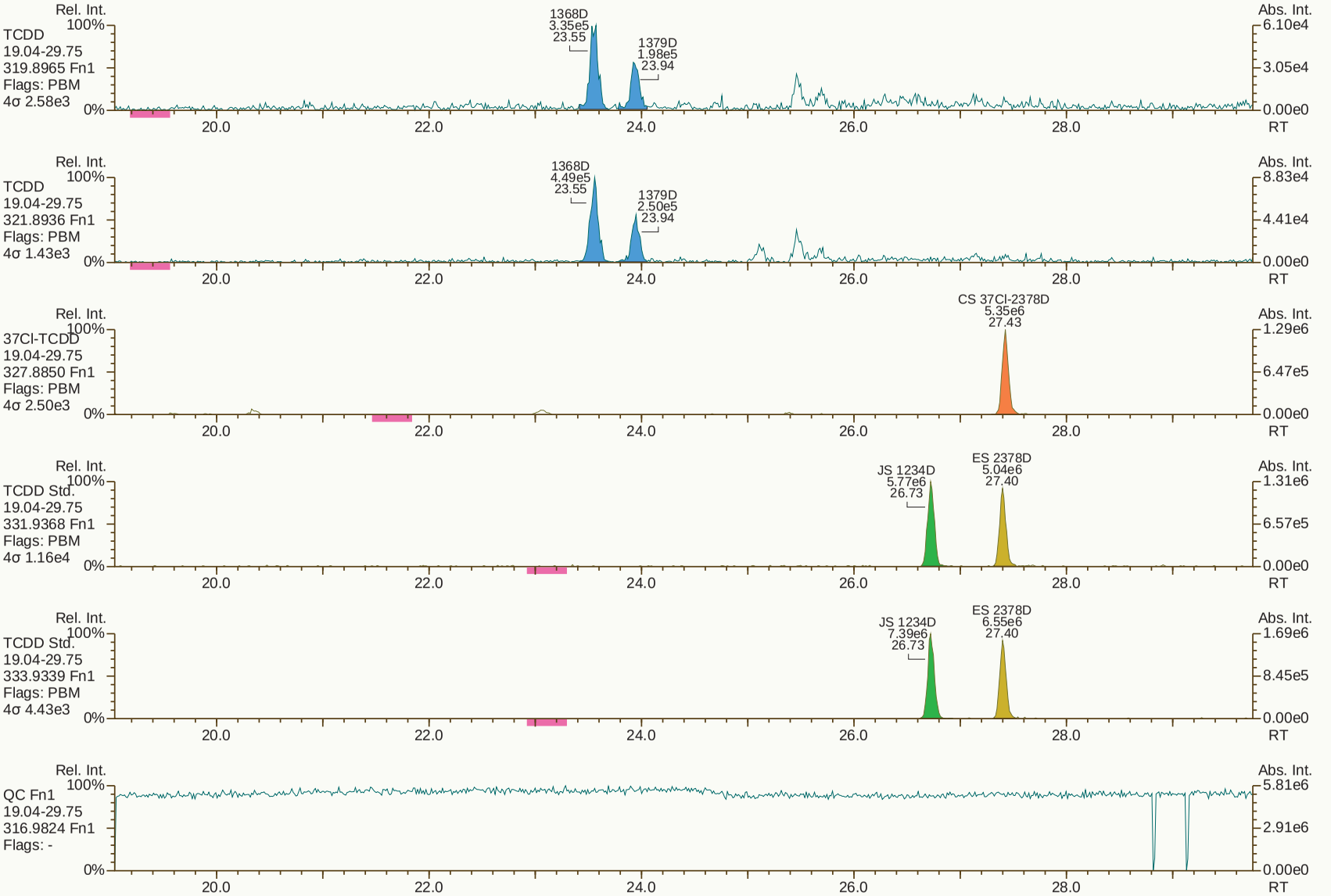
Client ID: SB13-161102 | UTP: 30-Nov-2016 11:08:56 LKB | J-level: 0.537 pg/g | Split: 1 | Checkcode: 697-581-NKM

Datafile: 161124P13 | Report: 30 Nov 2016 11:14 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.73		-	-	-	1.32E+07	0.78	Y	-	-
JS 123467-HxCDD	37.28		-	-	-	4.85E+06	1.26	Y	-	-
CS 37Cl-2378-TCDD	27.43		1.0261	1.0262	+0.2	5.35E+06	n/a	-	1.24	81.9

Totals	Conc	EMPC
Total TCDD	19.2	19.2

SGS ID: A9395_14501_DF_006 | **Sample ID: SB13-161102** | **Acq: 24-Nov-2016 10:18:42**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 22** | **User: ARL Datafile: 161124P13**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_006.utp_res, saved 30-Nov-2016 11:08 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9844, 3698, 7276 scc: 697-581 | *PKD: 28-Nov-2016 10:03 Printed: 30-Nov-2016 11:16 Page 1 of 1*

Lab ID: A9395_14501_DF_007 | Acq'd: 24 Nov 2016 11:10 ARL | Wt/Vol: 9.70 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB14-161102 | UTP: 30-Nov-2016 11:09:09 LKB | J-level: 0.515 pg/g | Split: 1 | Checkcode: 240-936-LZL

Datafile: 161124P14 | Report: 30 Nov 2016 11:15 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	2851	0.132

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.38	1.0253	1.0254	+0.2	3.99E+07	0.79	Y	1.06	78.9

Lab ID: A9395_14501_DF_007 | Acq'd: 24 Nov 2016 11:10 ARL | Wt/Vol: 9.70 g | ICAL: HRMS3_DF_12212015_06JAN2016

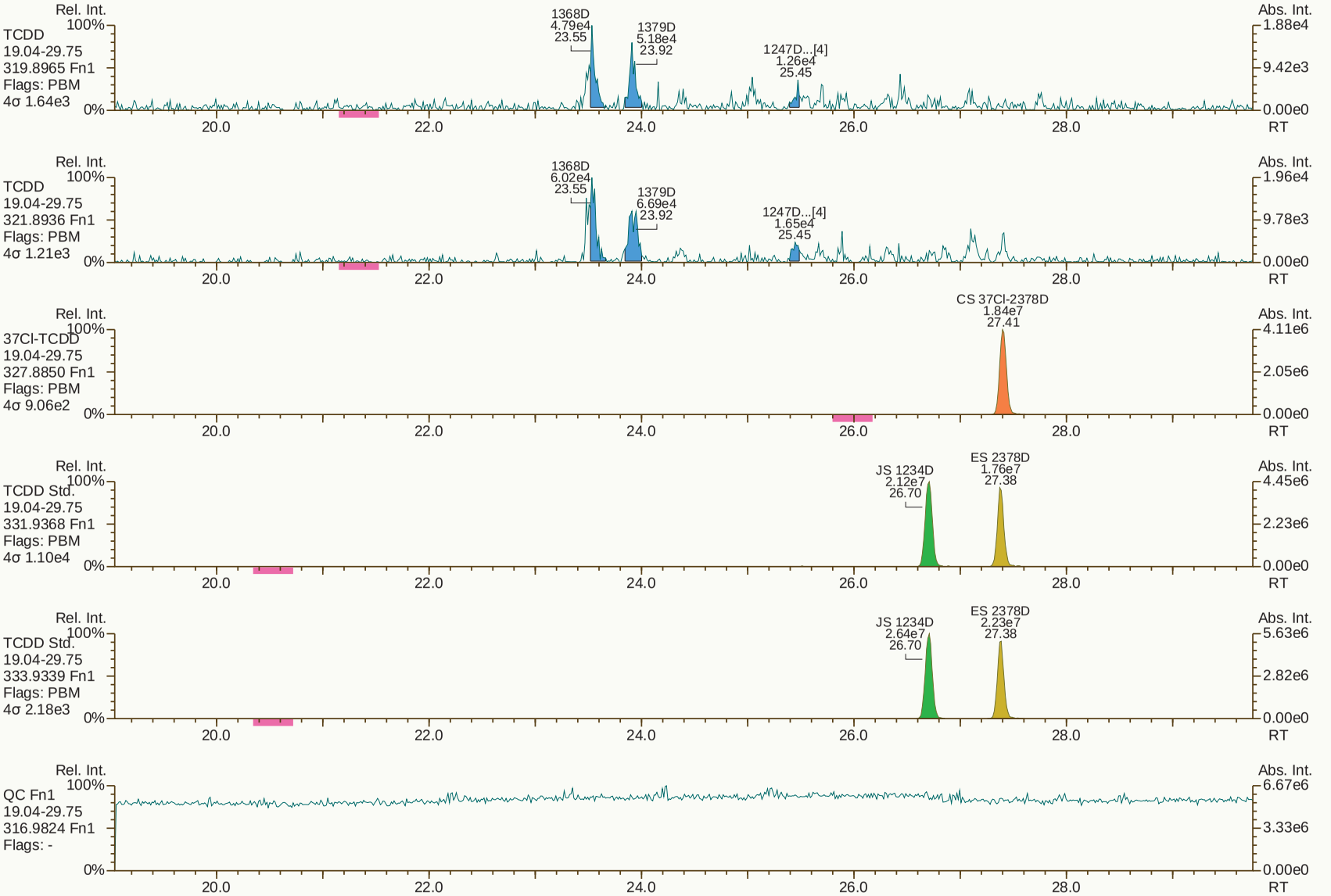
Client ID: SB14-161102 | UTP: 30-Nov-2016 11:09:09 LKB | J-level: 0.515 pg/g | Split: 1 | Checkcode: 240-936-LZL

Datafile: 161124P14 | Report: 30 Nov 2016 11:15 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.70		-	-	-	4.76E+07	0.80	Y	-	-
JS 123467-HxCDD	37.27		-	-	-	1.87E+07	1.27	Y	-	-
CS 37Cl-2378-TCDD	27.41		1.0261	1.0262	+0.2	1.84E+07	n/a	-	1.24	78

Totals	Conc	EMPC
Total TCDD	1.11	1.11

SGS ID: A9395_14501_DF_007 | **Sample ID: SB14-161102** | **Acq: 24-Nov-2016 11:10:53**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 23** | **User: ARL Datafile: 161124P14**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_007.utp_res, saved 30-Nov-2016 11:09 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2138, 9196, 0113 scc: 240-936 | *PKD: 28-Nov-2016 10:03 Printed: 30-Nov-2016 11:16 Page 1 of 1*

Lab ID: A9395_14501_DF_008 | Acq'd: 24 Nov 2016 12:03 ARL | Wt/Vol: 10.61 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB16-161102 | UTP: 30-Nov-2016 11:09:25 LKB | J-level: 0.471 pg/g | Split: 1 | Checkcode: 669-469-FKP

Datafile: 161124P15 | Report: 30 Nov 2016 11:15 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	3084	0.111

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.46	1.0253	1.0254	+0.2	5.25E+07	0.83	Y	1.06	91.9

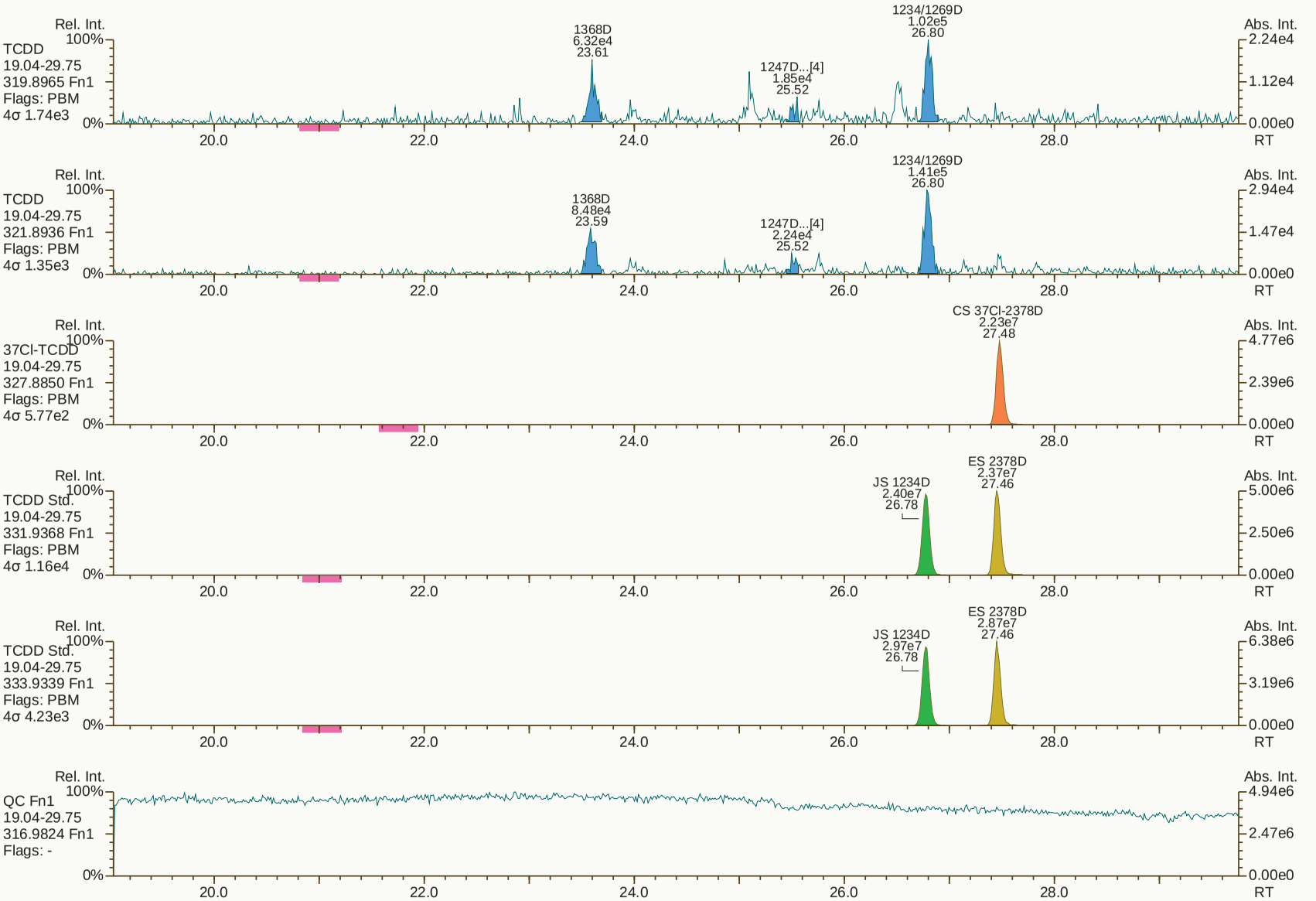
Lab ID: A9395_14501_DF_008 | Acq'd: 24 Nov 2016 12:03 ARL | Wt/Vol: 10.61 g | ICAL: HRMS3_DF_12212015_06JAN2016
Client ID: SB16-161102 | UTP: 30-Nov-2016 11:09:25 LKB | J-level: 0.471 pg/g | Split: 1 | Checkcode: 669-469-FKP
Datafile: 161124P15 | Report: 30 Nov 2016 11:15 LB | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.78		-	-	-	5.37E+07	0.81	Y	-	-
JS 123467-HxCDD	37.40		-	-	-	1.36E+07	1.28	Y	-	-
CS 37Cl-2378-TCDD	27.48		1.0261	1.0263	+0.3	2.23E+07	n/a	-	1.24	83.8

Totals	Conc	EMPC
Total TCDD	1.31	1.31

SGS ID: A9395_14501_DF_008 | **Sample ID: SB16-161102** | **Acq: 24-Nov-2016 12:03:04**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 24** | **User: ARL Datafile: 161124P15**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\A9395_14501_DF_008.utp_res, saved 30-Nov-2016 11:09 (LKB) | *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3318, 9333, 9785 scc: 669-469 | *PKD: 28-Nov-2016 10:04 Printed: 30-Nov-2016 11:16 Page 1 of 1*

SGS Environmental Services — Run Log **Project: A9395_14501_DF**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
1	161124P01	3	CS3_161124_DF_PA	1.00	SIL 15-104-2	ARL, PSW	285-949	23-Nov-2016	23:47:55
2	161124P02	16	OPR1_14501_DF	1.00	0_14501_OPR001	ARL, PSW	391-017	24-Nov-2016	00:38:17
3	161124P03	2	SBS_161124_DF_PA	1.00	SIL 15-49-1	ARL, PSW	674-712	24-Nov-2016	01:30:29
4	161124P04	15	MB1_14501_DF_SDS	10.00	Method Blank	ARL, PSW	419-513	24-Nov-2016	02:22:39
5	161124P05	17	A9395_14501_DF_001	9.35	SB08-161101	ARL, LKB	707-567	24-Nov-2016	03:14:56
6	161124P06	18	A9395_14501_DF_002	10.03	SB10-161101	ARL, LKB	186-746	24-Nov-2016	04:07:07
7	161124P07	19	A9395_14501_DF_003	9.66	SB11-161101	ARL, LKB	951-335	24-Nov-2016	04:59:17
8	161124P08	20	A9395_14501_DF_004	9.78	SB09-161101	ARL, LKB	340-068	24-Nov-2016	05:51:34
9	161124P09	2	SBS_161124_DF_PB	1.00	SIL 15-49-1	ARL, PSW	272-552	24-Nov-2016	06:43:50
10	161124P10	3	CS3_161124_DF_PB	1.00	SIL 15-104-2	ARL, PSW	661-634	24-Nov-2016	07:36:00
11	161124P11	16	OPR1_14501_RJ	1.00	0_14501_OPR001	ARL, PSW	401-618	24-Nov-2016	08:36:12
12	161124P12	21	A9395_14501_DF_005	9.74	SB12-161102	ARL, LKB	480-488	24-Nov-2016	09:26:30
13	161124P13	22	A9395_14501_DF_006	9.31	SB13-161102	ARL, LKB	697-581	24-Nov-2016	10:18:42
14	161124P14	23	A9395_14501_DF_007	9.70	SB14-161102	ARL, LKB	240-936	24-Nov-2016	11:10:53
15	161124P15	24	A9395_14501_DF_008	10.61	SB16-161102	ARL, LKB	669-469	24-Nov-2016	12:03:04
16	161124P16	2	SBS_161124_DF_PC	1.00	SIL 15-49-1	ARL, PSW	783-726	24-Nov-2016	12:55:15
17	161124P17	3	CS3_161124_DF_PC	1.00	SIL 15-104-2	ARL, PSW	419-274	24-Nov-2016	13:47:25

2nd OPR runs as CPSM. AK 30 Nov 16

REVIEWED
Laura_Boivin , 11:17:52, 30/11/2016

11/30/2016 All extracts run on instrument HRMS-3 LKB

REVIEWED
By Amber Kornegay at 1:19 pm, Nov 30, 2016

Dioxin/Furan QC Summary | **Acq'd: 23 Nov 2016 23:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161124_DF_PA | **UTP: 28-Nov-2016 13:34:55 PSW** | **Checkcode: 285-949-CWL**

Sample ID: SIL 15-104-2 | **Report: 28 Nov 2016 13:43 pw** | **Datafile: 161124P01**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.43	5.08E+06	0.78	Y	1.19	1.08	-9%
ES 2378-TCDD	27.41	4.70E+07	0.80	Y	1.06	1.03	-3%

Dioxin/Furan QC Summary | **Acq'd: 23 Nov 2016 23:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161124_DF_PA | **UTP: 28-Nov-2016 13:34:55 PSW** | **Checkcode: 285-949-CWL**

Sample ID: SIL 15-104-2 | **Report: 28 Nov 2016 13:43 pw** | **Datafile: 161124P01**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.73	4.56E+07	0.82	Y	-	-	-
CS 37Cl-2378-TCDD	27.43	5.17E+06	n/a	-	1.24	1.14	-9%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016

Instrument ID: HRMS3 GC Column ID: ZB-5ms

VER Data Filename: 161124P01 Analysis Date: 23-NOV-2016 23:47:55

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	9.11	8 - 12	Y

Processed: 28 Nov 2016 13:43 Analyst: pw

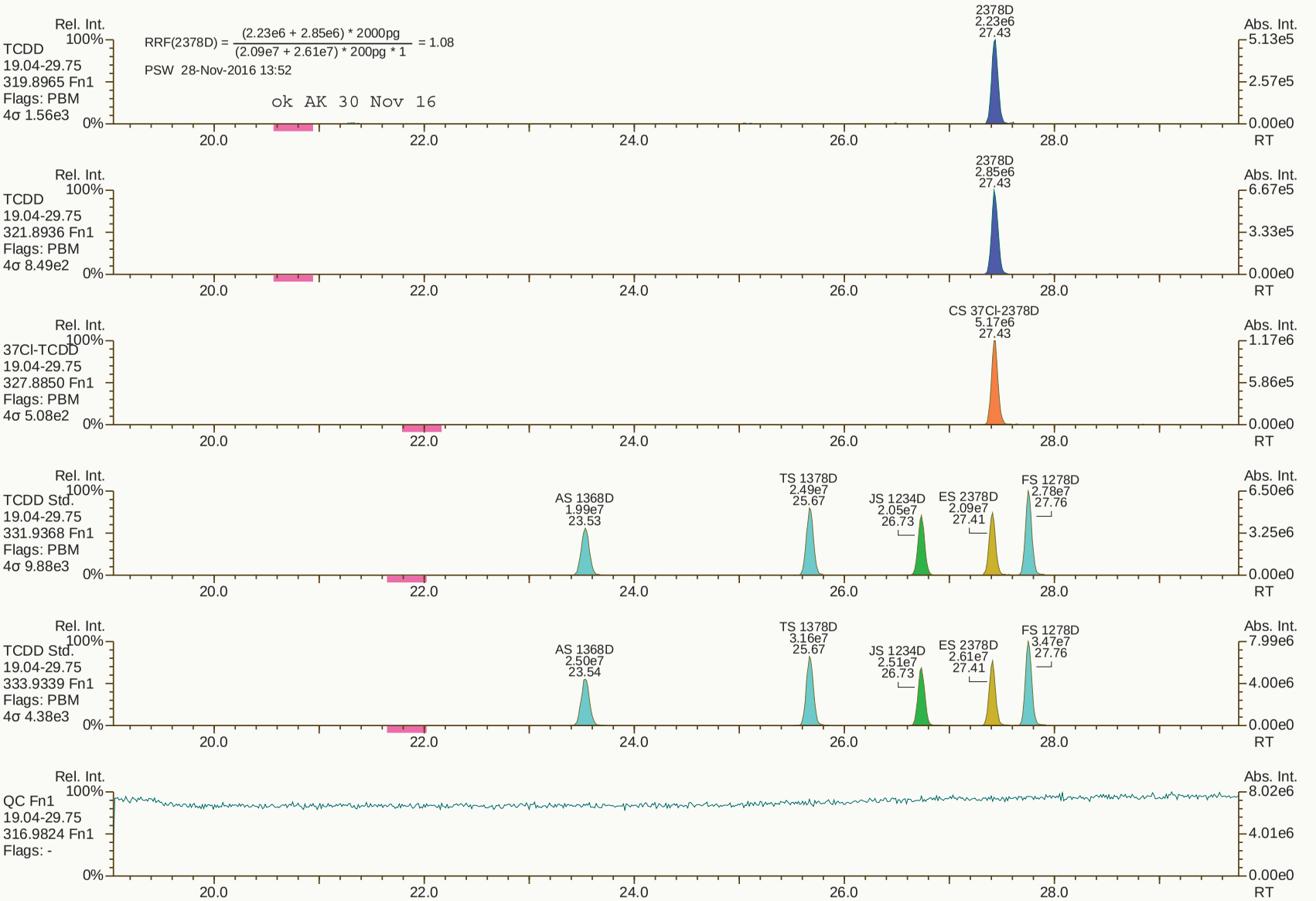
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS GC Column ID: ZB-5ms
VER Data Filename: 161124P01 Analysis Date: 23-NOV-2016 23:47:55

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65 - 0.89	Y	97	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.14	7.9 - 12.7	Y

Processed: 28 Nov 2016 13:43 Analyst: pw

SGS ID: CS3_161124_DF_PA | **Sample ID: SIL 15-104-2** | **Acq: 23-Nov-2016 23:47:55**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161124P01**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\CS3_161124_DF_PA.utp_res, saved 28-Nov-2016 13:54 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9987, 2165, 5207 scc: 285-949 *PKD: 28-Nov-2016 09:45 Printed: 29-Nov-2016 10:26 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 24 Nov 2016 07:36 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161124_DF_PB | **UTP: 28-Nov-2016 13:35:03 PSW** | **Checkcode: 661-634-SLM**

Sample ID: SIL 15-104-2 | **Report: 28 Nov 2016 13:43 pw** | **Datafile: 161124P10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.41	4.36E+06	0.79	Y	1.19	1.03	-13%
ES 2378-TCDD	27.39	4.24E+07	0.78	Y	1.06	1.05	-1%

Dioxin/Furan QC Summary | **Acq'd: 24 Nov 2016 07:36 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161124_DF_PB | **UTP: 28-Nov-2016 13:35:03 PSW** | **Checkcode: 661-634-SLM**

Sample ID: SIL 15-104-2 | **Report: 28 Nov 2016 13:43 pw** | **Datafile: 161124P10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.71	4.05E+07	0.79	Y	-	-	-
CS 37Cl-2378-TCDD	27.41	4.41E+06	n/a	-	1.24	1.09	-12%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161124P10 Analysis Date: 24-NOV-2016 07:36:00

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.79	0.65 - 0.89	Y	8.66	8 - 12	Y

Processed: 28 Nov 2016 13:44 Analyst: pw

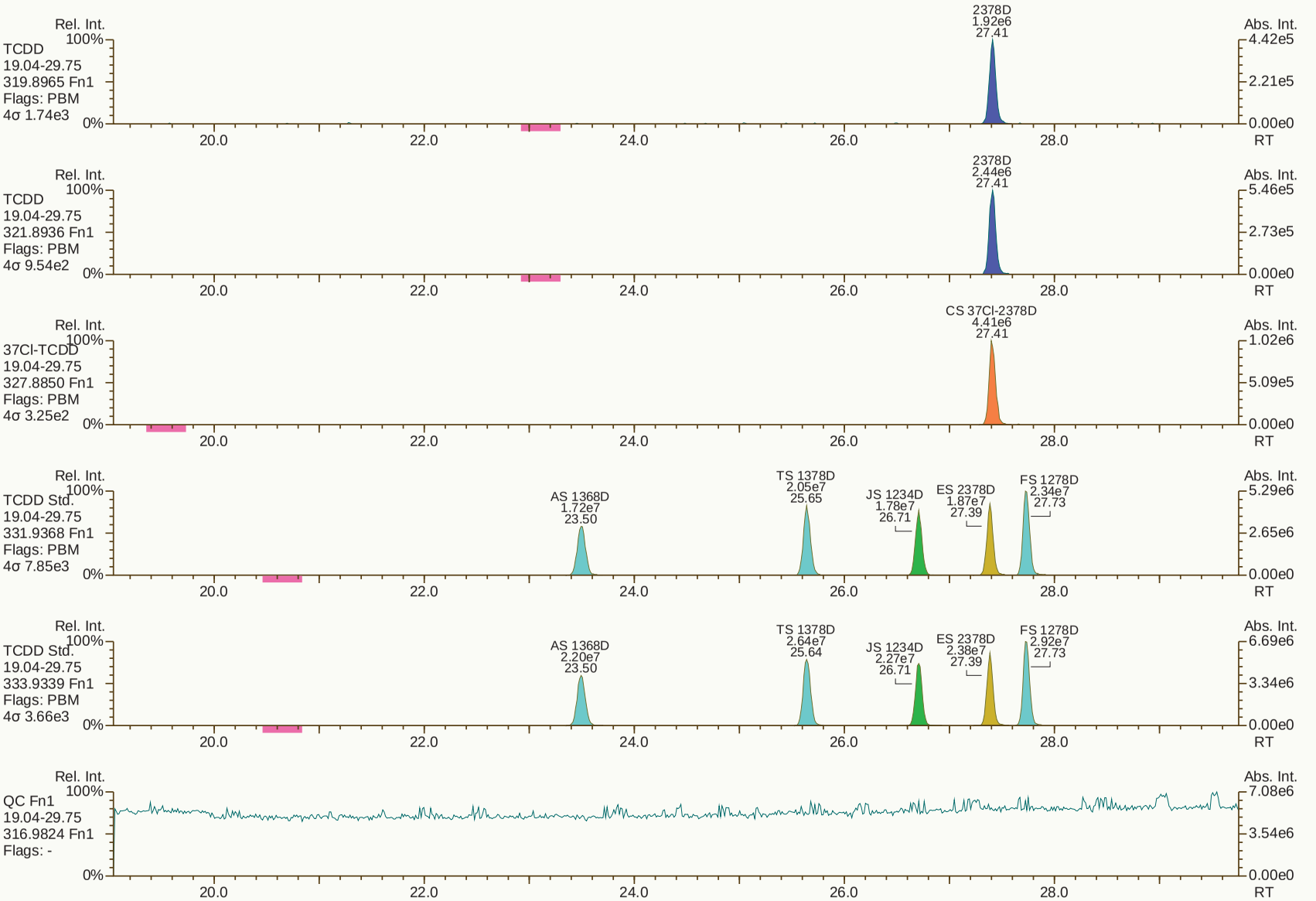
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161124P10 Analysis Date: 24-NOV-2016 07:36:00

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	98.6	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				8.77	7.9 - 12.7	Y

Processed: 28 Nov 2016 13:44 Analyst: pw

SGS ID: CS3_161124_DF_PB | **Sample ID: SIL 15-104-2** | **Acq: 24-Nov-2016 07:36:00**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161124P10**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\CS3_161124_DF_PB.utp_res, saved 28-Nov-2016 13:35 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4544, 2838, 1611 scc: 661-634 | *PKD: 28-Nov-2016 09:48 Printed: 29-Nov-2016 10:26 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 24 Nov 2016 13:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161124_DF_PC | **UTP: 28-Nov-2016 13:35:10 PSW** | **Checkcode: 419-274-QXK**

Sample ID: SIL 15-104-2 | **Report: 28 Nov 2016 13:43 pw** | **Datafile: 161124P17**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.41	5.15E+06	0.78	Y	1.19	1.06	-10%
ES 2378-TCDD	27.39	4.85E+07	0.81	Y	1.06	1.01	-5%

Dioxin/Furan QC Summary | **Acq'd: 24 Nov 2016 13:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161124_DF_PC | **UTP: 28-Nov-2016 13:35:10 PSW** | **Checkcode: 419-274-QXK**

Sample ID: SIL 15-104-2 | **Report: 28 Nov 2016 13:43 pw** | **Datafile: 161124P17**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.71	4.81E+07	0.79	Y	-	-	-
CS 37Cl-2378-TCDD	27.41	5.32E+06	n/a	-	1.24	1.10	-11%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161124P17 Analysis Date: 24-NOV-2016 13:47:25

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	8.95	8 - 12	Y

Processed: 28 Nov 2016 13:44 Analyst: pw

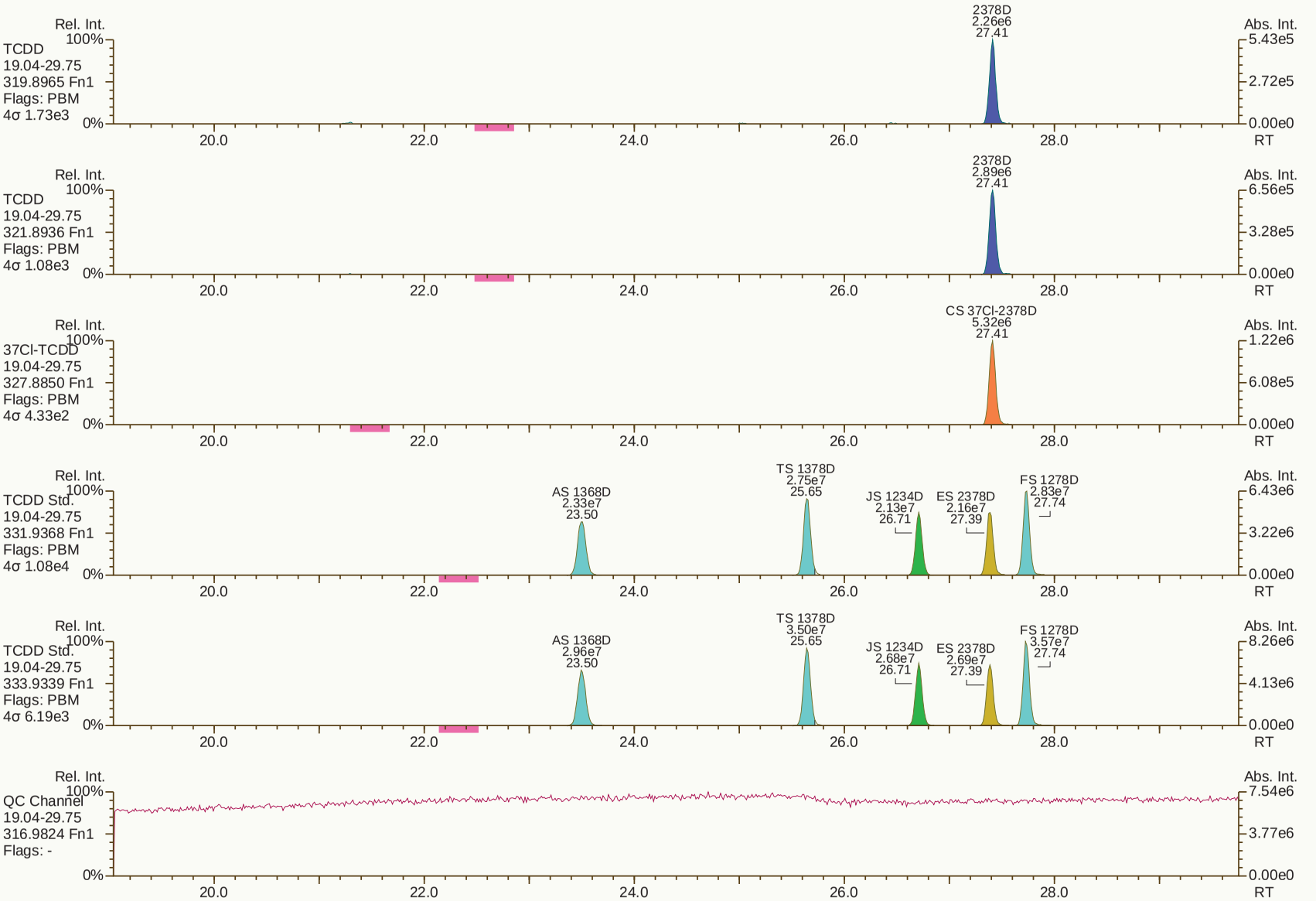
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161124P17 Analysis Date: 24-NOV-2016 13:47:25

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65 - 0.89	Y	94.8	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				8.9	7.9 - 12.7	Y

Processed: 28 Nov 2016 13:44 Analyst: pw

SGS ID: CS3_161124_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 24-Nov-2016 13:47:25**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161124P17**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\CS3_161124_DF_PC.utp_res, saved 28-Nov-2016 13:35 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8536, 9818, 8506 scc: 419-274 *PKD: 28-Nov-2016 09:51 Printed: 29-Nov-2016 10:26 Page 1 of 2*

SGS ID: SBS_161124_DF_PA | **Sample ID: SIL 15-49-1** | **Acq: 24-Nov-2016 01:30:29**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 2** | **User: ARL Datafile: 161124P03**

Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\SBS_161124_DF_PA.utp_res, saved 28-Nov-2016 13:31 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 2285, 8010, 6283 scc: 674-712 | *PKD: 28-Nov-2016 09:55 Printed: 28-Nov-2016 14:14 Page 1 of 1*

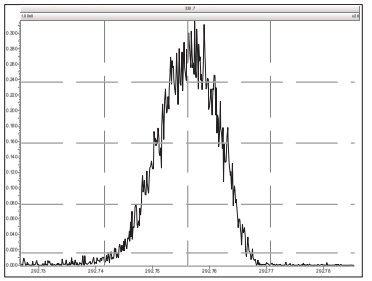
SGS ID: SBS_161124_DF_PB | **Sample ID: SIL 15-49-1** | **Acq: 24-Nov-2016 06:43:50**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 2** | **User: ARL Datafile: 161124P09**

Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\SBS_161124_DF_PB.utp_res, saved 28-Nov-2016 13:31 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 2101, 9819, 3773 scc: 272-552 | *PKD: 28-Nov-2016 10:00 Printed: 28-Nov-2016 14:14 Page 1 of 1*

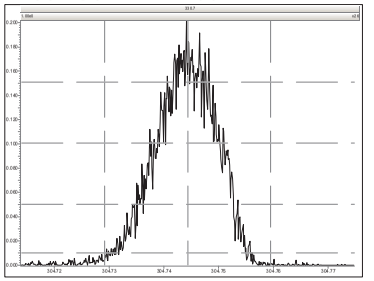
Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, November 23, 2016 18:28:28 Eastern Standard Time

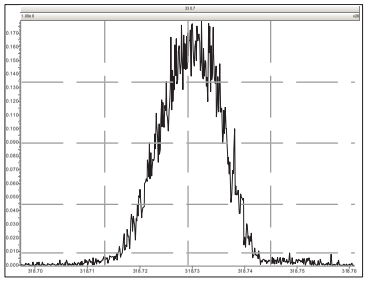
M 292.9824 R 12762



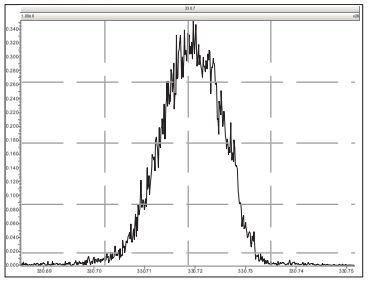
M 304.9824 R 12667



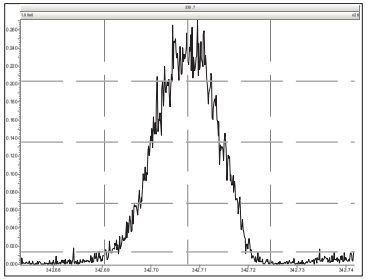
M 318.9792 R 12755



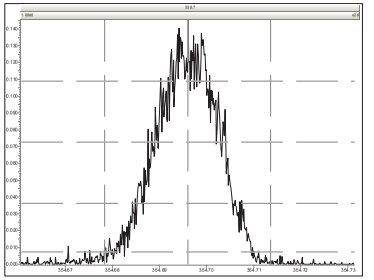
M 330.9792 R 12177



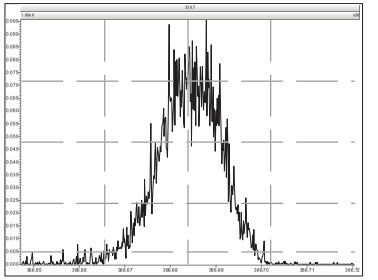
M 342.9792 R 12408



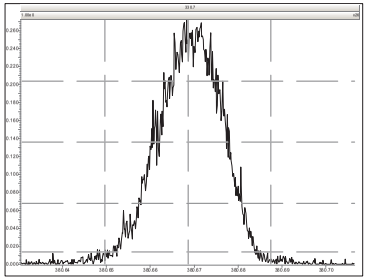
M 354.9792 R 12923



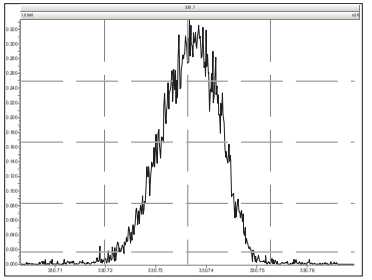
M 366.9792 R 12563



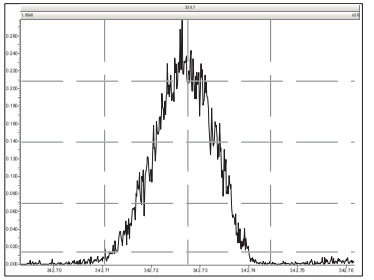
M 380.9760 R 11905



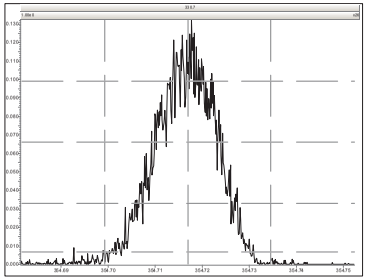
M 330.9792 R 12794



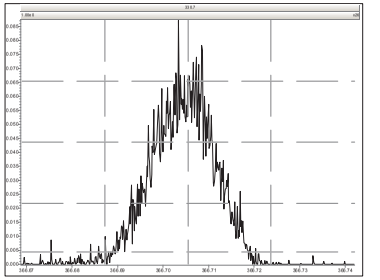
M 342.9792 R 12079



M 354.9792 R 13307



M 366.9792 R 12196



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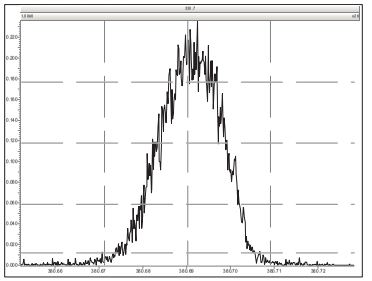
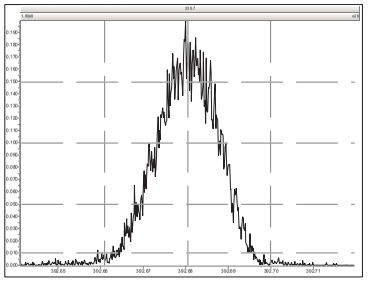
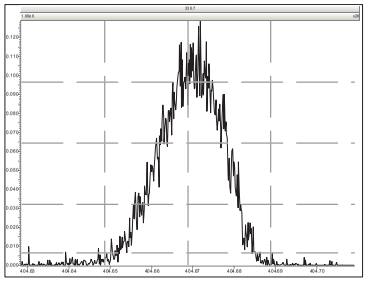
M 380.9760 R 12241



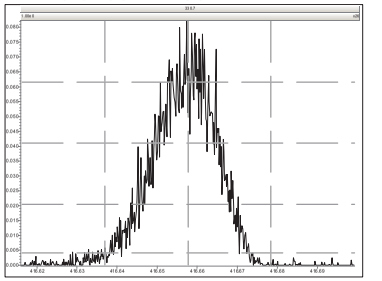
M 392.9760 R 13124



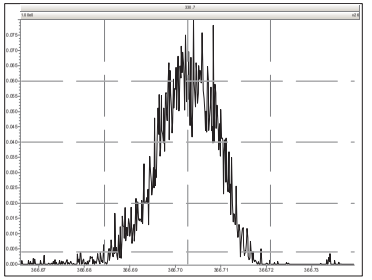
M 404.9760 R 12106



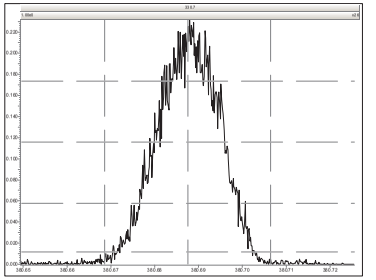
M 416.9760 R 13512



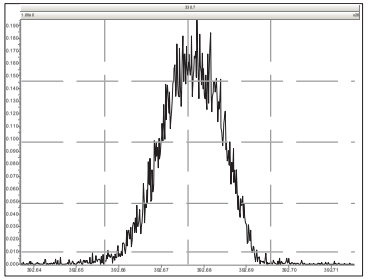
M 366.9792 R 13928



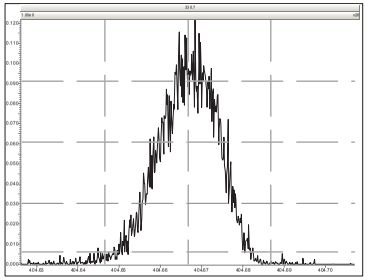
M 380.9760 R 12472



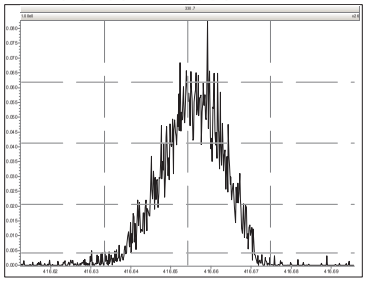
M 392.9760 R 12898



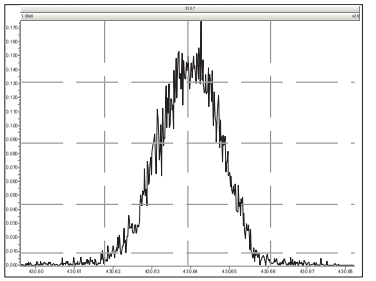
M 404.9760 R 12887



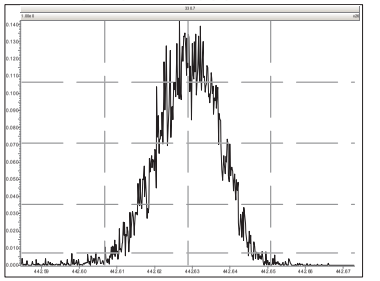
M 416.9760 R 13090



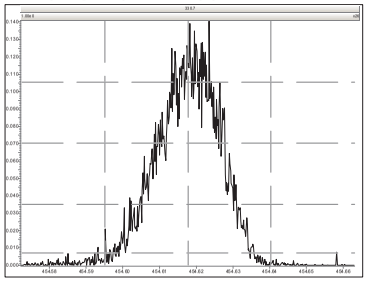
M 430.9728 R 12135



M 442.9728 R 12056



M 454.9728 R 12301



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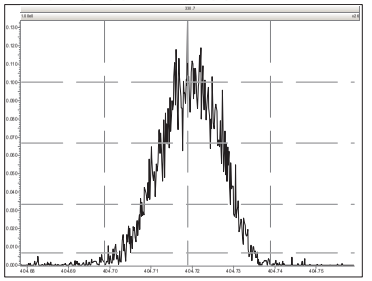
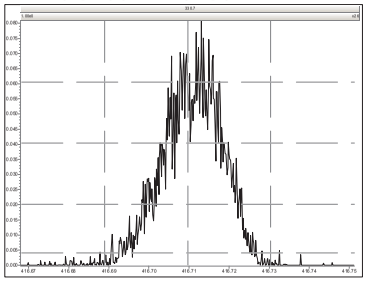
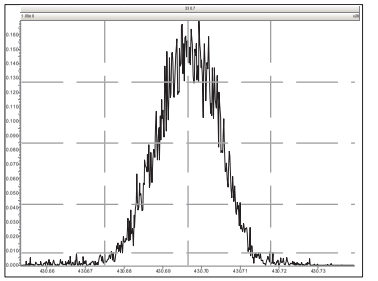
M 404.9760 R 13138



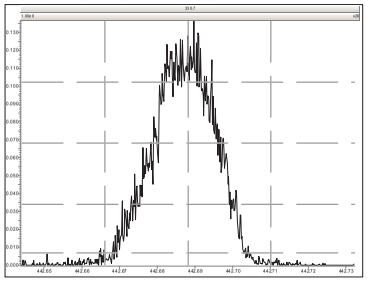
M 416.9760 R 13196



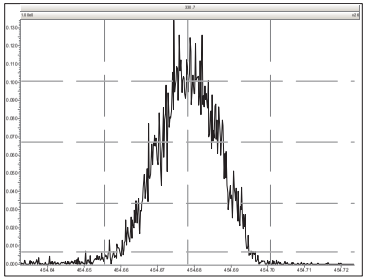
M 430.9728 R 12598



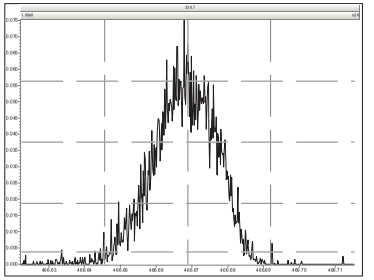
M 442.9728 R 12854



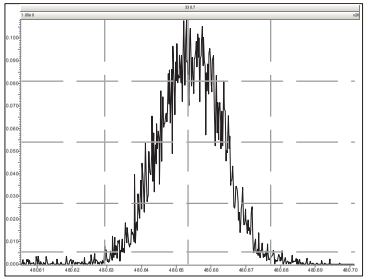
M 454.9728 R 12627



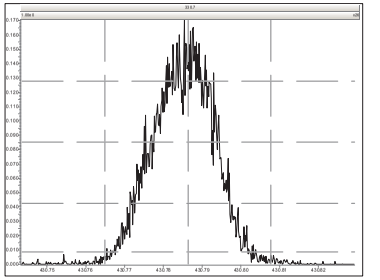
M 466.9728 R 13123



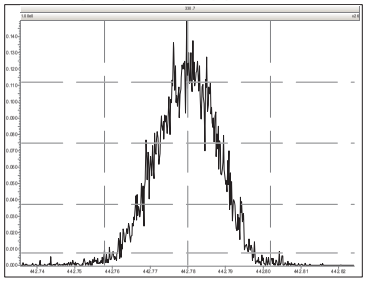
M 480.9696 R 12048



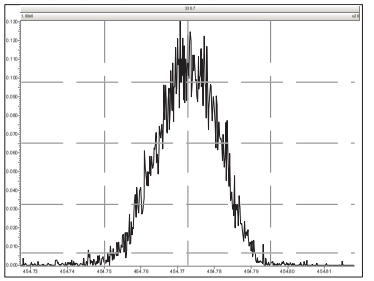
M 430.9728 R 12572



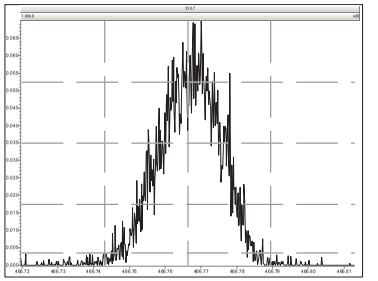
M 442.9728 R 12956



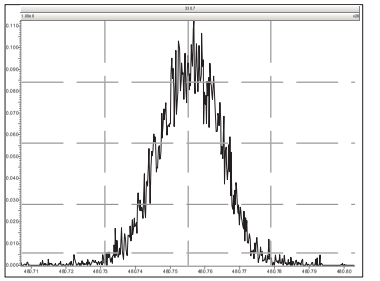
M 454.9728 R 13157



M 466.9728 R 13192



M 480.9696 R 13055



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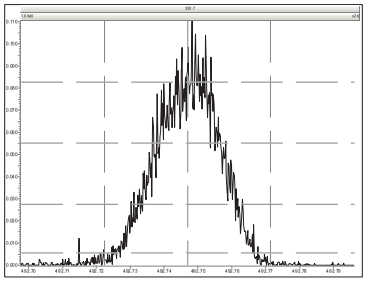
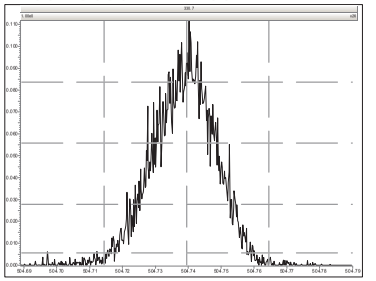
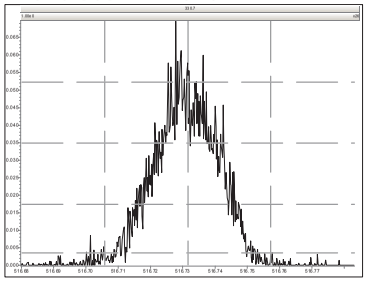
M 492.9696 R 12659



M 504.9696 R 12255



M 516.9697 R 13187



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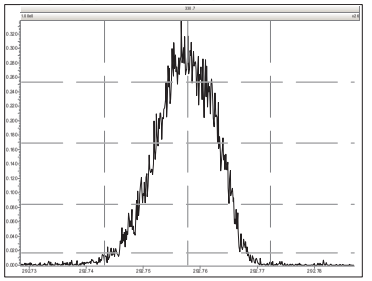
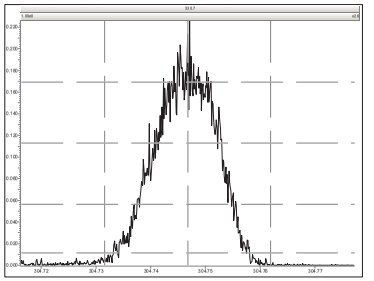
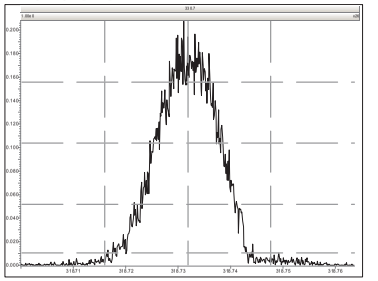
M 292.9824 R 12634



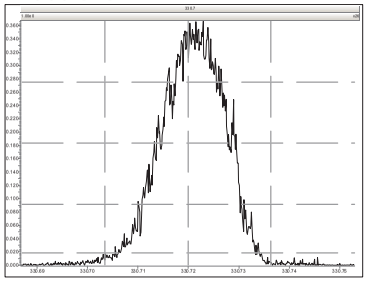
M 304.9824 R 12820



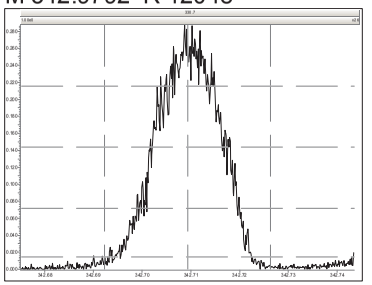
M 318.9792 R 12722



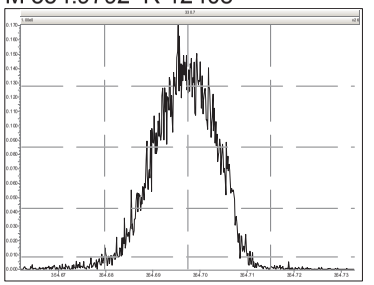
M 330.9792 R 12412



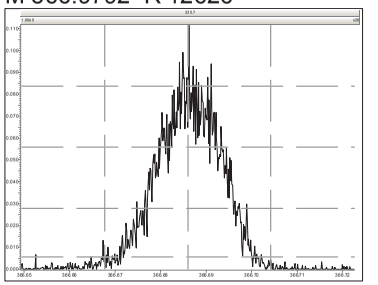
M 342.9792 R 12048



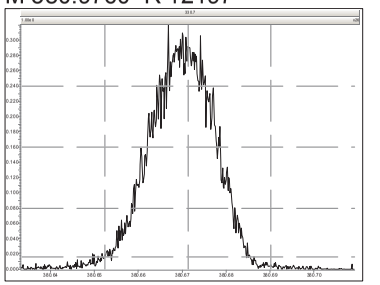
M 354.9792 R 12408



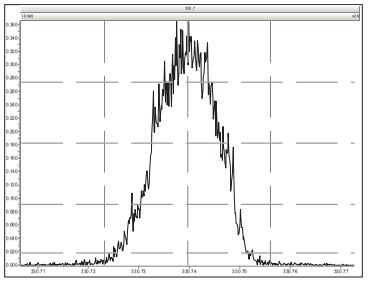
M 366.9792 R 12626



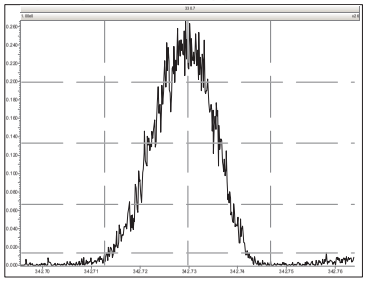
M 380.9760 R 12197



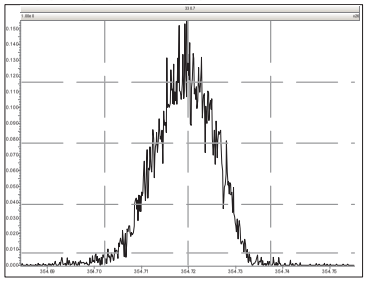
M 330.9792 R 12533



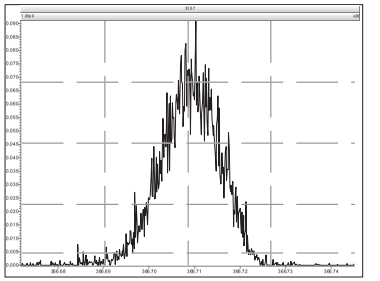
M 342.9792 R 12789



M 354.9792 R 13321



M 366.9792 R 13301



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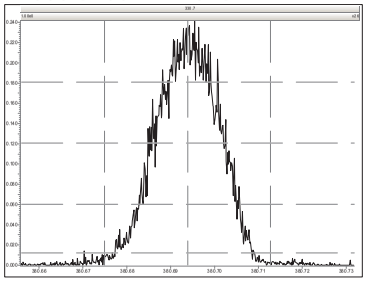
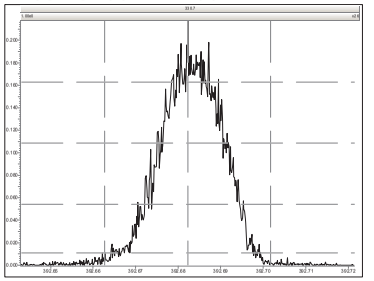
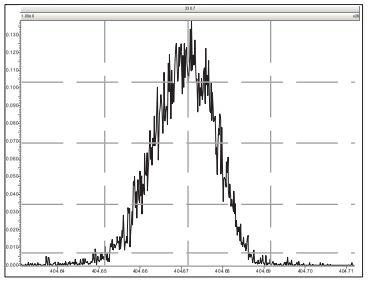
M 380.9760 R 12049



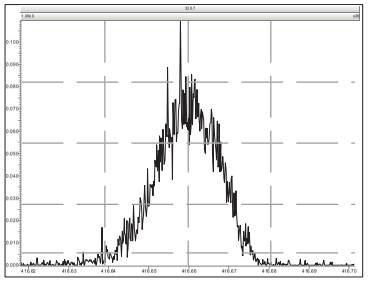
M 392.9760 R 12664



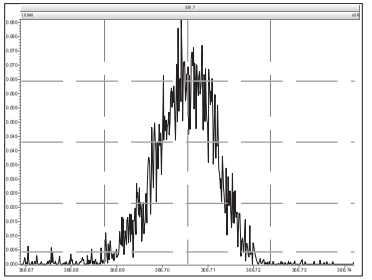
M 404.9760 R 12019



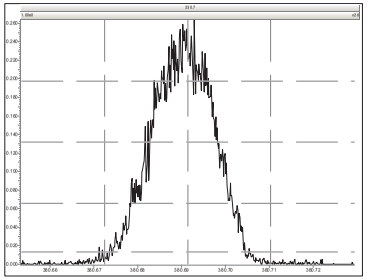
M 416.9760 R 12988



M 366.9792 R 14206



M 380.9760 R 12410



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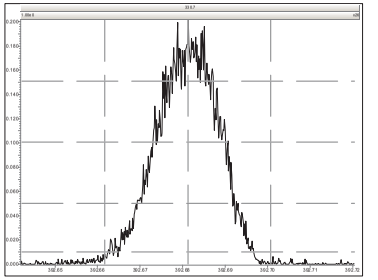
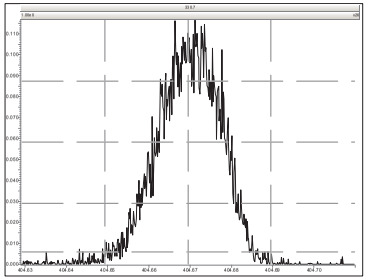
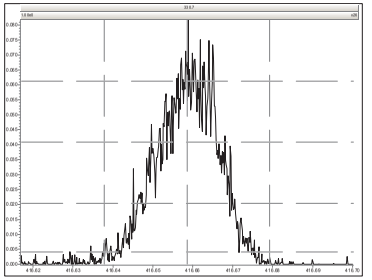


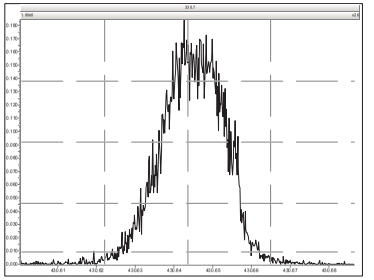
M 404.9760 R 12887



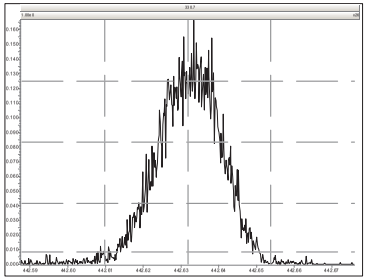
M 416.9760 R 13407



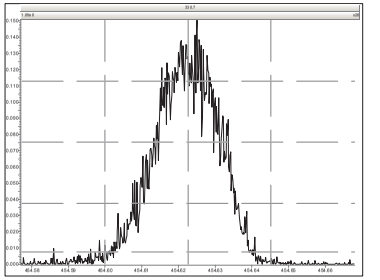
M 430.9728 R 12410



M 442.9728 R 11769



M 454.9728 R 12019



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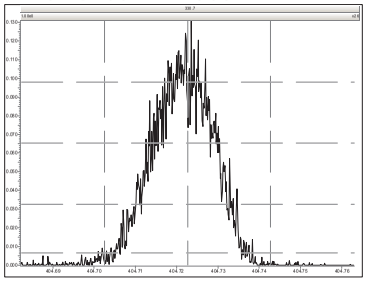
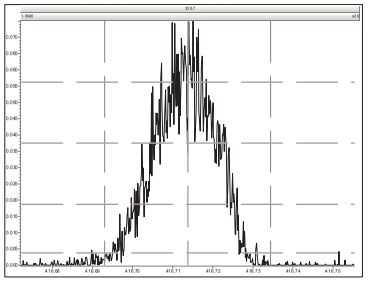
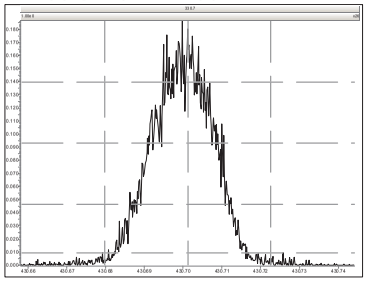
M 404.9760 R 12863



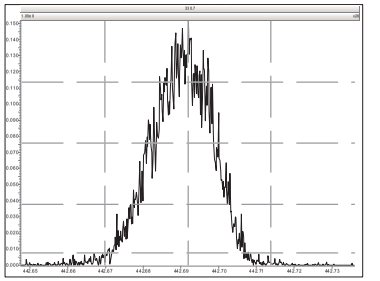
M 416.9760 R 13266



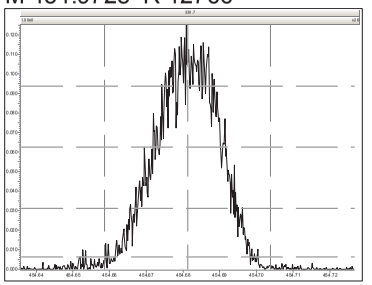
M 430.9728 R 12562



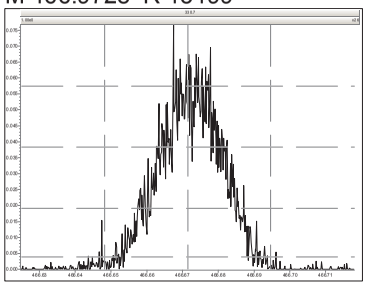
M 442.9728 R 12789



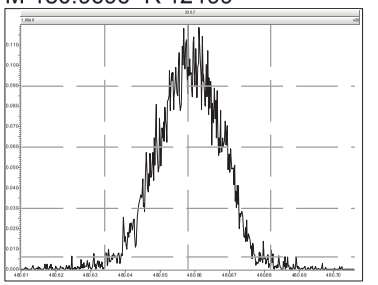
M 454.9728 R 12766



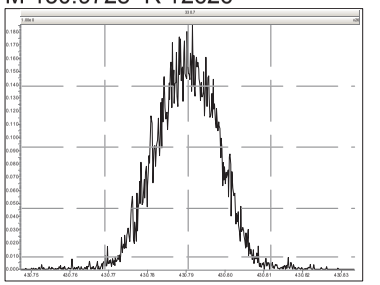
M 466.9728 R 13199



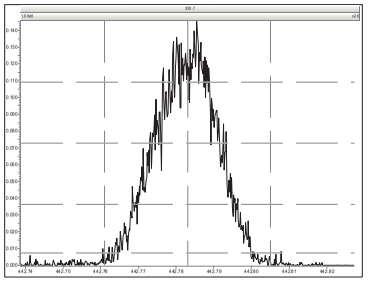
M 480.9696 R 12199



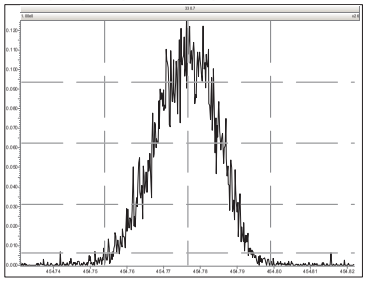
M 430.9728 R 12626



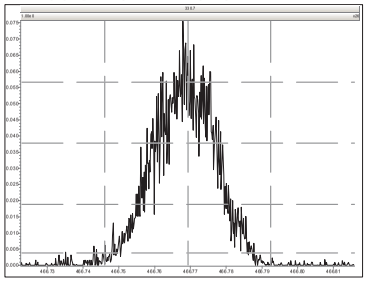
M 442.9728 R 12791



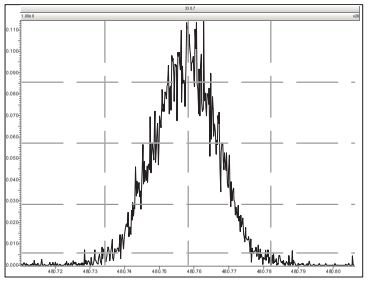
M 454.9728 R 12201



M 466.9728 R 12825



M 480.9696 R 12507



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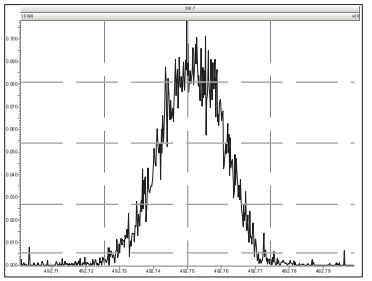
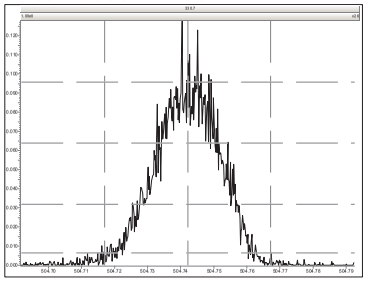
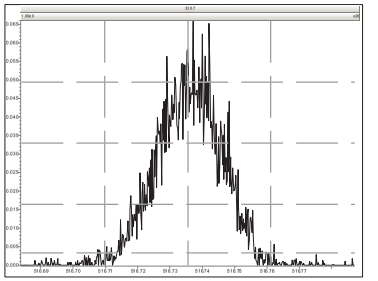
M 492.9696 R 13127



M 504.9696 R 12627



M 516.9697 R 12383



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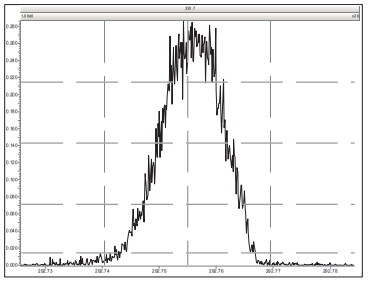
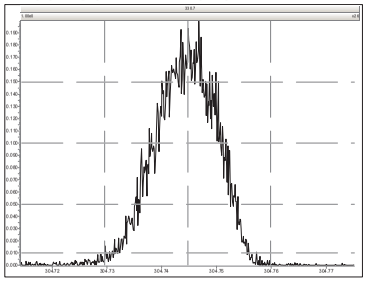
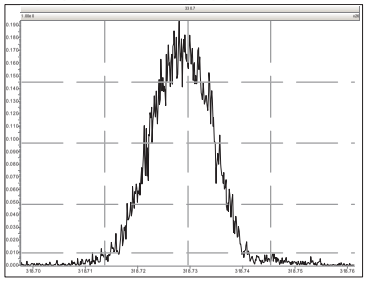
M 292.9824 R 12502



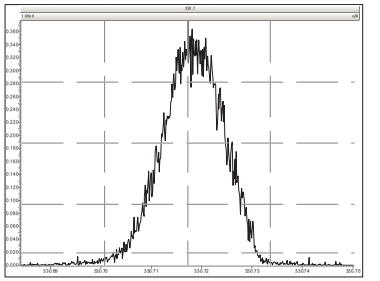
M 304.9824 R 12570



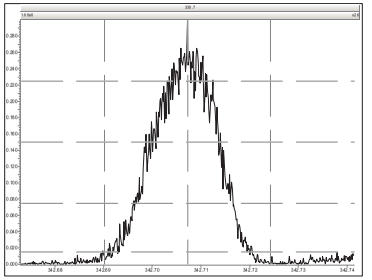
M 318.9792 R 13106



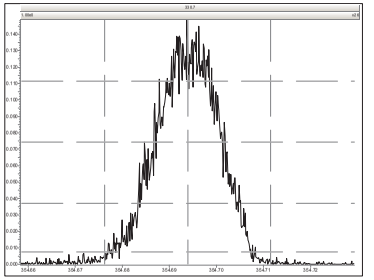
M 330.9792 R 12732



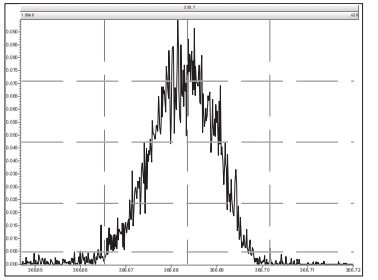
M 342.9792 R 12255



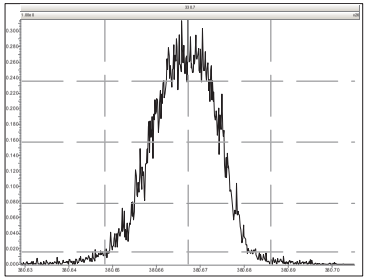
M 354.9792 R 12594



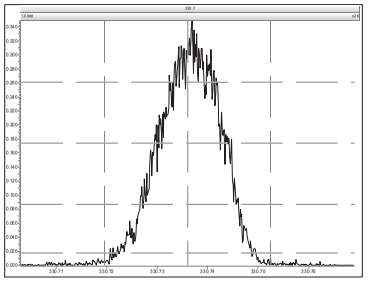
M 366.9792 R 12176



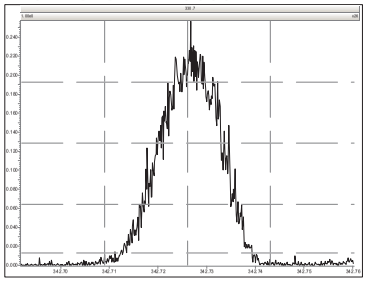
M 380.9760 R 11393



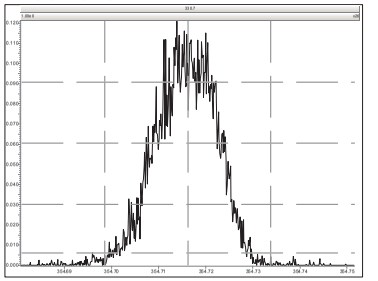
M 330.9792 R 12533



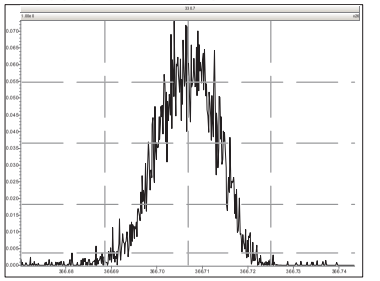
M 342.9792 R 13033



M 354.9792 R 12711



M 366.9792 R 13407



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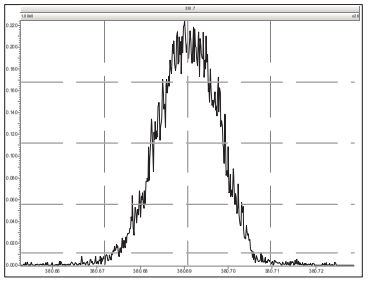
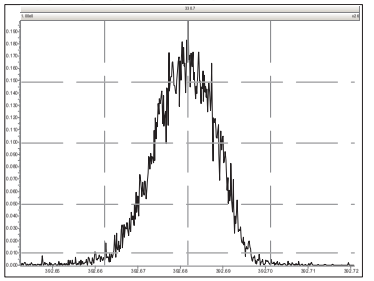
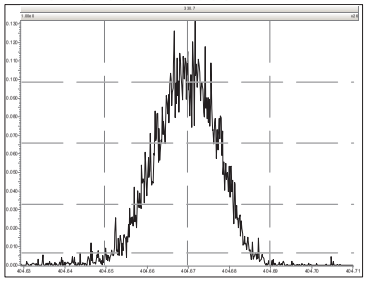
M 380.9760 R 12438



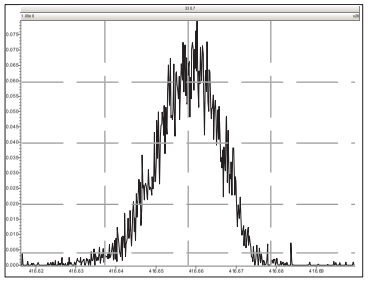
M 392.9760 R 12457



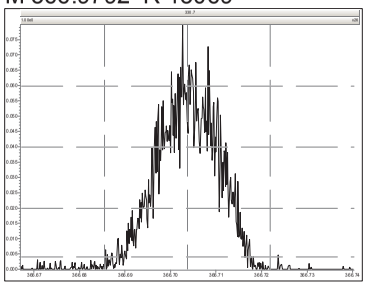
M 404.9760 R 12965



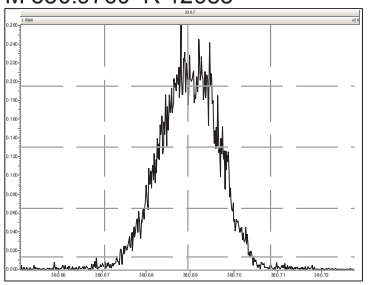
M 416.9760 R 12306



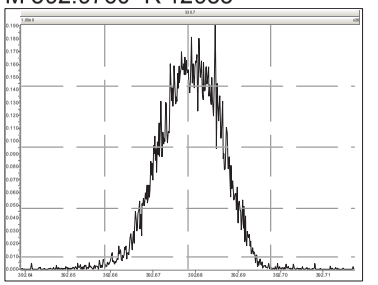
M 366.9792 R 13069



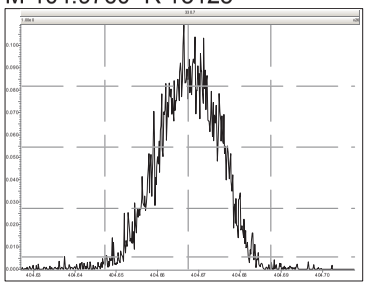
M 380.9760 R 12988



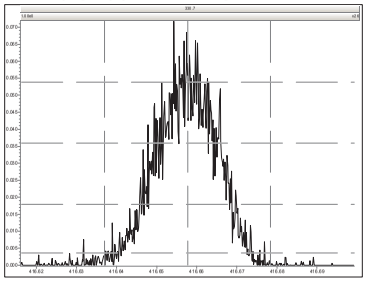
M 392.9760 R 12953



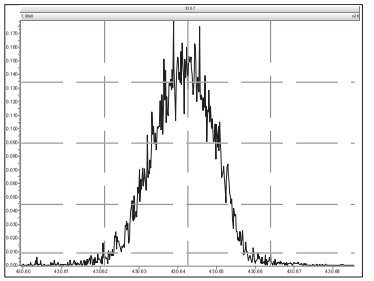
M 404.9760 R 13125



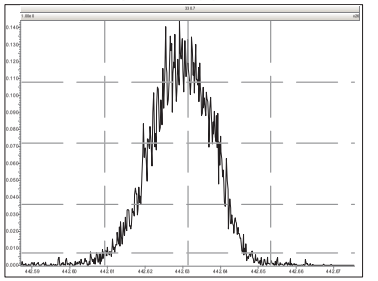
M 416.9760 R 14119



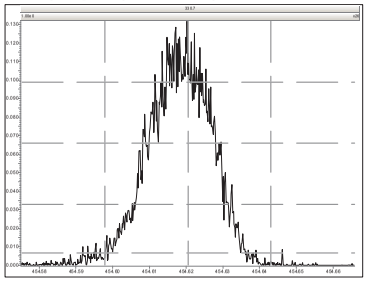
M 430.9728 R 12577



M 442.9728 R 12562



M 454.9728 R 12481



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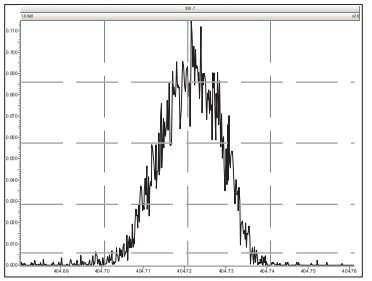
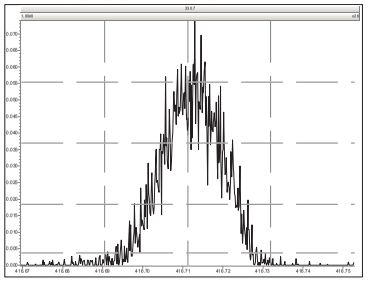
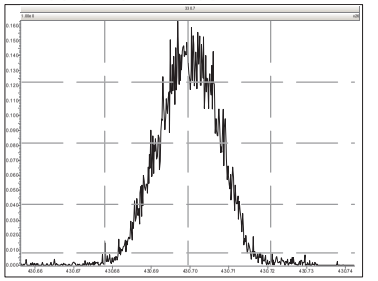
M 404.9760 R 13340



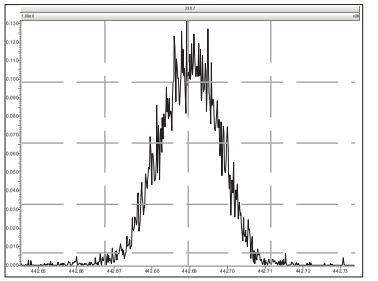
M 416.9760 R 14204



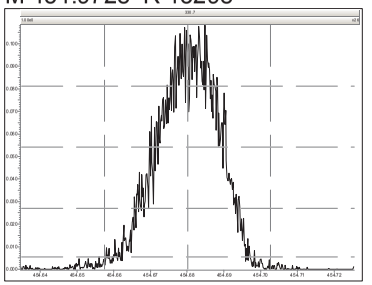
M 430.9728 R 12594



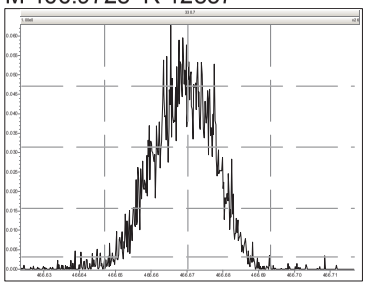
M 442.9728 R 12961



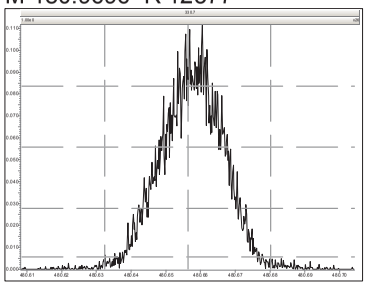
M 454.9728 R 13298



M 466.9728 R 12857



M 480.9696 R 12377



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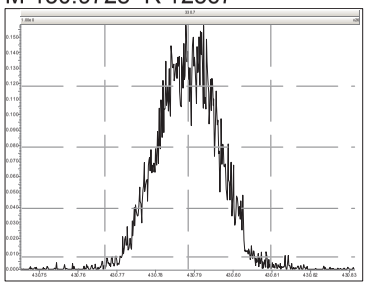

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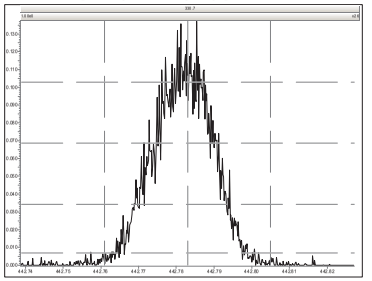
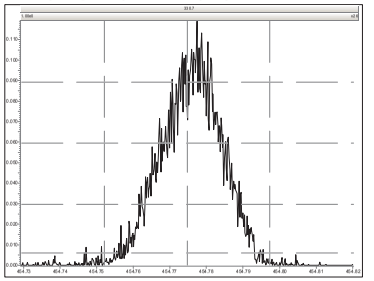
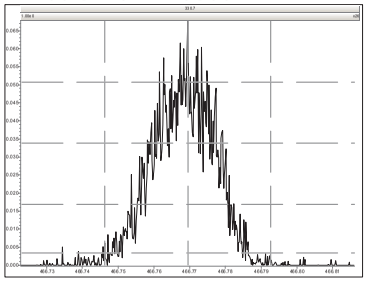


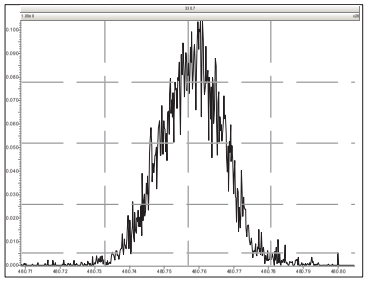
M 454.9728 R 12820



M 466.9728 R 13966



M 480.9696 R 12201



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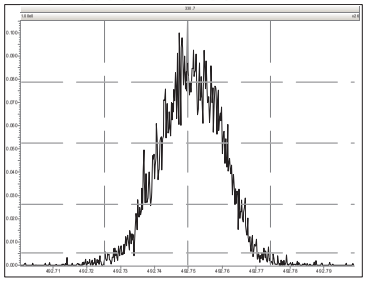
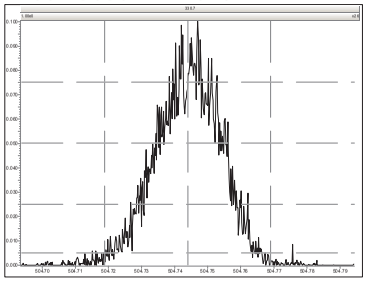
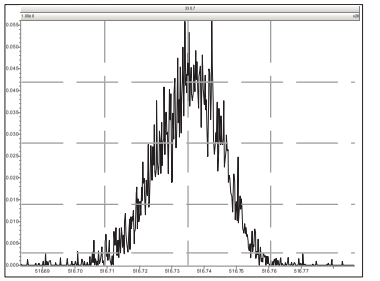
M 492.9696 R 12290



M 504.9696 R 12548



M 516.9697 R 12472



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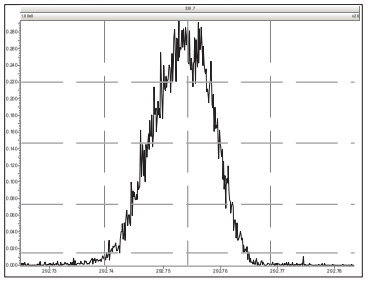
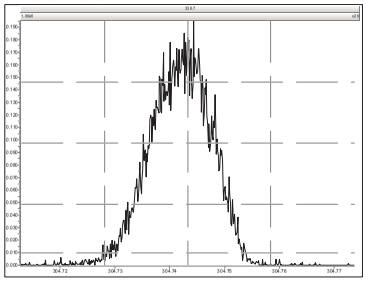
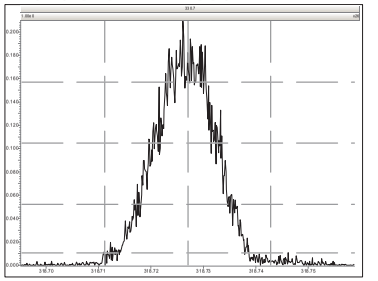
M 292.9824 R 12828



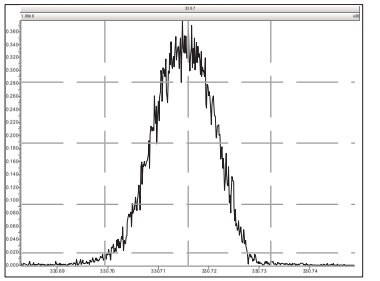
M 304.9824 R 13123



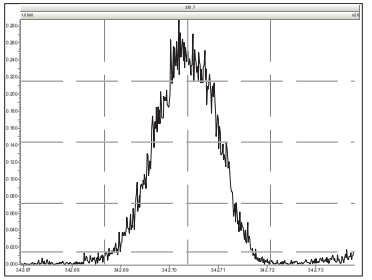
M 318.9792 R 12993



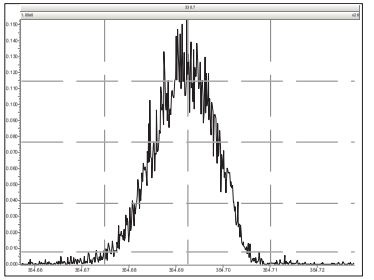
M 330.9792 R 12136



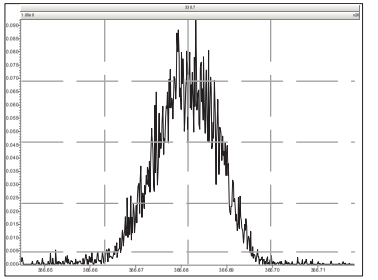
M 342.9792 R 12140



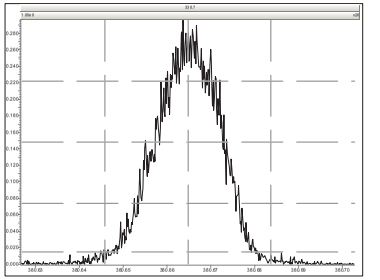
M 354.9792 R 12285



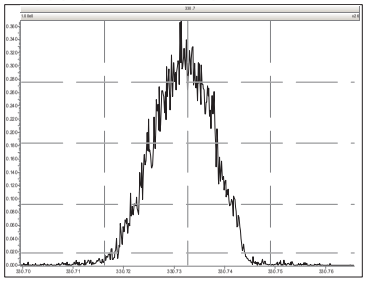
M 366.9792 R 12969



M 380.9760 R 12136



M 330.9792 R 12701



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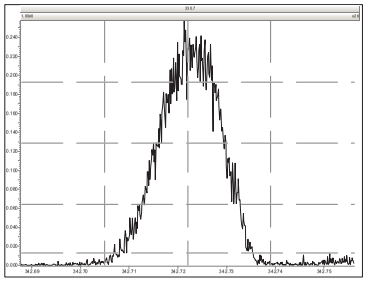

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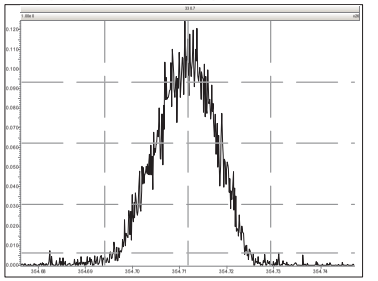
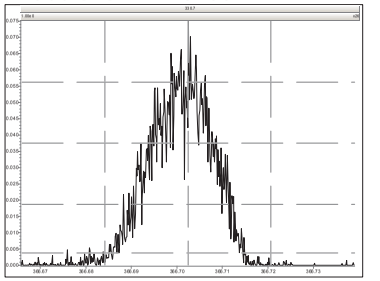


M 366.9792 R 13203



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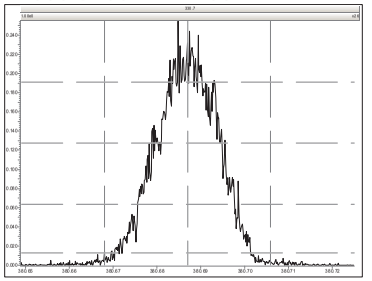

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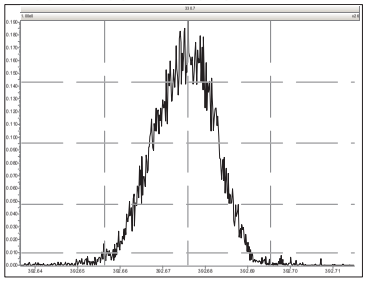
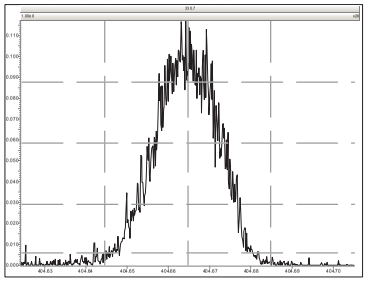
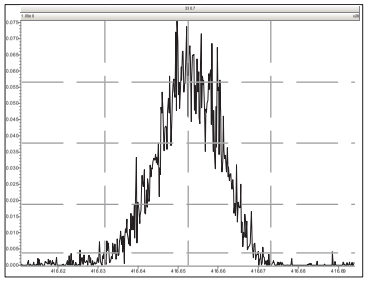


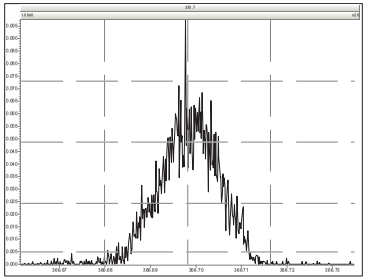
M 404.9760 R 12269



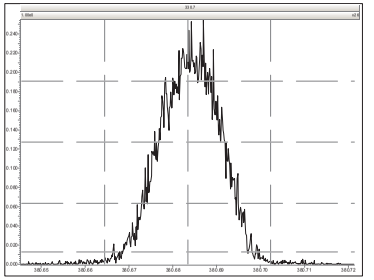
M 416.9760 R 12515



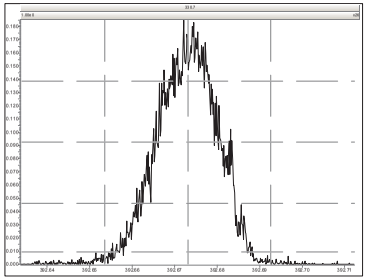
M 366.9792 R 13670



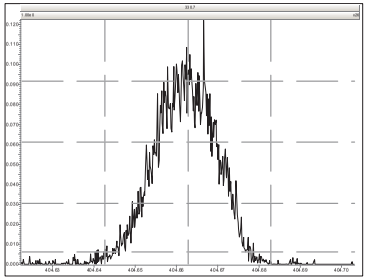
M 380.9760 R 12658



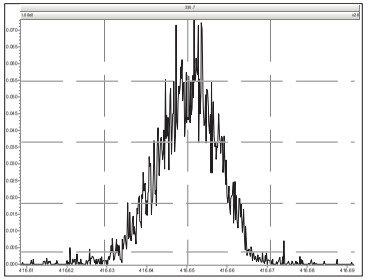
M 392.9760 R 12736



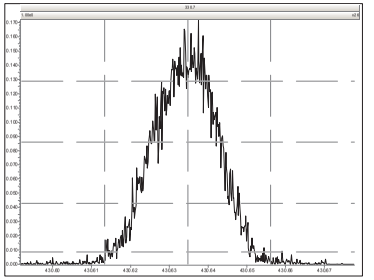
M 404.9760 R 13273



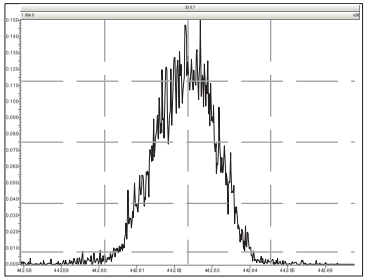
M 416.9760 R 12723



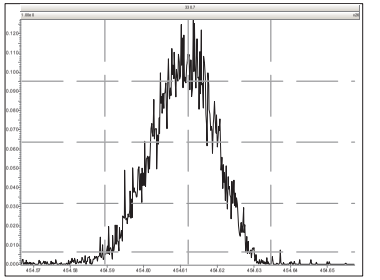
M 430.9728 R 12626



M 442.9728 R 12859



M 454.9728 R 12315



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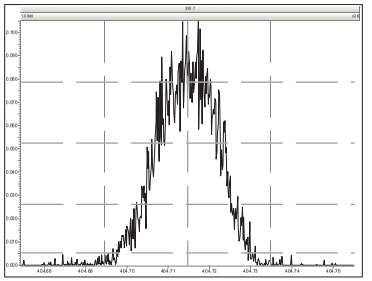
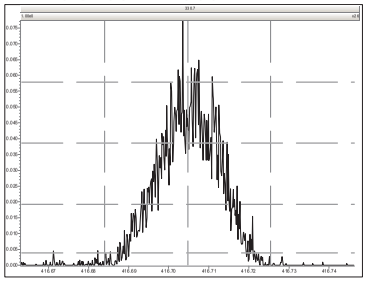
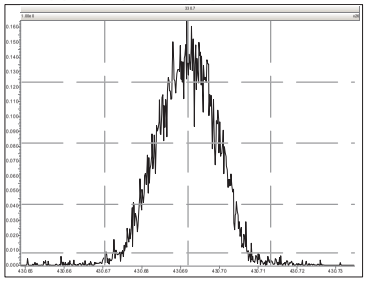


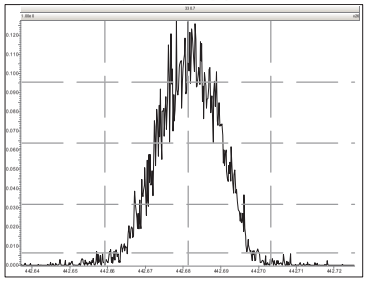
M 416.9760 R 13661



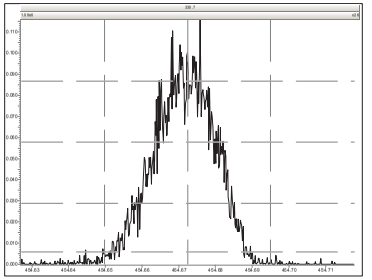
M 430.9728 R 13297



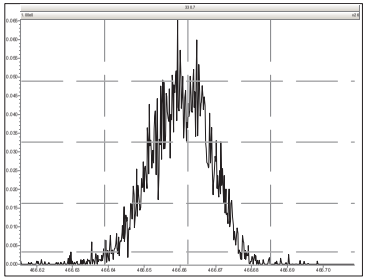
M 442.9728 R 12795



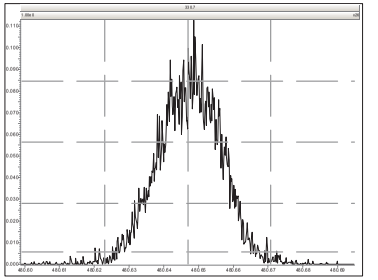
M 454.9728 R 12664



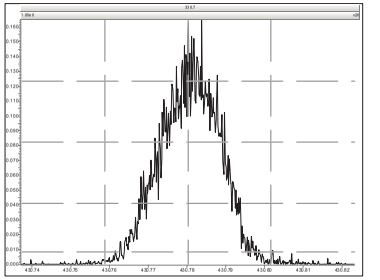
M 466.9728 R 13785



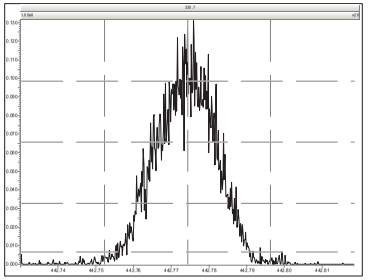
M 480.9696 R 12515



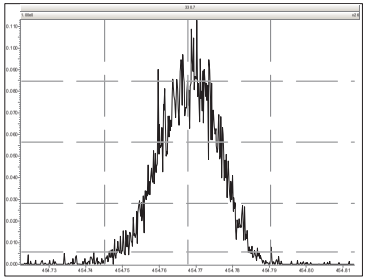
M 430.9728 R 12594



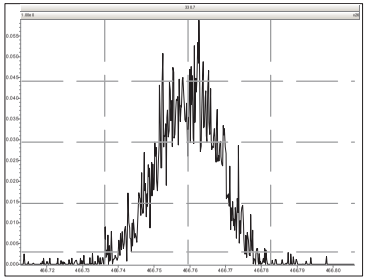
M 442.9728 R 13340



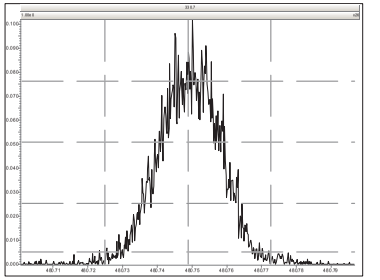
M 454.9728 R 12265



M 466.9728 R 13519



M 480.9696 R 12416



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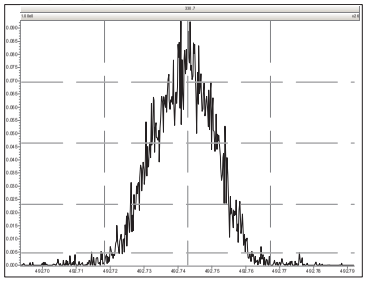
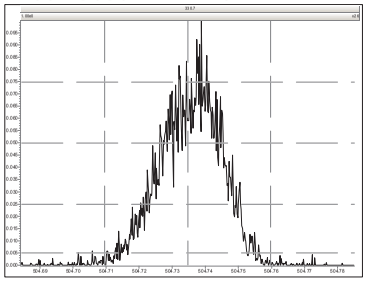
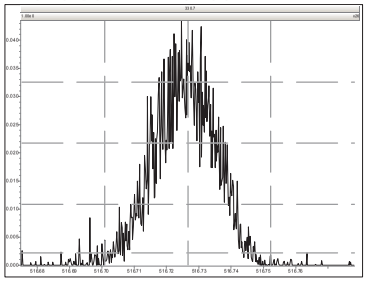


M 504.9696 R 12470



M 516.9697 R 13166



Dioxin/Furan ICAL Summary | **SGS Environmental Services** | **Processed: 7 Jan 2016 10:52**

ICAL: HRMS3_DF_12212015_06JAN2016
Data Acquired: 06-Jan-2016

Name	Mean	% RSD	160106C05 0.25 pg/uL CS0	160106C06 0.5 pg/uL CS1	160106C07 2.0 pg/uL CS2	160106C08 10 pg/uL CS3	160106C09 40 pg/uL CS4	160106C10 200 pg/uL CS5	160106C11 500 pg/uL CS6
2378-TCDD	1.19	3.3%	1.24	1.23	1.18	1.16	1.19	1.17	1.13
12378-PeCDD	1.02	2.9%	1.01	1.05	1.06	0.97	1.02	1.01	0.99
123478-HxCDD	1.08	2.9%	1.10	1.13	1.11	1.05	1.07	1.08	1.04
123678-HxCDD	1.05	5.1%	1.07	0.98	1.13	1.00	1.09	1.02	1.05
123789-HxCDD	0.99	5.5%	1.06	0.99	1.07	0.93	0.98	0.96	0.96
1234678-HpCDD	1.02	3.2%	1.06	1.02	1.06	1.00	1.03	1.00	0.97
OCDD	1.09	2.8%	1.11	1.11	1.14	1.05	1.10	1.08	1.06
2378-TCDF	1.09	4.8%	1.05	1.13	1.17	1.03	1.11	1.06	1.05
12378-PeCDF	1.03	2.6%	1.05	1.02	1.06	0.98	1.05	1.03	1.03
23478-PeCDF	1.02	3.4%	1.00	1.03	1.09	0.97	1.03	1.02	1.02
123478-HxCDF	1.29	4.7%	1.37	1.36	1.33	1.21	1.28	1.24	1.27
123678-HxCDF	1.17	3.3%	1.17	1.22	1.22	1.12	1.19	1.14	1.15
234678-HxCDF	1.18	3.2%	1.23	1.19	1.20	1.11	1.18	1.19	1.18
123789-HxCDF	1.18	4.5%	1.20	1.24	1.25	1.10	1.15	1.16	1.16
1234678-HpCDF	1.38	3.2%	1.38	1.46	1.40	1.34	1.37	1.36	1.33
1234789-HpCDF	1.30	4.6%	1.24	1.37	1.39	1.26	1.30	1.26	1.27
OCDF	1.03	4.6%	0.97	1.05	1.12	1.01	1.05	1.03	1.01
ES 2378-TCDD	1.06	4.2%	1.02	1.07	1.03	1.07	1.02	1.07	1.15
ES 12378-PeCDD	0.99	6.4%	0.97	0.92	1.00	0.96	0.98	1.01	1.12
ES 123478-HxCDD	1.09	6.0%	1.10	1.11	0.96	1.11	1.08	1.08	1.17
ES 123678-HxCDD	1.10	5.6%	1.06	1.13	0.99	1.16	1.06	1.12	1.14
ES 123789-HxCDD	1.24	6.7%	1.25	1.27	1.07	1.31	1.22	1.26	1.32
ES 1234678-HpCDD	0.93	5.4%	1.01	0.89	0.87	0.91	0.92	0.97	0.97
ES OCDD	0.71	6.7%	0.70	0.70	0.63	0.72	0.70	0.73	0.79
ES 2378-TCDF	1.02	3.5%	1.00	1.06	0.97	1.04	1.00	1.02	1.07
ES 12378-PeCDF	0.96	4.6%	0.99	0.95	0.92	0.95	0.91	1.03	1.00
ES 23478-PeCDF	0.95	3.2%	0.95	0.94	0.92	0.93	0.92	0.98	1.00
ES 123478-HxCDF	1.32	4.3%	1.31	1.32	1.21	1.34	1.33	1.34	1.40
ES 123678-HxCDF	1.51	5.2%	1.48	1.54	1.36	1.53	1.50	1.55	1.61
ES 234678-HxCDF	1.38	4.8%	1.38	1.43	1.26	1.43	1.35	1.37	1.46
ES 123789-HxCDF	1.25	5.9%	1.22	1.28	1.11	1.31	1.23	1.29	1.33
ES 1234678-HpCDF	1.03	5.0%	1.05	1.00	0.93	1.04	1.01	1.07	1.07
ES 1234789-HpCDF	0.87	5.5%	0.93	0.84	0.79	0.85	0.89	0.90	0.91
ES OCDF	0.92	8.6%	0.89	0.90	0.80	0.91	0.92	0.97	1.06

APPROVED
By Heather Distel at 2:41 pm, Jan 07, 2016

Dioxin/Furan ICAL Summary | **SGS Environmental Services** | **Processed: 7 Jan 2016 10:52**

ICAL: HRMS3_DF_12212015_06JAN2016
Data Acquired: 18-Jun-2009

Name	Mean	% RSD	160106C05 0.25 pg/uL CS0	160106C06 0.5 pg/uL CS1	160106C07 2.0 pg/uL CS2	160106C08 10 pg/uL CS3	160106C09 40 pg/uL CS4	160106C10 200 pg/uL CS5	160106C11 500 pg/uL CS6
CS 37Cl-2378-TCDD	1.24	4.2%	-	1.32	1.25	1.23	1.17	1.23	-
CS 12347-PeCDD	0.94	5.3%	0.99	0.85	0.98	0.92	0.92	0.93	0.97
CS 12346-PeCDF	0.92	4.3%	0.97	0.87	0.91	0.91	0.90	0.98	0.92
CS 123469-HxCDF	1.38	3.0%	1.44	1.40	1.33	1.43	1.37	1.36	1.35
CS 1234689-HpCDF	0.88	5.9%	0.97	0.85	0.84	0.90	0.90	0.88	0.82
SS 37Cl-2378-TCDD	1.18	3.4%	-	1.23	1.21	1.15	1.15	1.15	-
SS 12347-PeCDD	0.94	5.4%	1.03	0.92	0.99	0.95	0.94	0.91	0.87
SS 12346-PeCDF	0.96	3.2%	0.99	0.92	0.98	0.96	0.99	0.95	0.92
SS 123469-HxCDF	0.92	5.4%	0.97	0.91	0.98	0.93	0.91	0.88	0.84
SS 1234689-HpCDF	0.86	6.5%	0.92	0.85	0.91	0.87	0.89	0.82	0.76
AS 1368-TCDD	1.05	2.5%	1.05	0.99	1.08	1.06	1.06	1.05	1.06
AS 1368-TCDF	1.40	4.0%	1.39	1.40	1.33	1.50	1.36	1.44	1.37
OCDD-a	0.07	4.5%	-	-	0.06	0.07	0.07	0.07	0.07
OCDF-a	0.06	7.9%	-	-	0.06	0.07	0.07	0.06	0.06
Totals									
Total TCDD	1.19	3.3%	1.24	1.23	1.18	1.16	1.19	1.17	1.13
Total PeCDD	1.02	2.9%	1.01	1.05	1.06	0.97	1.02	1.01	0.99
Total HxCDD	1.04	3.7%	1.08	1.03	1.10	0.99	1.05	1.02	1.02
Total HpCDD	1.02	3.2%	1.06	1.02	1.06	1.00	1.03	1.00	0.97
Total TCDF	1.09	4.8%	1.05	1.13	1.17	1.03	1.11	1.06	1.05
Total PeCDF	1.03	2.8%	1.03	1.03	1.07	0.98	1.04	1.02	1.02
Total HxCDF	1.21	3.6%	1.24	1.25	1.25	1.13	1.20	1.18	1.19
Total HpCDF	1.34	3.7%	1.31	1.42	1.40	1.30	1.34	1.31	1.30
FS 1278-TCDD	1.28	2.8%	1.30	1.29	1.32	1.30	1.31	1.23	1.24
FS 12478-PeCDD	1.11	5.3%	1.19	1.14	1.13	1.12	1.08	1.11	1.00
FS 123468-HxCDD	1.36	6.5%	1.41	1.35	1.48	1.38	1.39	1.27	1.22
FS 1234679-HpCDD	1.30	7.1%	1.31	1.36	1.31	1.42	1.35	1.21	1.15
TS 1378-TCDD	1.21	3.9%	1.23	1.16	1.29	1.18	1.24	1.19	1.17

2

8290B ICALs

Ax	HRMS3_DF_01172014_29APR2014	HRMS3_03022015_21APR15	HRMS_DF_12212015_06JAN16	RSD	Mean	sd	PD from Mean
2,3,7,8-TCDD	1.22	1.16	1.19	2.5	1.19	0.03	0%
1,2,3,7,8-PeCDD	1.07	1.03	1.02	2.6	1.04	0.03	-2%
1,2,3,4,7,8-HxCDD	1.14	1.10	1.08	2.8	1.11	0.03	-2%
1,2,3,6,7,8-HxCDD	1.16	1.11	1.05	5.1	1.11	0.06	-5%
1,2,3,7,8,9-HxCDD	1.08	1.04	0.99	4.3	1.04	0.04	-4%
1,2,3,4,6,7,8-HpCDD	1.10	1.05	1.02	3.6	1.06	0.04	-3%
OCDD	1.19	1.14	1.09	4.4	1.14	0.05	-4%
2,3,7,8-TCDF	1.17	1.07	1.09	4.7	1.11	0.05	-2%
1,2,3,7,8-PeCDF	1.08	1.04	1.03	2.5	1.05	0.03	-2%
2,3,4,7,8-PeCDF	1.07	1.03	1.02	2.2	1.04	0.02	-2%
1,2,3,4,7,8-HxCDF	1.35	1.34	1.29	2.2	1.33	0.03	-2%
1,2,3,6,7,8-HxCDF	1.22	1.21	1.17	2.2	1.20	0.03	-3%
2,3,4,6,7,8-HxCDF	1.25	1.22	1.18	2.7	1.22	0.03	-3%
1,2,3,7,8,9-HxCDF	1.23	1.21	1.18	1.8	1.21	0.02	-2%
1,2,3,4,6,7,8-HpCDF	1.42	1.45	1.38	2.6	1.41	0.04	-3%
1,2,3,4,7,8,9-HpCDF	1.35	1.38	1.30	2.9	1.34	0.04	-3%
OCDF	1.12	1.10	1.03	4.3	1.09	0.05	-5%
ES							
2,3,7,8-TCDD	1.07	1.04	1.06	1.1	1.06	0.01	0%
1,2,3,7,8-PeCDD	0.98	0.88	0.99	6.3	0.95	0.06	5%
1,2,3,4,7,8-HxCDD	1.06	1.03	1.09	2.6	1.06	0.03	3%
1,2,3,6,7,8-HxCDD	1.01	1.02	1.10	4.5	1.04	0.05	5%
1,2,3,7,8,9-HxCDD	1.15	1.19	1.24	3.8	1.19	0.05	4%
1,2,3,4,6,7,8-HpCDD	0.90	0.94	0.93	2.6	0.92	0.02	1%
OCDD	0.69	0.67	0.71	3.2	0.69	0.02	3%
2,3,7,8-TCDF	1.04	1.05	1.02	1.3	1.04	0.01	-1%
1,2,3,7,8-PeCDF	0.94	0.89	0.96	4.1	0.93	0.04	3%
2,3,4,7,8-PeCDF	0.94	0.87	0.95	4.3	0.92	0.04	3%
1,2,3,4,7,8-HxCDF	1.40	1.28	1.32	4.5	1.33	0.06	-1%
1,2,3,6,7,8-HxCDF	1.68	1.49	1.51	6.9	1.56	0.11	-3%
2,3,4,6,7,8-HxCDF	1.46	1.38	1.38	3.3	1.41	0.05	-2%
1,2,3,7,8,9-HxCDF	1.32	1.25	1.25	3.4	1.27	0.04	-2%
1,2,3,4,6,7,8-HpCDF	1.04	1.04	1.03	0.9	1.04	0.01	-1%
1,2,3,4,7,8,9-HpCDF	0.87	0.89	0.87	1.4	0.88	0.01	-1%
OCDF	0.96	0.89	0.92	3.8	0.92	0.04	0%

D/F ICAL	Conc.					
Individual Native Standards	CS 0	CS 1	CS 2	CS 3	CS 4	CS 5
2378 TCDD	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
2378 TCDF	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12378 PeCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
12378 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
23478 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
234678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234789 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
OCDD	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
OCDF	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
Extraction Standards						
2378 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
2378 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
23478 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
234678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234789 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
OCDD 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
OCDF 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
Cleanup/Sampling standards						
2378 37Cl4		0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12347 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12346 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123469 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234689 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Alternate Standard						
1368 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1368 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Injection standards						
1234 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123467 HxCDD 13C12	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul

Working Standards

ES

2378 TCDD 13C12	10 pg/ul
2378 TCDF 13C12	10 pg/ul
12378 PeCDD 13C12	10 pg/ul
12378 PeCDF 13C12	10 pg/ul
23478 PeCDF 13C12	10 pg/ul
123478 HxCDD 13C12	10 pg/ul
123678 HxCDD 13C12	10 pg/ul
123789 HxCDD 13C12	10 pg/ul
123478 HxCDF 13C12	10 pg/ul
123678 HxCDF 13C12	10 pg/ul
123789 HxCDF 13C12	10 pg/ul
234678 HxCDF 13C12	10 pg/ul
1234678 HpCDD 13C12	10 pg/ul
1234678 HpCDF 13C12	10 pg/ul
1234789 HpCDF 13C12	10 pg/ul
OCDD 13C12	10 pg/ul
OCDF 13C12	10 pg/ul

Ax

2378 TCDD	1 pg/ul
2378 TCDF	1 pg/ul
12378 PeCDD	1 pg/ul
12378 PeCDF	1 pg/ul
23478 PeCDF	1 pg/ul
123478 HxCDD	1 pg/ul
123678 HxCDD	1 pg/ul
123789 HxCDD	1 pg/ul
123478 HxCDF	1 pg/ul
123678 HxCDF	1 pg/ul
123789 HxCDF	1 pg/ul
234678 HxCDF	1 pg/ul
1234678 HpCDD	1 pg/ul
1234678 HpCDF	1 pg/ul
1234789 HpCDF	1 pg/ul
OCDD	1 pg/ul
OCDF	1 pg/ul

CS/SS

2378 37Cl4	4 pg/ul
12347 PeCDD 13C12	10 pg/ul
12346 PeCDF 13C12	10 pg/ul
123469 HxCDF 13C12	10 pg/ul
1234689 HpCDF 13C12	10 pg/ul

AS

1368 TCDD 13C12	10 pg/ul
1368 TCDF 13C12	10 pg/ul

JS

1234 TCDD 13C12	10 pg/ul
1234 TCDF 13C12	10 pg/ul
123467 HxCDD 13C12	5 pg/ul

FS

1278 TCDD 13C12	100 pg/ul
12478 PeCDD 13C12	100 pg/ul
123468 HxCDD 13C12	100 pg/ul
1234679 HpCDD 13C12	100 pg/ul

TS

1378 TCDD 13C12	100 pg/ul

CS6
500 pg/ul
500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
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200 pg/ul

100 pg/ul
100 pg/ul
100 pg/ul
100 pg/ul

100 pg/ul
100 pg/ul

100 pg/ul
100 pg/ul
50 pg/ul

SGS Environmental Services — Run Log **Project: HRMS3_DF_12212015_06JAN2016**

Instrument: HRMS3 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
3	160106C03	71	SBS_160106_CA	1.00	SIL 15-49-1	ARL	152-729	06-Jan-2016	17:12:51
5	160106C05	72	CS0_160106_CA	1.00	SIL 15-105-2	ARL	695-693	06-Jan-2016	19:02:30
6	160106C06	73	CS1_160106_CA	1.00	SIL 15-105-1	ARL	311-800	06-Jan-2016	19:55:05
7	160106C07	74	CS2_160106_CA	1.00	SIL 15-104-3	ARL	134-724	06-Jan-2016	20:47:39
8	160106C08	75	CS3_160106_CA	1.00	SIL 15-104-2	ARL	110-238	06-Jan-2016	21:40:12
9	160106C09	76	CS4_160106_CA	1.00	SIL 15-104-1	ARL	873-132	06-Jan-2016	22:32:46
10	160106C10	77	CS5_160106_CA	1.00	SIL 15-103-4	ARL	040-020	06-Jan-2016	23:25:20
11	160106C11	78	CS6_160106_CA	1.00	SIL 15-105-3	ARL	804-666	07-Jan-2016	00:17:55

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:02 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS0_160106_CA | **UTP: 07-Jan-2016 10:52:21 ARL** | **Checkcode: 695-693-QXR**

Sample ID: SIL 15-105-2 | **Report: 07 Jan 2016 11:08 AL** | **Datafile: 160106C05**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.43	1.81E+05	0.78	Y	1.19	1.24	4%
12378-PeCDD	32.22	6.95E+05	1.50	Y	1.02	1.01	-1%
123478-HxCDD	36.33	6.19E+05	1.34	Y	1.08	1.10	2%
123678-HxCDD	36.45	5.81E+05	1.21	Y	1.05	1.07	2%
123789-HxCDD	36.74	6.81E+05	1.26	Y	0.99	1.06	7%
1234678-HpCDD	40.60	5.47E+05	1.10	Y	1.02	1.06	4%
OCDD	45.87	7.96E+05	0.97	Y	1.09	1.11	1%
2378-TCDF	25.46	2.25E+05	0.87	Y	1.09	1.05	-4%
12378-PeCDF	30.66	1.11E+06	1.51	Y	1.03	1.05	2%
23478-PeCDF	31.85	1.03E+06	1.52	Y	1.02	1.00	-2%
123478-HxCDF	35.30	9.13E+05	1.16	Y	1.29	1.37	6%
123678-HxCDF	35.45	8.84E+05	1.31	Y	1.17	1.17	-1%
234678-HxCDF	36.14	8.64E+05	1.25	Y	1.18	1.23	4%
123789-HxCDF	37.12	7.50E+05	1.17	Y	1.18	1.20	2%
1234678-HpCDF	39.02	7.41E+05	1.02	Y	1.38	1.38	0%
1234789-HpCDF	41.39	5.93E+05	1.06	Y	1.30	1.24	-4%
OCDF	46.17	8.87E+05	0.98	Y	1.03	0.97	-6%
ES 2378-TCDD	26.40	5.83E+07	0.83	Y	1.06	1.02	-4%
ES 12378-PeCDD	32.21	5.53E+07	1.56	Y	0.99	0.97	-3%
ES 123478-HxCDD	36.32	4.50E+07	1.26	Y	1.09	1.10	1%
ES 123678-HxCDD	36.43	4.33E+07	1.27	Y	1.10	1.06	-3%
ES 123789-HxCDD	36.73	5.12E+07	1.23	Y	1.24	1.25	1%
ES 1234678-HpCDD	40.58	4.13E+07	1.07	Y	0.93	1.01	8%
ES OCDD	45.85	5.76E+07	0.88	Y	0.71	0.70	-1%
ES 2378-TCDF	25.44	8.59E+07	0.80	Y	1.02	1.00	-2%
ES 12378-PeCDF	30.64	8.47E+07	1.57	Y	0.96	0.99	2%
ES 23478-PeCDF	31.83	8.20E+07	1.59	Y	0.95	0.95	1%
ES 123478-HxCDF	35.28	5.34E+07	0.53	Y	1.32	1.31	-1%
ES 123678-HxCDF	35.43	6.07E+07	0.54	Y	1.51	1.48	-2%
ES 234678-HxCDF	36.12	5.63E+07	0.54	Y	1.38	1.38	0%
ES 123789-HxCDF	37.10	4.99E+07	0.52	Y	1.25	1.22	-3%
ES 1234678-HpCDF	39.01	4.31E+07	0.44	Y	1.03	1.05	3%
ES 1234789-HpCDF	41.37	3.82E+07	0.46	Y	0.87	0.93	7%
ES OCDF	46.16	7.31E+07	0.91	Y	0.92	0.89	-3%

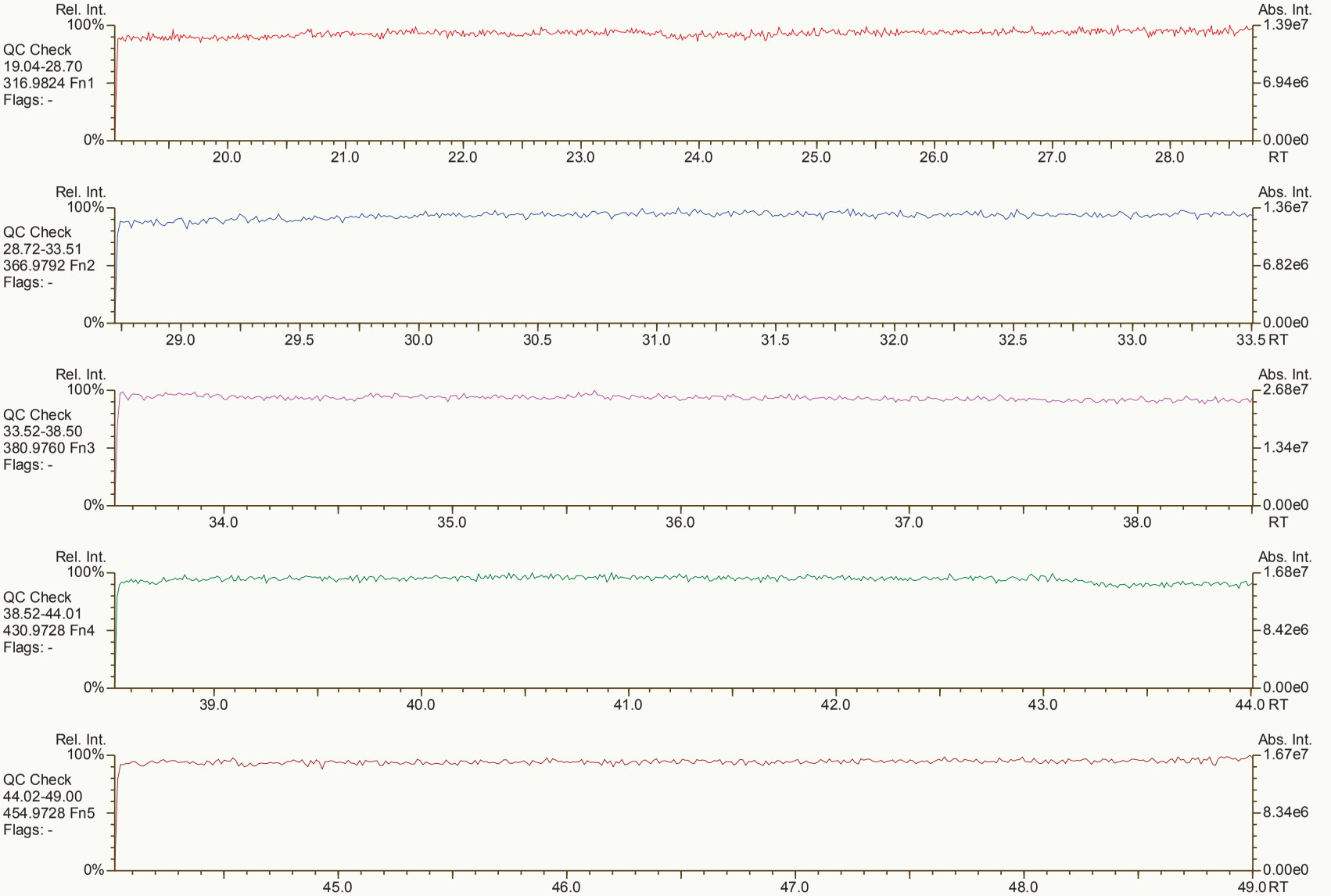
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:02 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS0_160106_CA | **UTP: 07-Jan-2016 10:52:21 ARL** | **Checkcode: 695-693**

Sample ID: SIL 15-105-2 | **Report: 07 Jan 2016 11:08 AL** | **Datafile: 160106C05**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.69	5.71E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.92	8.59E+07	0.79	Y	-	-	-
JS 123467-HxCDD	36.62	2.04E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	Not Fnd		n/a	-			
CS 12347-PeCDD	31.67	5.67E+07	1.57	Y	0.94	0.99	6%
CS 12346-PeCDF	30.08	8.37E+07	1.60	Y	0.92	0.97	5%
CS 123469-HxCDF	35.75	5.87E+07	0.53	Y	1.38	1.44	4%
CS 1234689-HpCDF	39.66	3.98E+07	0.46	Y	0.88	0.97	11%
SS 37Cl-2378-TCDD	Not Fnd		n/a	-			
SS 12347-PeCDD	31.67	5.67E+07	1.57	Y	0.94	1.03	9%
SS 12346-PeCDF	30.08	8.37E+07	1.60	Y	0.96	0.99	3%
SS 123469-HxCDF	35.75	5.87E+07	0.53	Y	0.92	0.97	6%
SS 1234689-HpCDF	39.66	3.98E+07	0.46	Y	0.86	0.92	7%
AS 1368-TCDD	22.25	6.02E+07	0.79	Y	1.05	1.05	0%
AS 1368-TCDF	20.13	1.20E+08	0.79	Y	1.40	1.39	-1%
FS 1278-TCDD	26.77	7.60E+07	0.80	Y	1.28	1.30	1%
FS 12478-PeCDD	30.90	6.60E+07	1.58	Y	1.11	1.19	8%
FS 123468-HxCDD	35.22	6.33E+07	1.24	Y	1.36	1.41	4%
FS 1234679-HpCDD	39.45	5.39E+07	1.08	Y	1.30	1.31	0%
TS 1378-TCDD	24.56	7.15E+07	0.82	Y	1.21	1.23	2%
OCDD-a	Not Fnd				0.07		
OCDF-a	Not Fnd				0.06		

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

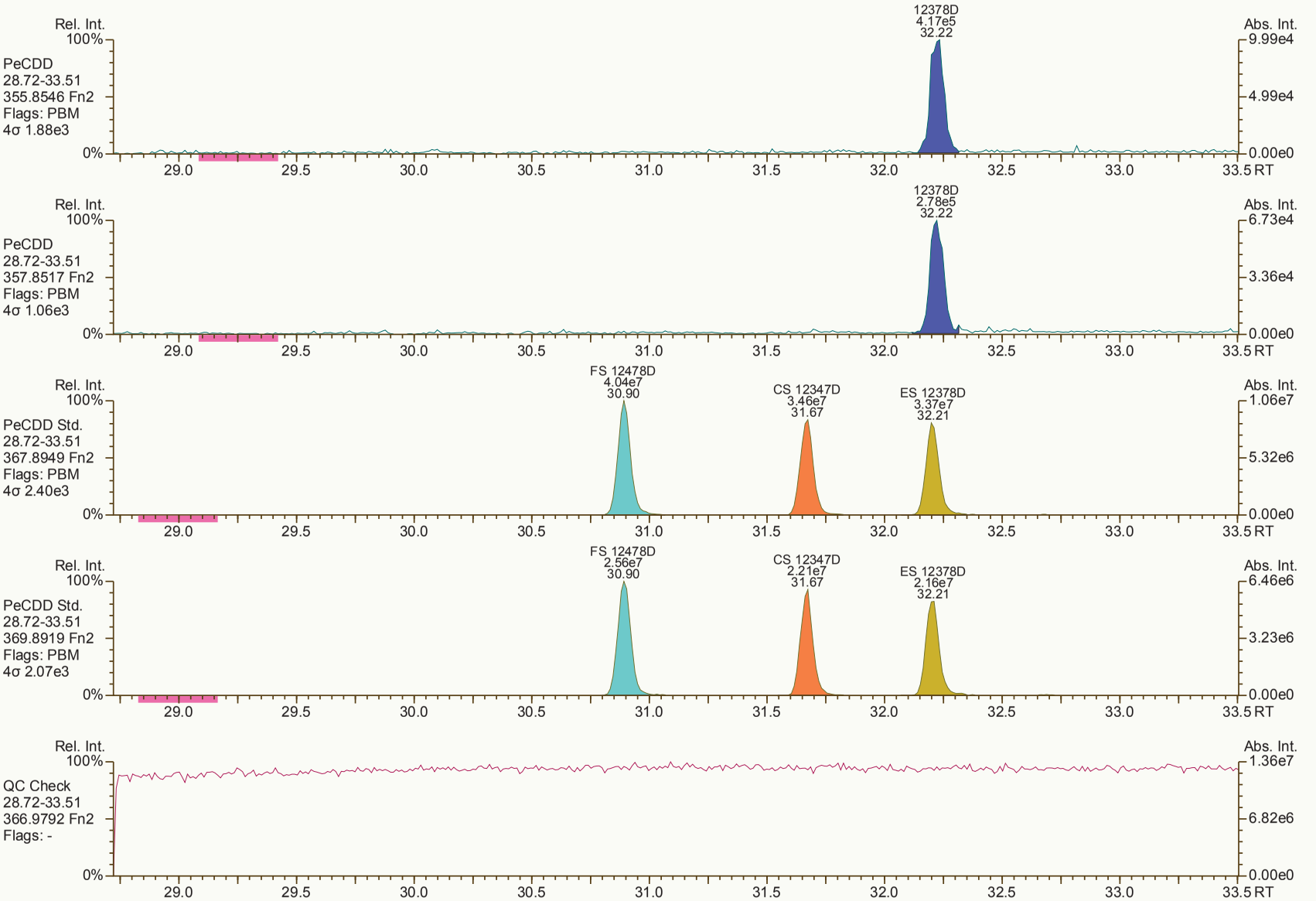


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 695-693 | *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

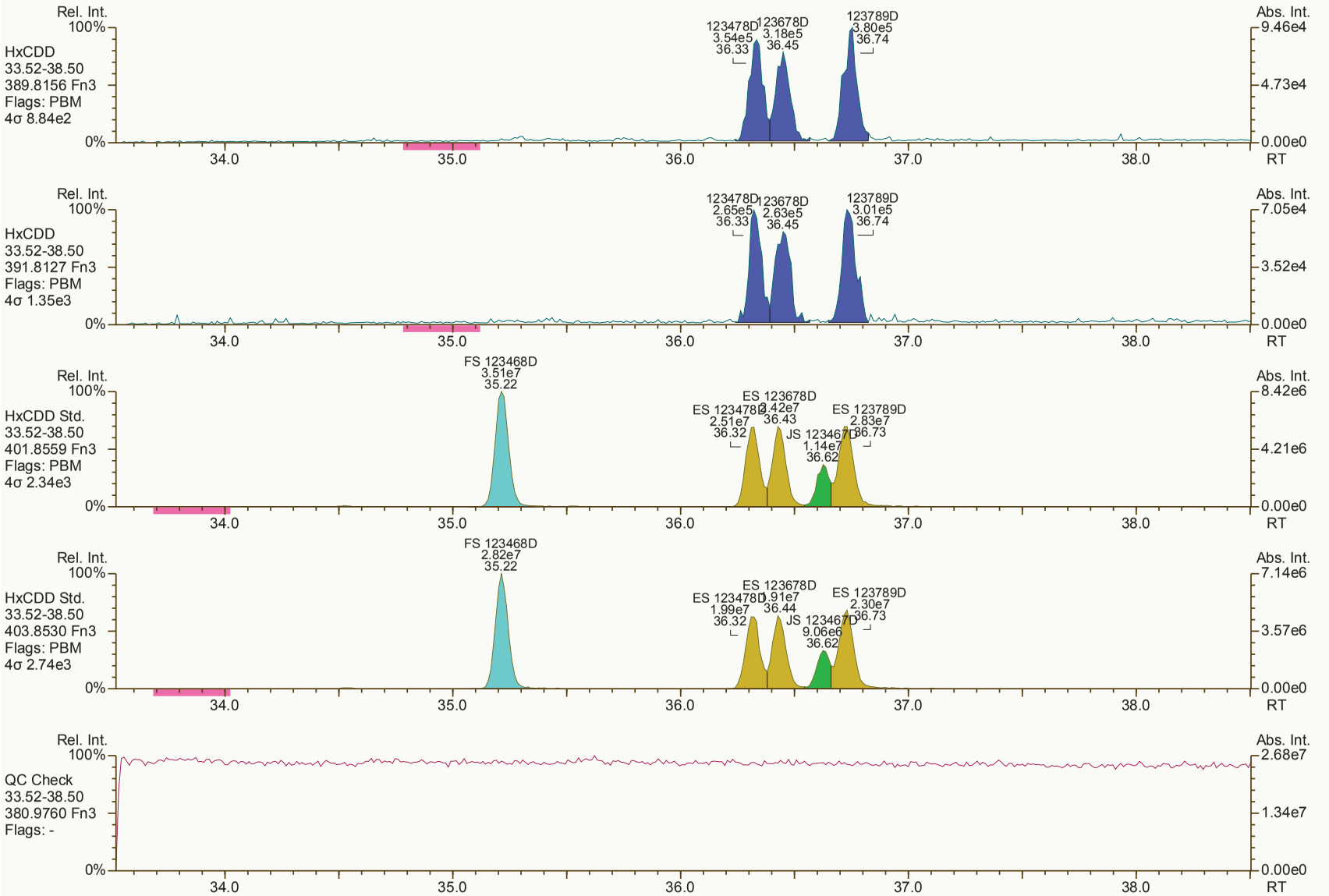
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5992, 7894, 7420 scc: 695-693 *Revised: 07-Jan-2016 09:35 (ARL) Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



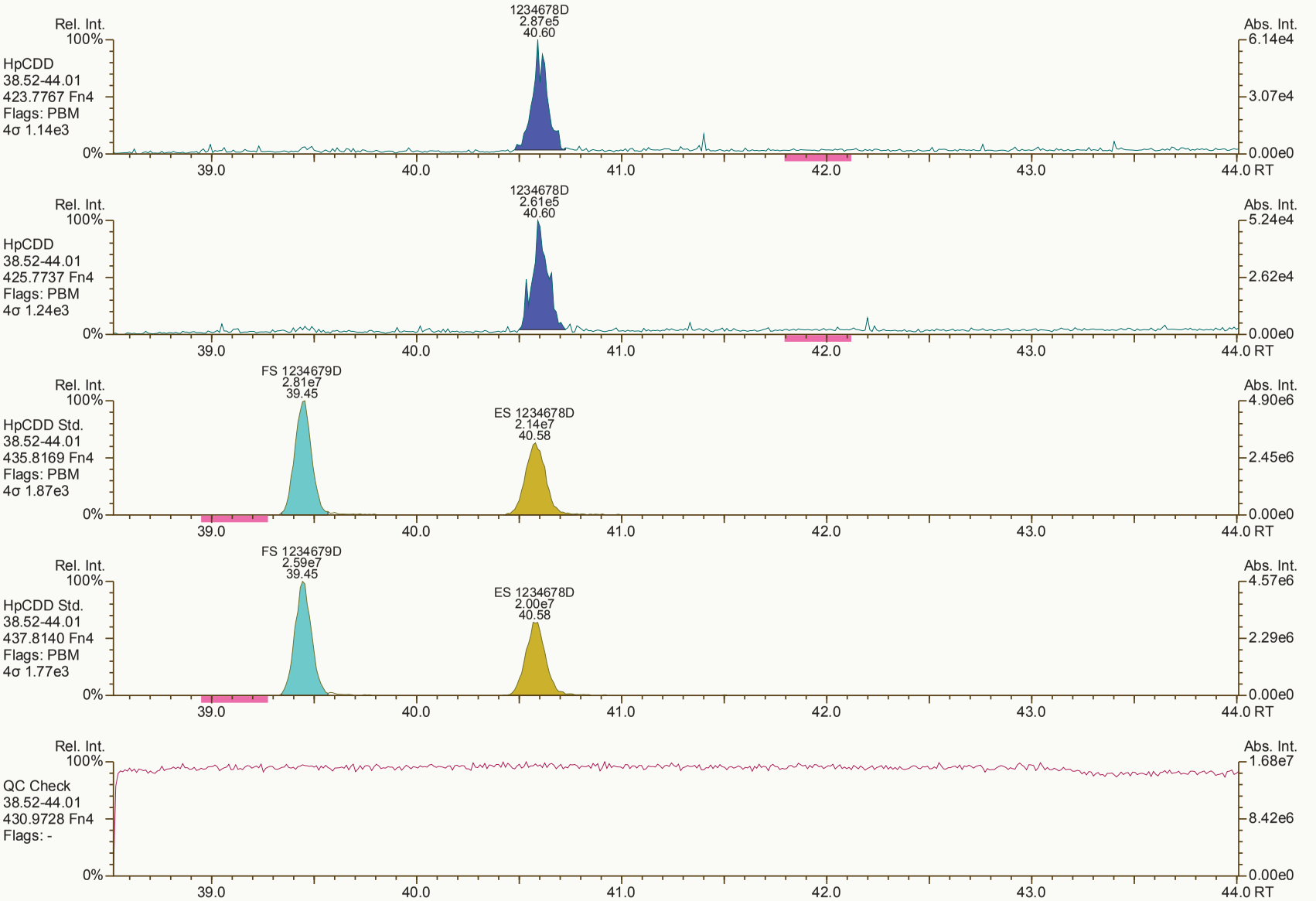
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1398, 3531 scc: 695-693 *Revised: 07-Jan-2016 10:52 (ARL) Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9222, 7274 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 4 of 12*

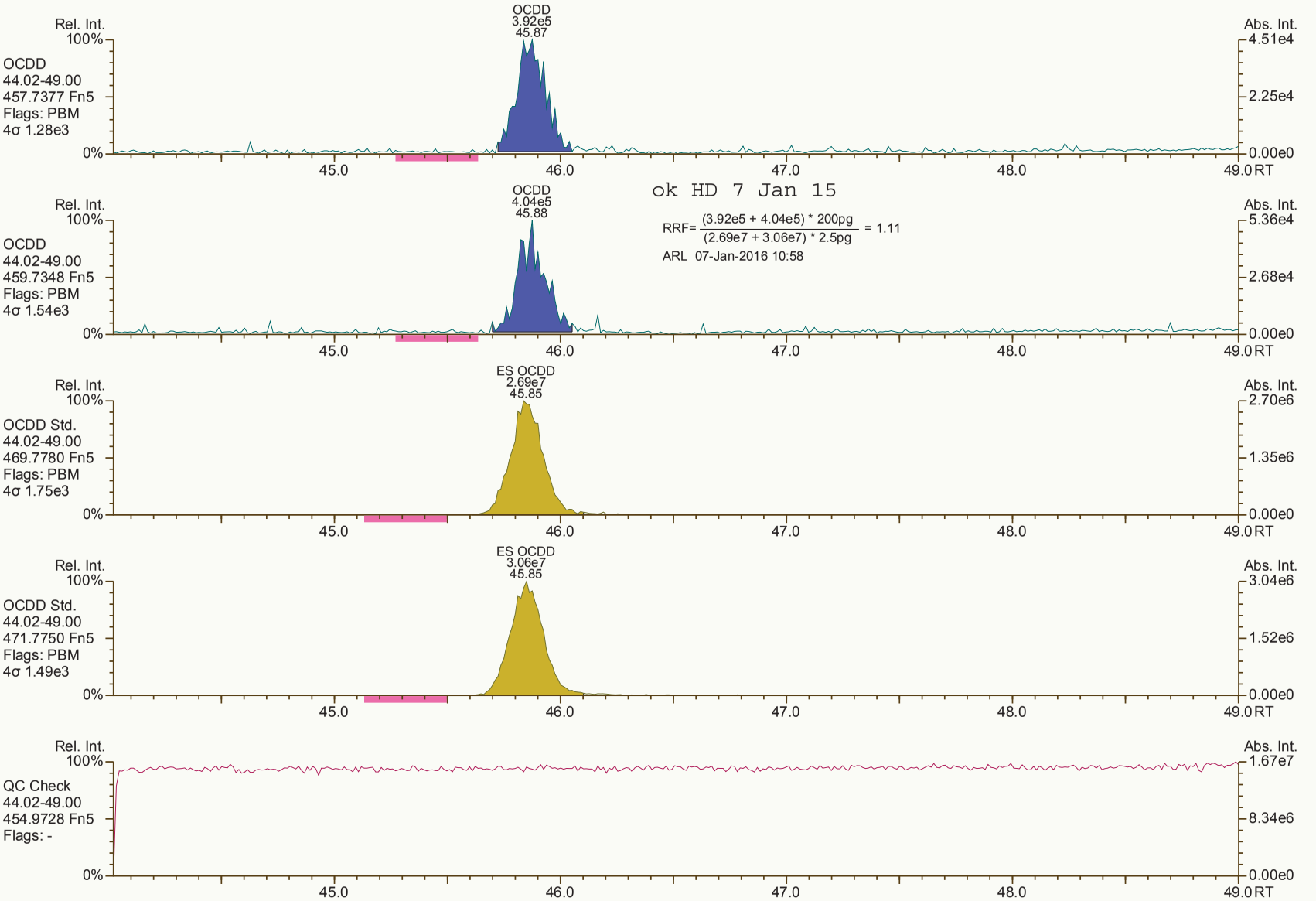
SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1521, 6632 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0871, 8309 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 6 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

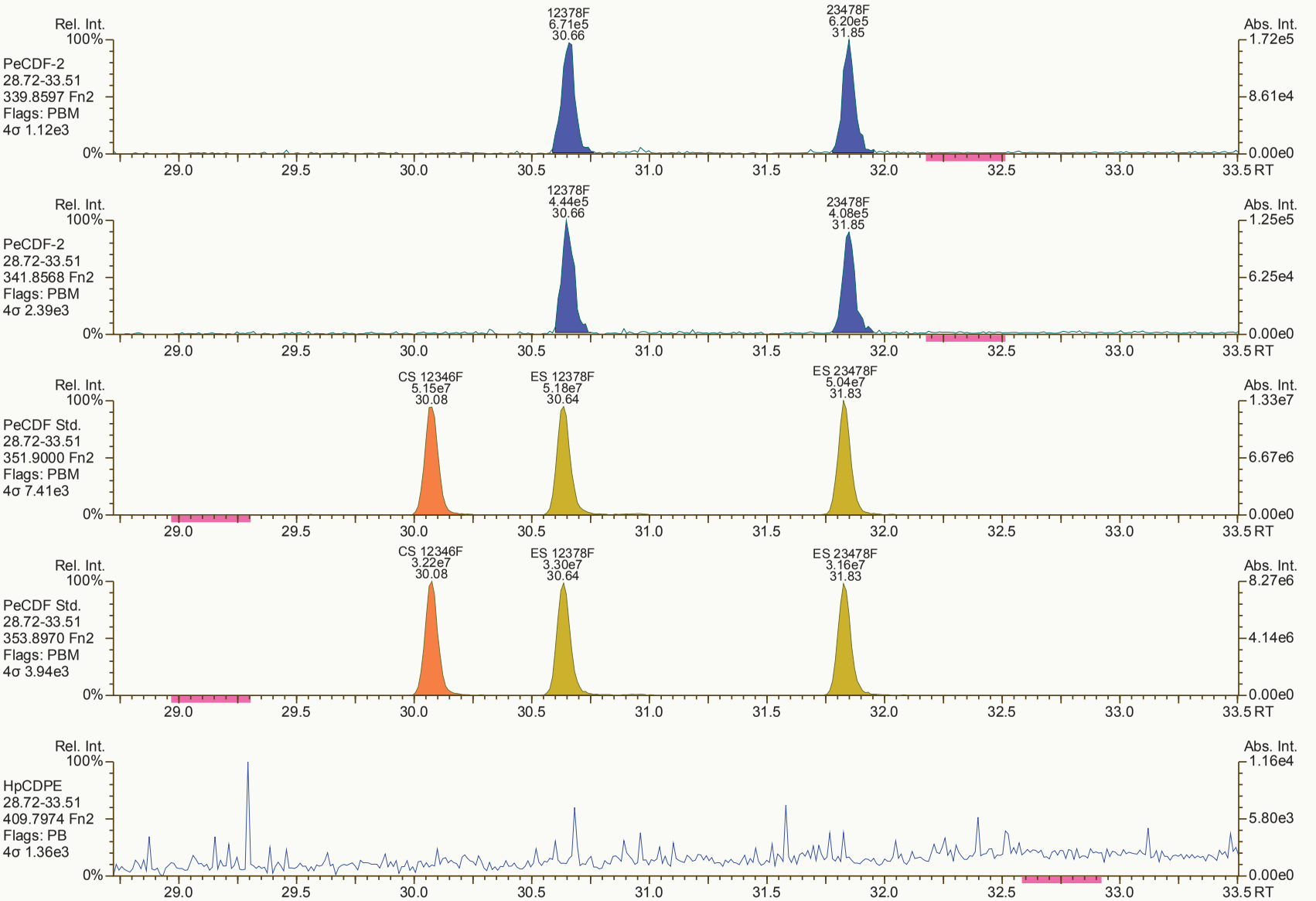
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) — *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1187, 6280, 8512 scc: 695-693 — *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 7 of 12*

SGS ID: CS0_160106_CA **Sample ID: SIL 15-105-2** **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** **User: ARL Datafile: 160106C05**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4185 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 8 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



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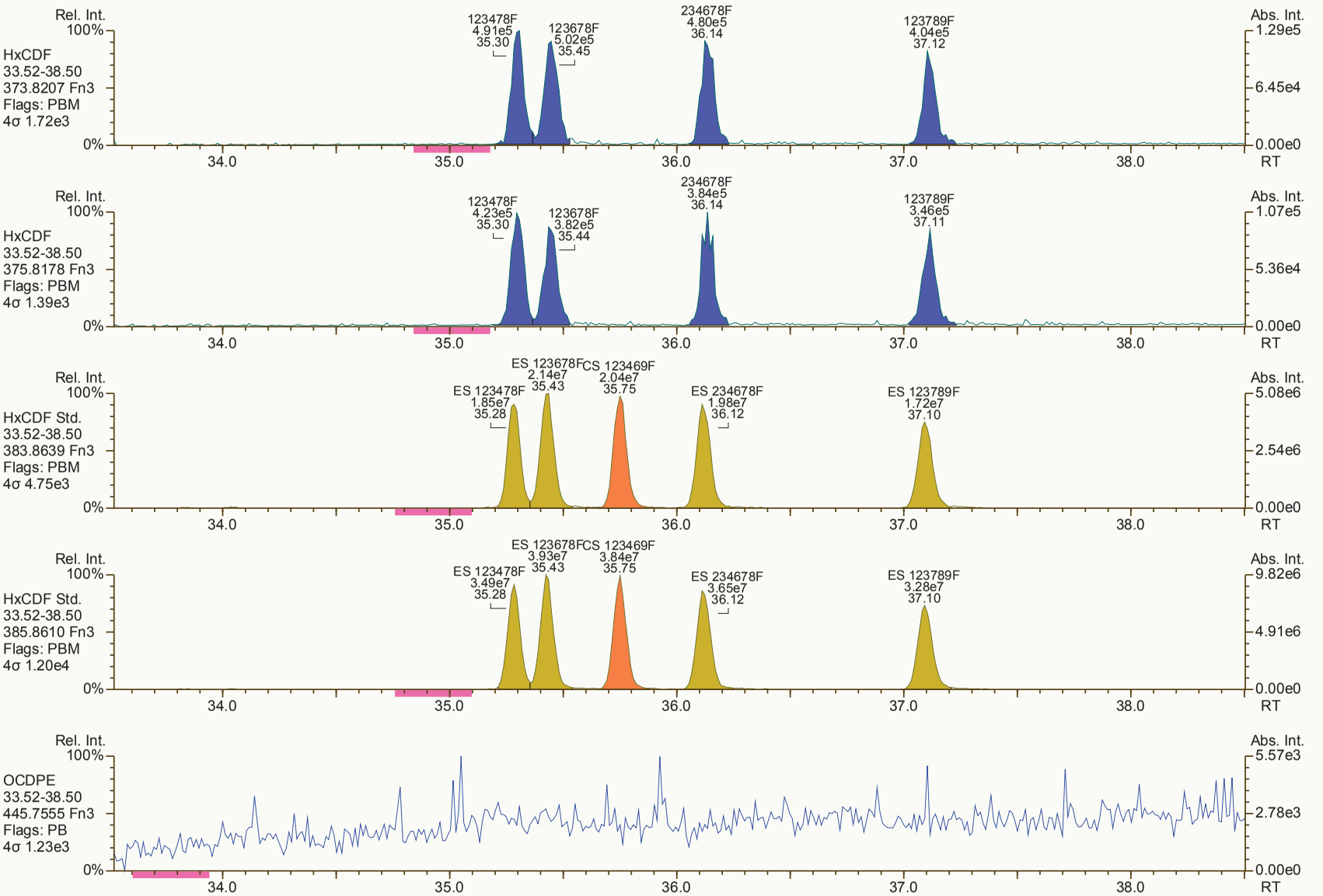
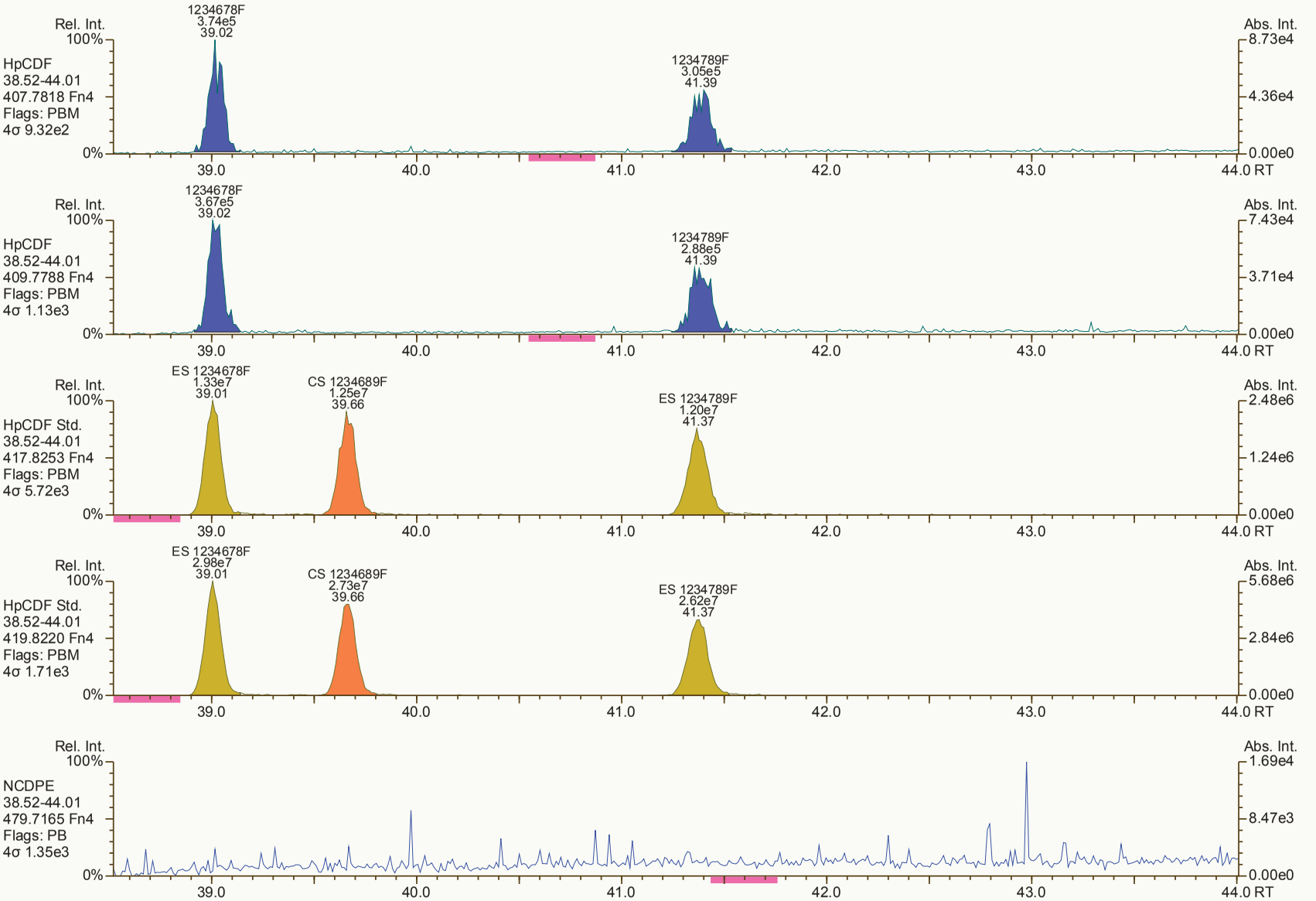
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0699, 4697, 4389 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 9 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



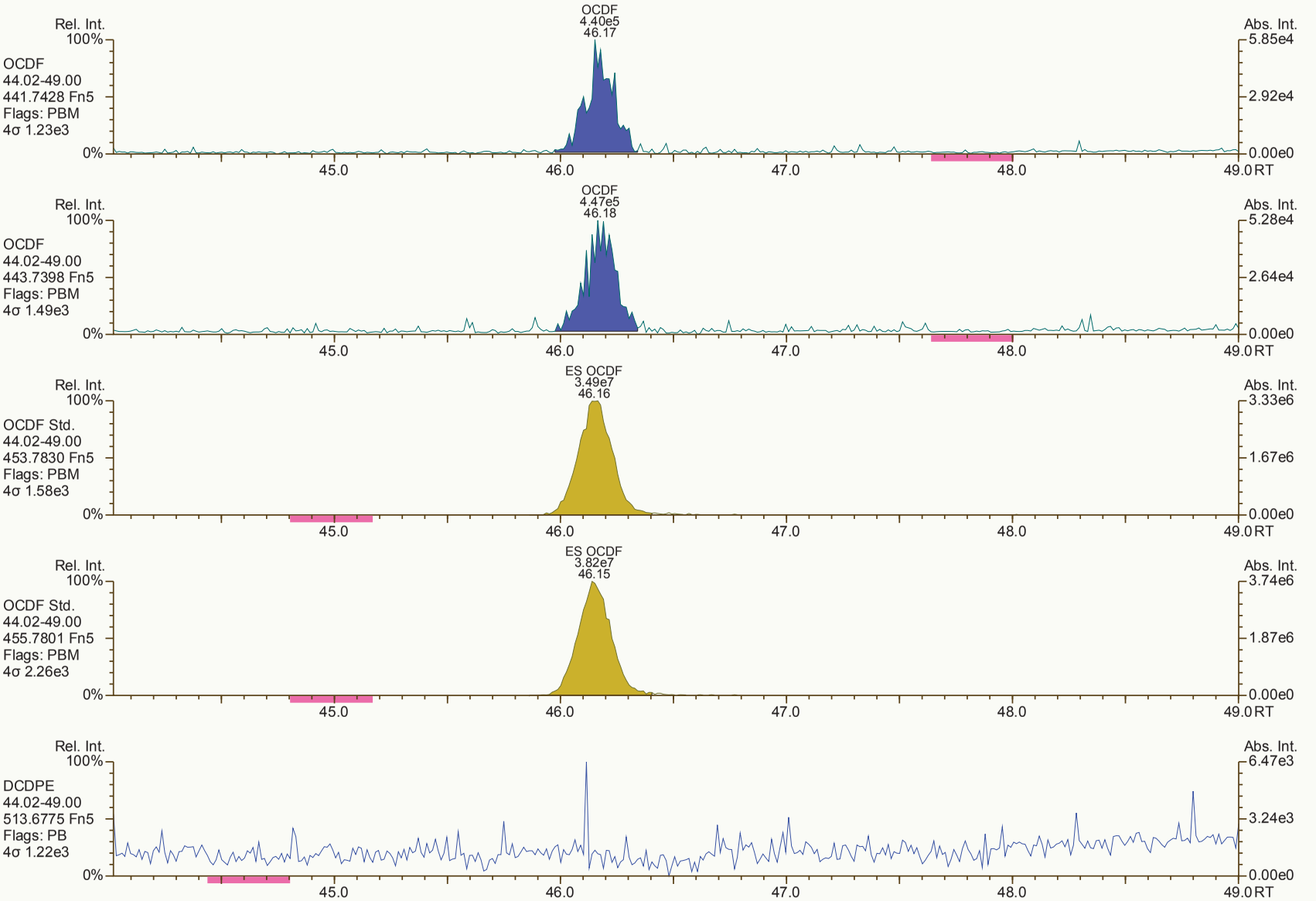
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0144, 5495, 9016 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 10 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6360, 8290, 8128 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 11 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6417, 1191, 3831 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:55 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS1_160106_CA | **UTP: 07-Jan-2016 10:52:22 ARL** | **Checkcode: 311-800-WDV**

Sample ID: SIL 15-105-1 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C06**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.42	3.50E+05	0.82	Y	1.19	1.23	4%
12378-PeCDD	32.23	1.28E+06	1.56	Y	1.02	1.05	3%
123478-HxCDD	36.33	1.24E+06	1.27	Y	1.08	1.13	4%
123678-HxCDD	36.45	1.10E+06	1.30	Y	1.05	0.98	-6%
123789-HxCDD	36.75	1.25E+06	1.23	Y	0.99	0.99	0%
1234678-HpCDD	40.64	9.02E+05	1.02	Y	1.02	1.02	0%
OCDD	45.85	1.55E+06	0.92	Y	1.09	1.11	2%
2378-TCDF	25.45	4.70E+05	0.85	Y	1.09	1.13	4%
12378-PeCDF	30.66	1.90E+06	1.55	Y	1.03	1.02	-1%
23478-PeCDF	31.86	1.89E+06	1.46	Y	1.02	1.03	1%
123478-HxCDF	35.31	1.78E+06	1.22	Y	1.29	1.36	5%
123678-HxCDF	35.45	1.86E+06	1.31	Y	1.17	1.22	4%
234678-HxCDF	36.12	1.68E+06	1.26	Y	1.18	1.19	1%
123789-HxCDF	37.10	1.58E+06	1.21	Y	1.18	1.24	5%
1234678-HpCDF	38.99	1.45E+06	1.10	Y	1.38	1.46	6%
1234789-HpCDF	41.42	1.14E+06	1.07	Y	1.30	1.37	6%
OCDF	46.09	1.88E+06	0.82	Y	1.03	1.05	2%
ES 2378-TCDD	26.40	5.67E+07	0.80	Y	1.06	1.07	1%
ES 12378-PeCDD	32.21	4.88E+07	1.57	Y	0.99	0.92	-7%
ES 123478-HxCDD	36.31	4.41E+07	1.27	Y	1.09	1.11	2%
ES 123678-HxCDD	36.43	4.47E+07	1.26	Y	1.10	1.13	3%
ES 123789-HxCDD	36.73	5.04E+07	1.26	Y	1.24	1.27	2%
ES 1234678-HpCDD	40.62	3.52E+07	1.14	Y	0.93	0.89	-5%
ES OCDD	45.84	5.58E+07	0.90	Y	0.71	0.70	-1%
ES 2378-TCDF	25.43	8.34E+07	0.79	Y	1.02	1.06	4%
ES 12378-PeCDF	30.65	7.43E+07	1.59	Y	0.96	0.95	-2%
ES 23478-PeCDF	31.84	7.36E+07	1.57	Y	0.95	0.94	-1%
ES 123478-HxCDF	35.29	5.23E+07	0.54	Y	1.32	1.32	0%
ES 123678-HxCDF	35.43	6.10E+07	0.53	Y	1.51	1.54	2%
ES 234678-HxCDF	36.11	5.65E+07	0.52	Y	1.38	1.43	3%
ES 123789-HxCDF	37.09	5.08E+07	0.54	Y	1.25	1.28	2%
ES 1234678-HpCDF	38.98	3.96E+07	0.46	Y	1.03	1.00	-3%
ES 1234789-HpCDF	41.41	3.33E+07	0.45	Y	0.87	0.84	-4%
ES OCDF	46.07	7.13E+07	0.92	Y	0.92	0.90	-2%

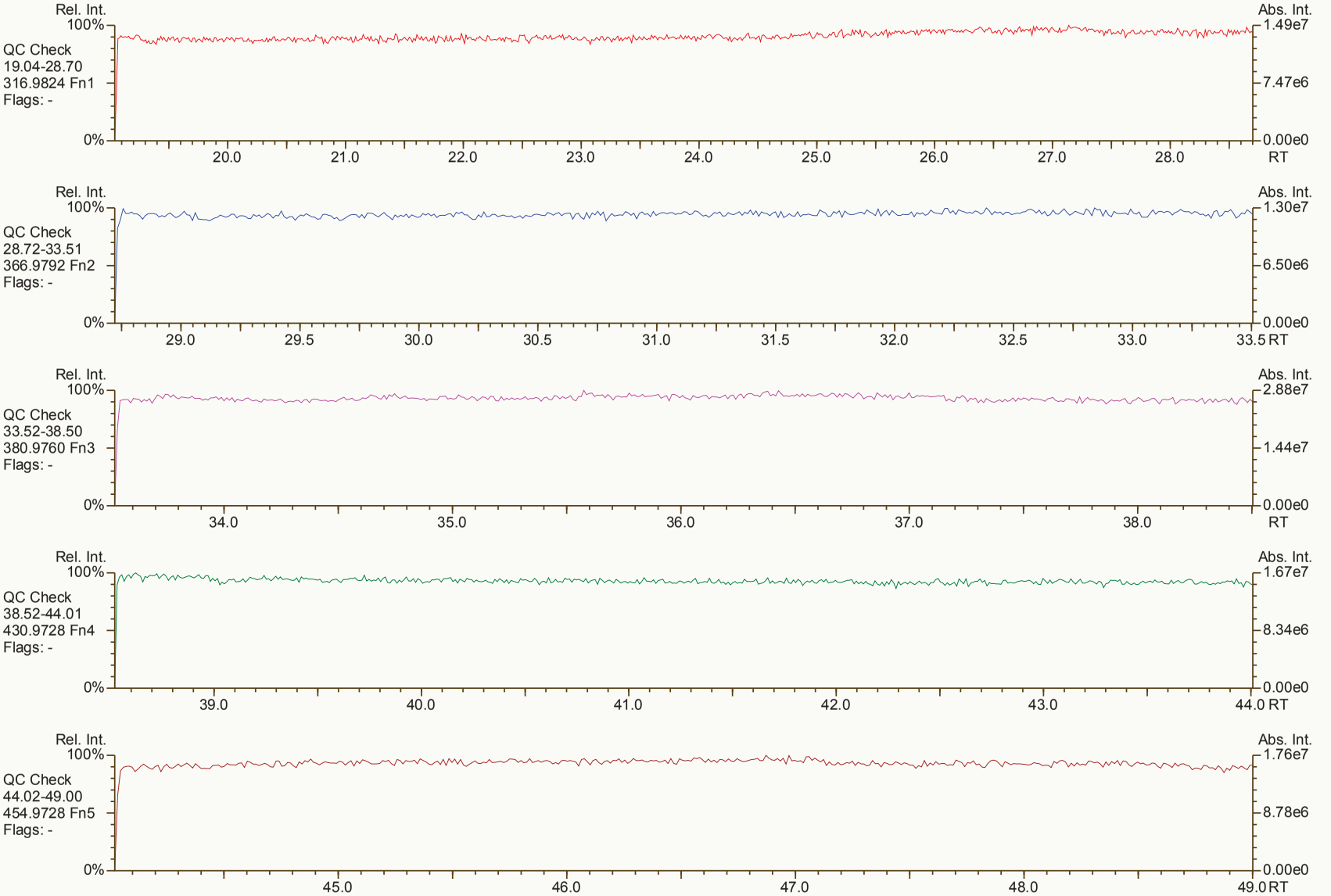
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:55 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS1_160106_CA | **UTP: 07-Jan-2016 10:52:22 ARL** | **Checkcode: 311-800**

Sample ID: SIL 15-105-1 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C06**

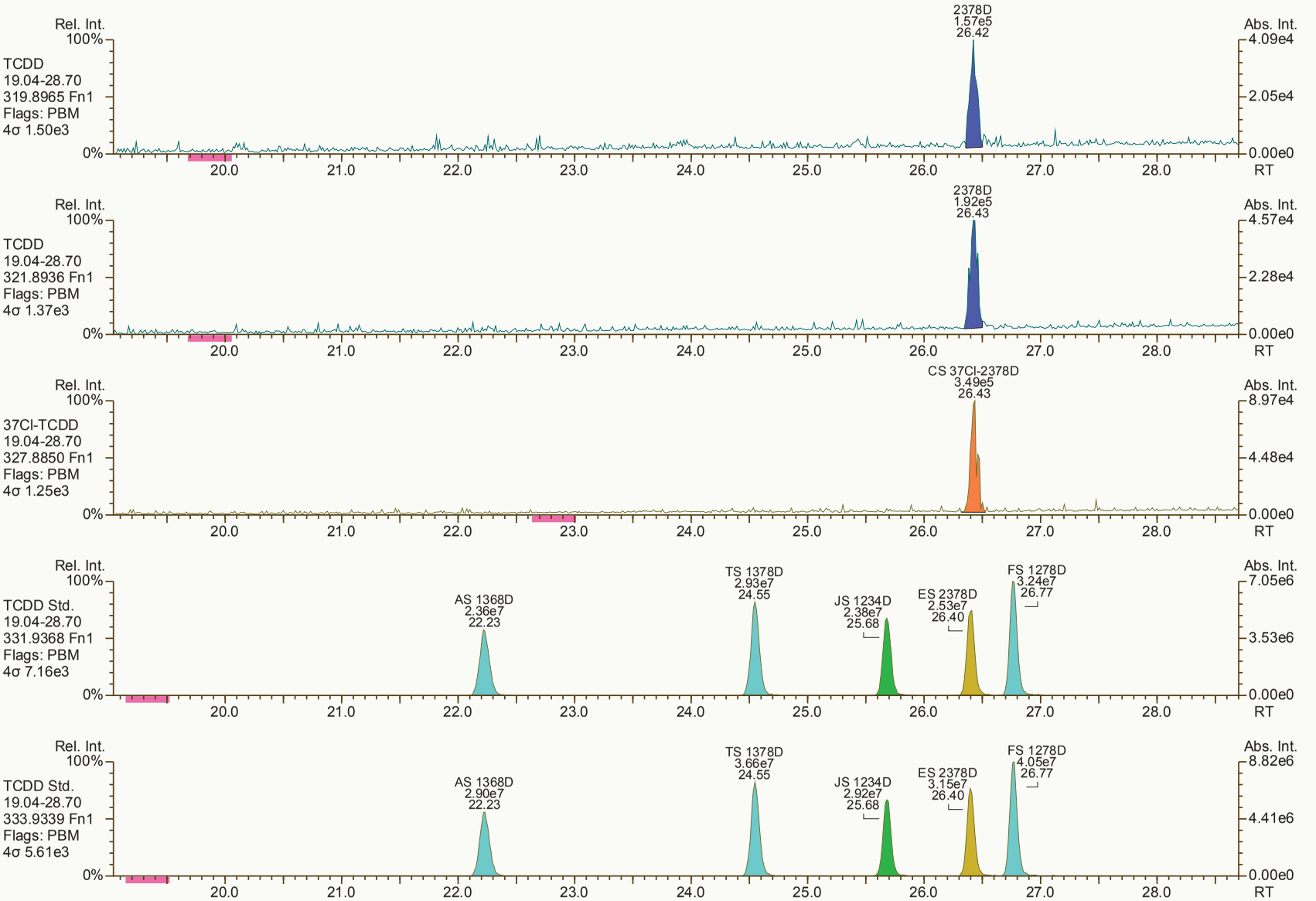
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.68	5.30E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.91	7.84E+07	0.79	Y	-	-	-
JS 123467-HxCDD	36.62	1.98E+07	1.22	Y	-	-	-
CS 37Cl-2378-TCDD	26.43	3.49E+05	n/a	-	1.24	1.32	6%
CS 12347-PeCDD	31.68	4.51E+07	1.58	Y	0.94	0.85	-9%
CS 12346-PeCDF	30.08	6.86E+07	1.61	Y	0.92	0.87	-5%
CS 123469-HxCDF	35.74	5.54E+07	0.54	Y	1.38	1.40	1%
CS 1234689-HpCDF	39.66	3.36E+07	0.46	Y	0.88	0.85	-4%
SS 37Cl-2378-TCDD	26.43	3.49E+05	n/a	-	1.18	1.23	4%
SS 12347-PeCDD	31.68	4.51E+07	1.58	Y	0.94	0.92	-2%
SS 12346-PeCDF	30.08	6.86E+07	1.61	Y	0.96	0.92	-4%
SS 123469-HxCDF	35.74	5.54E+07	0.54	Y	0.92	0.91	-1%
SS 1234689-HpCDF	39.66	3.36E+07	0.46	Y	0.86	0.85	-1%
AS 1368-TCDD	22.23	5.26E+07	0.81	Y	1.05	0.99	-5%
AS 1368-TCDF	20.12	1.10E+08	0.81	Y	1.40	1.40	0%
FS 1278-TCDD	26.77	7.30E+07	0.80	Y	1.28	1.29	0%
FS 12478-PeCDD	30.90	5.58E+07	1.56	Y	1.11	1.14	3%
FS 123468-HxCDD	35.22	5.96E+07	1.27	Y	1.36	1.35	0%
FS 1234679-HpCDD	39.42	4.78E+07	1.06	Y	1.30	1.36	4%
TS 1378-TCDD	24.55	6.59E+07	0.80	Y	1.21	1.16	-4%
OCDD-a	Not Fnd				0.07		
OCDF-a	Not Fnd				0.06		

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



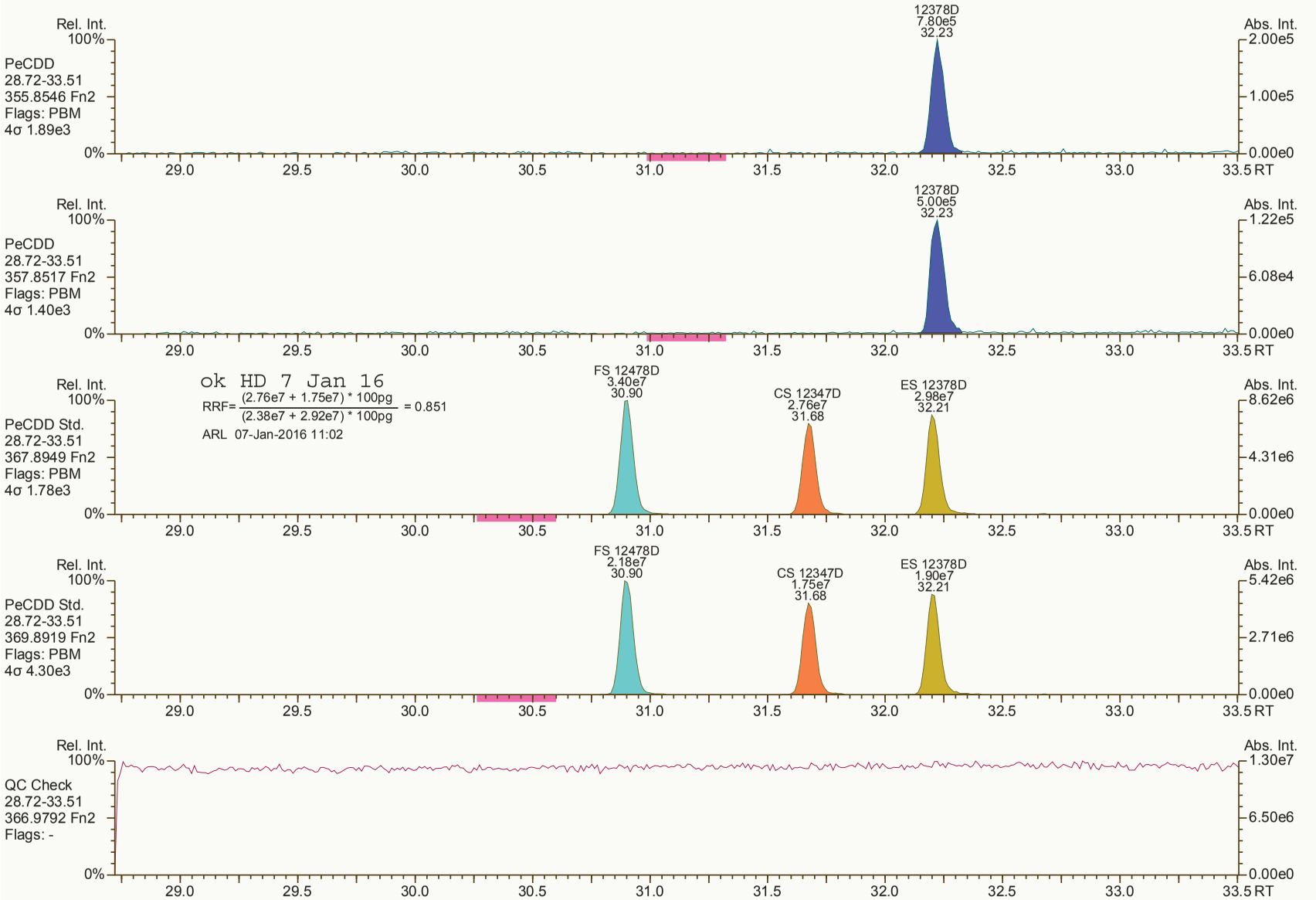
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 311-800 | *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) — *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2821, 1397, 4479 scc: 311-800 — *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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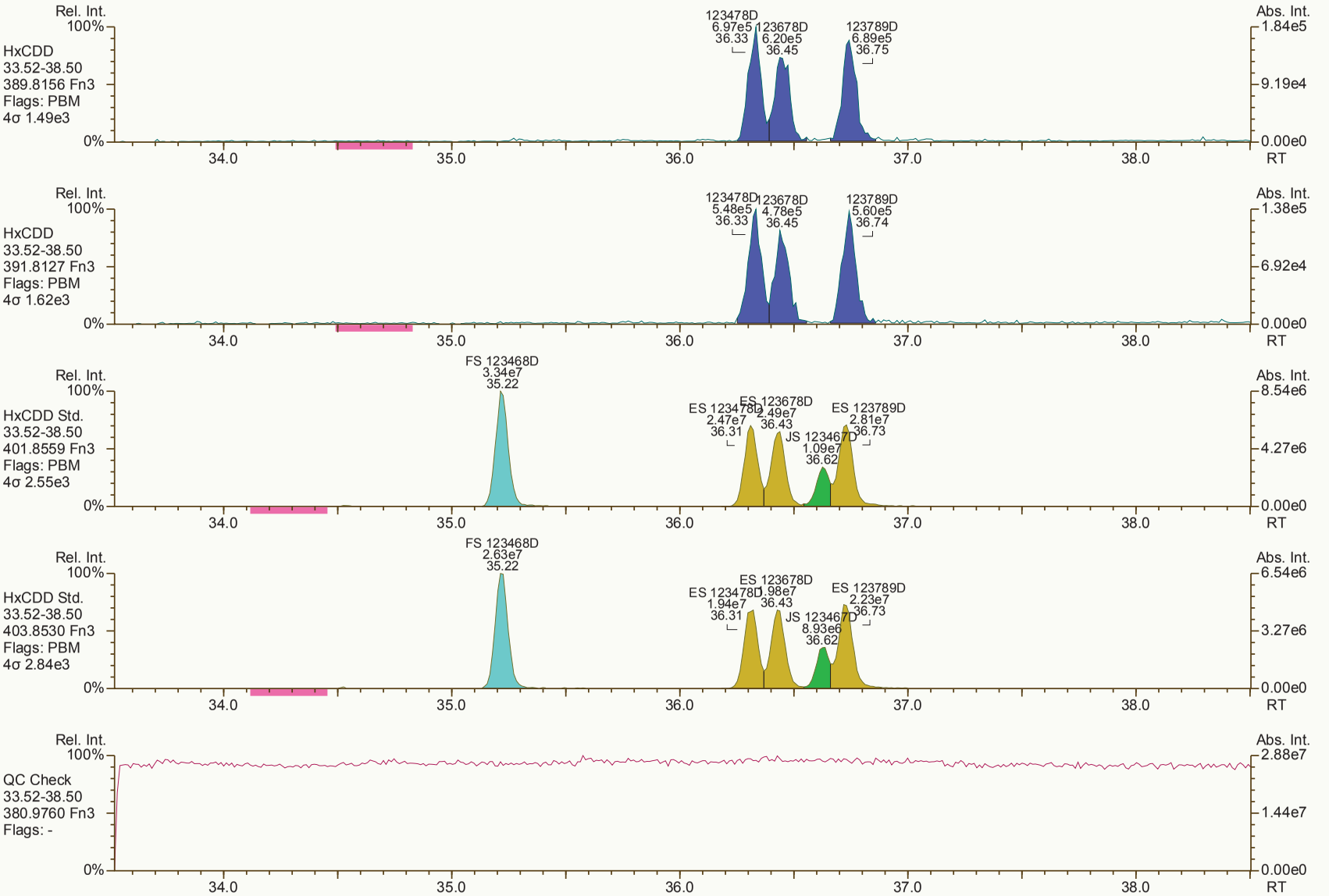
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2972, 5261 scc: 311-800 *Revised: 07-Jan-2016 09:22 (ARL) Printed: 07-Jan-2016 11:29 Page 3 of 12*

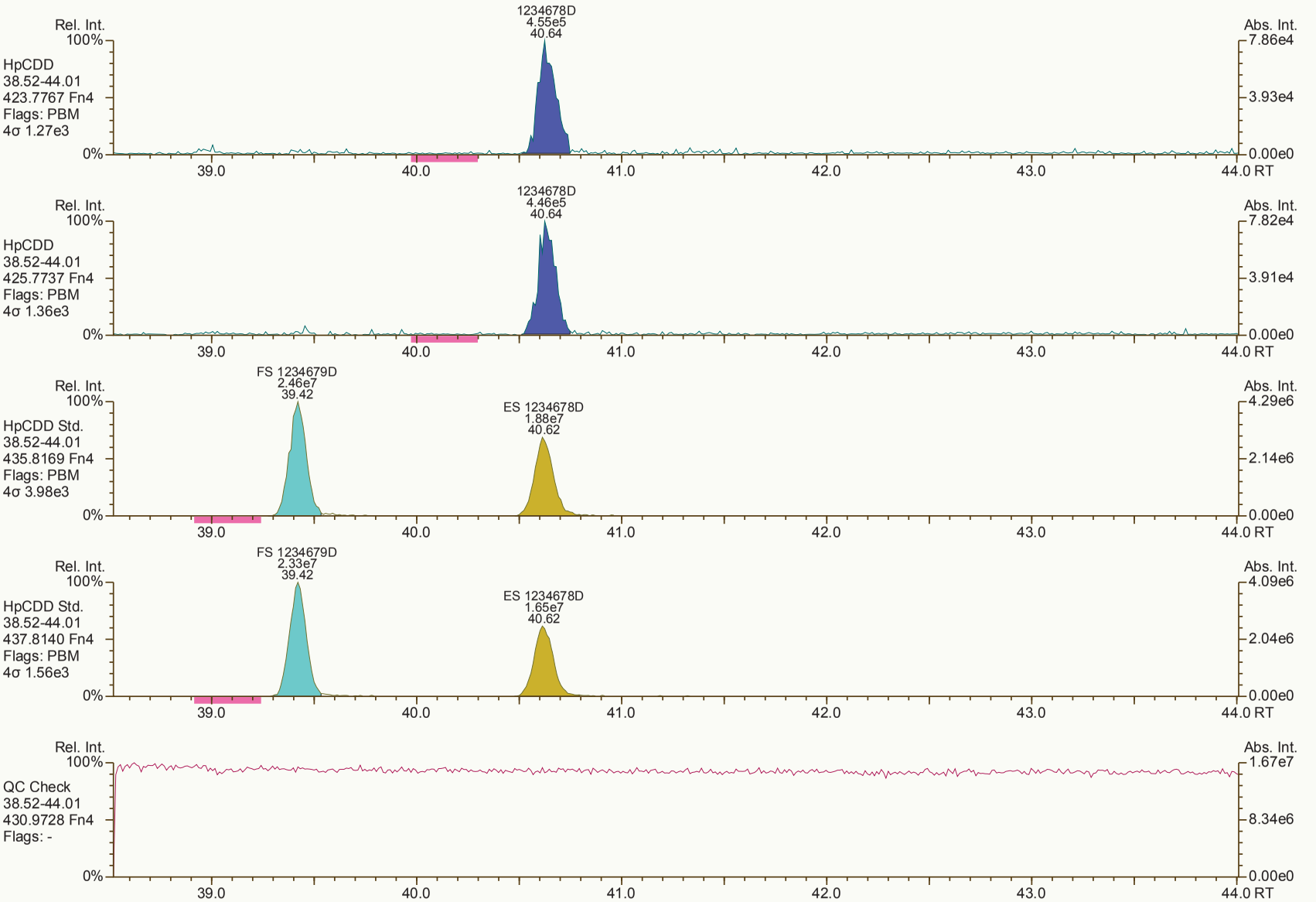
SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6879, 7757 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 4 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9040, 2724 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1887, 4898 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 6 of 12*

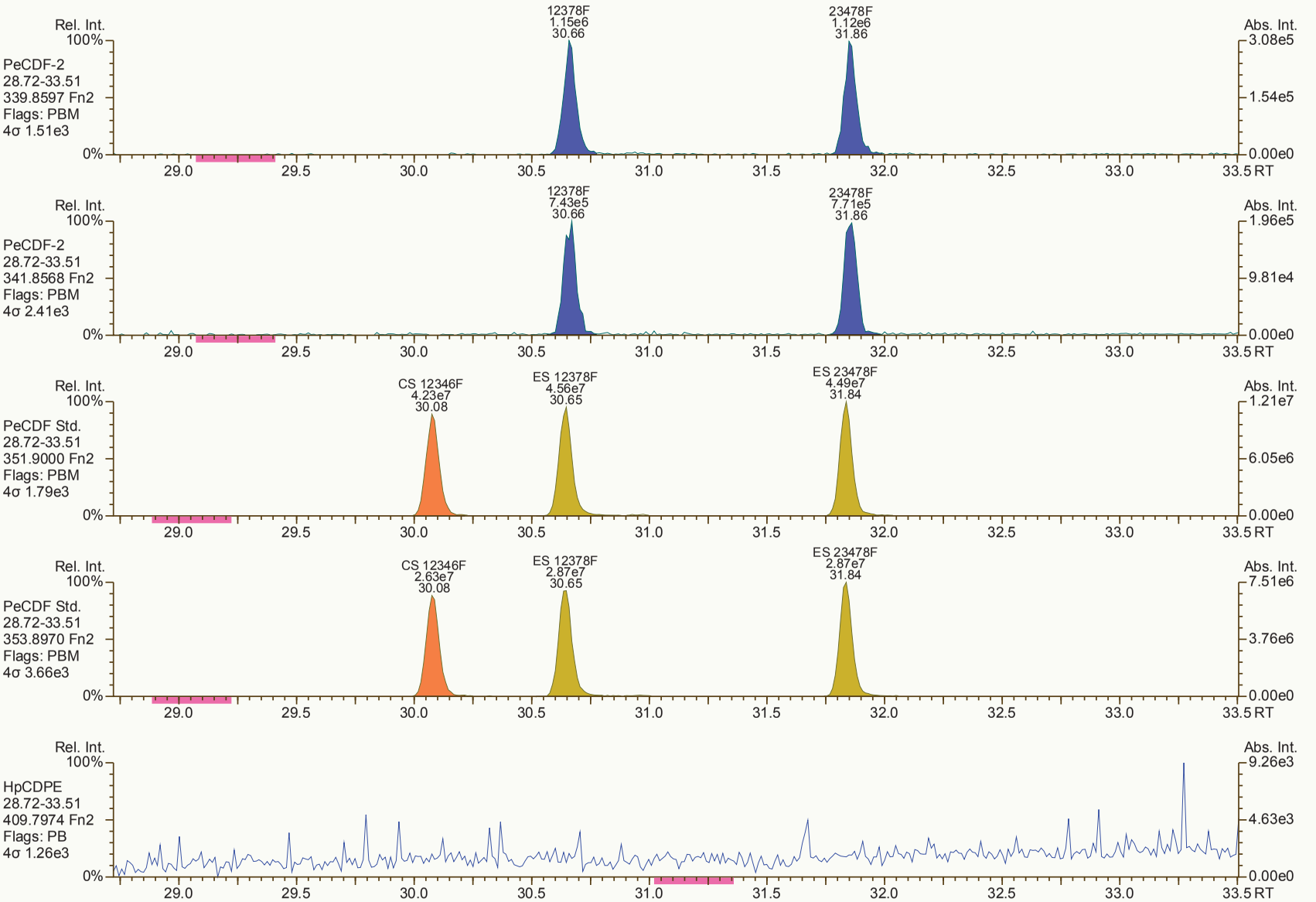
SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7240, 3263, 8391 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

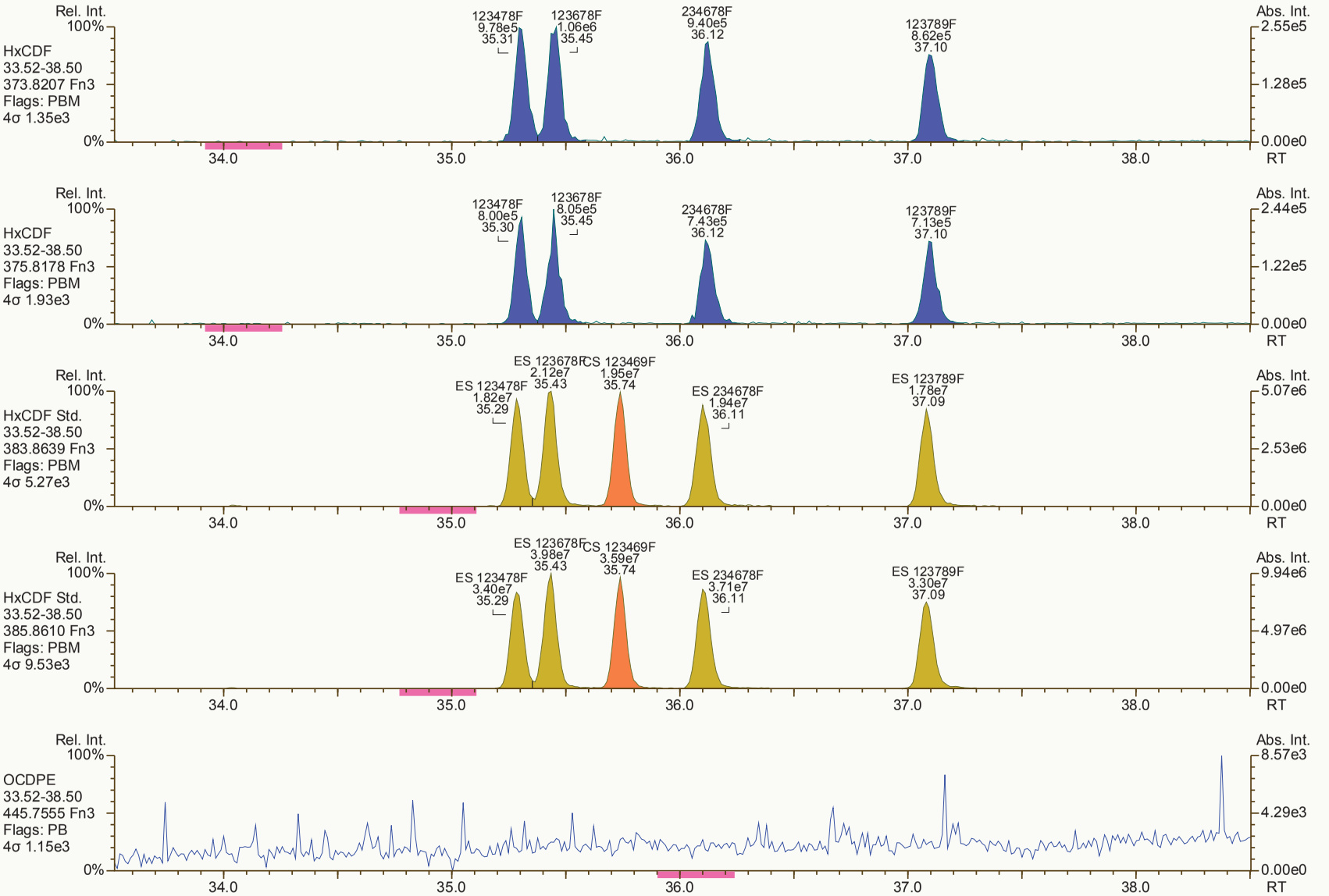
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3476 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 8 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1795, 7168, 2748 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 9 of 12*

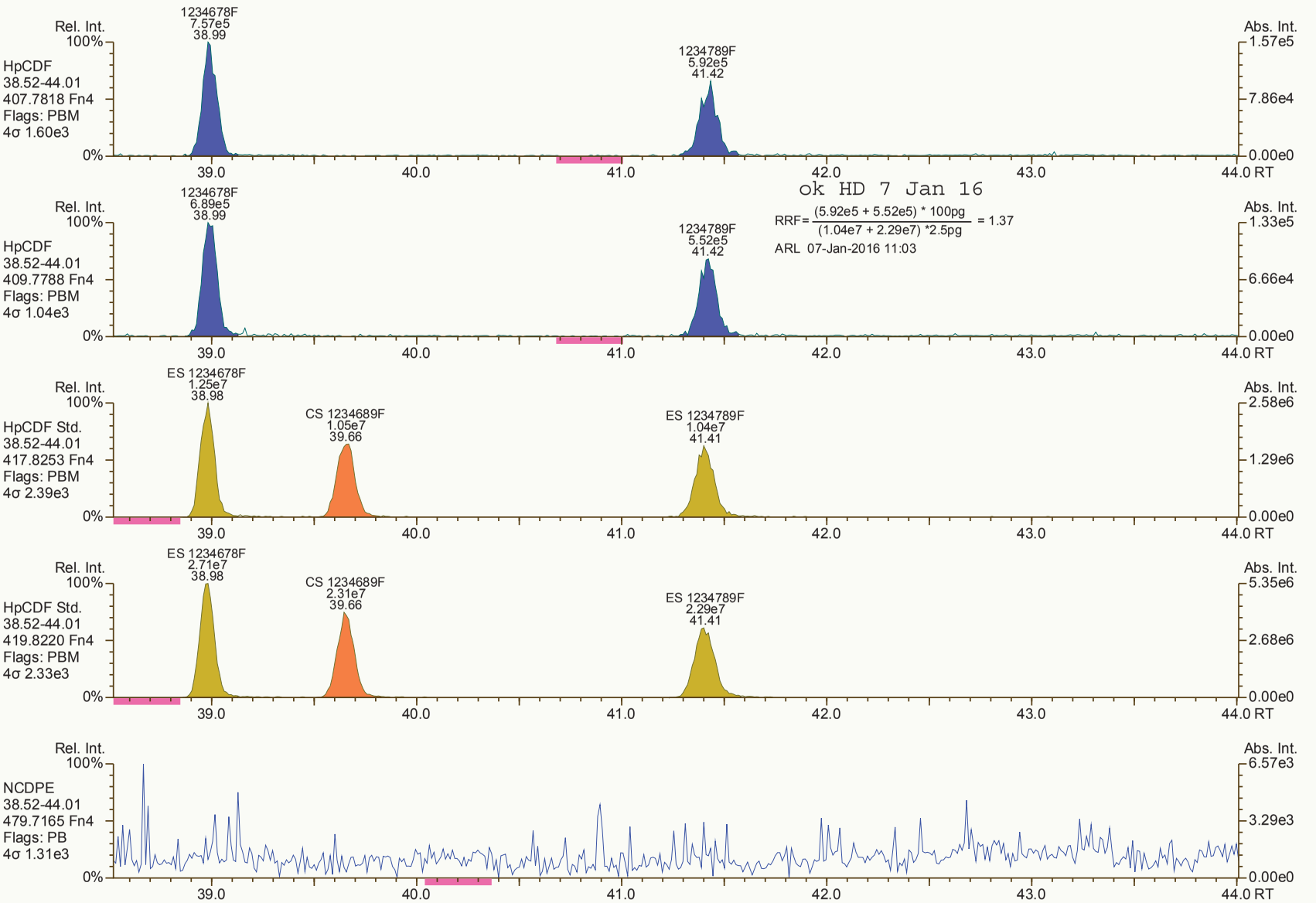
SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1337, 1373, 7927 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

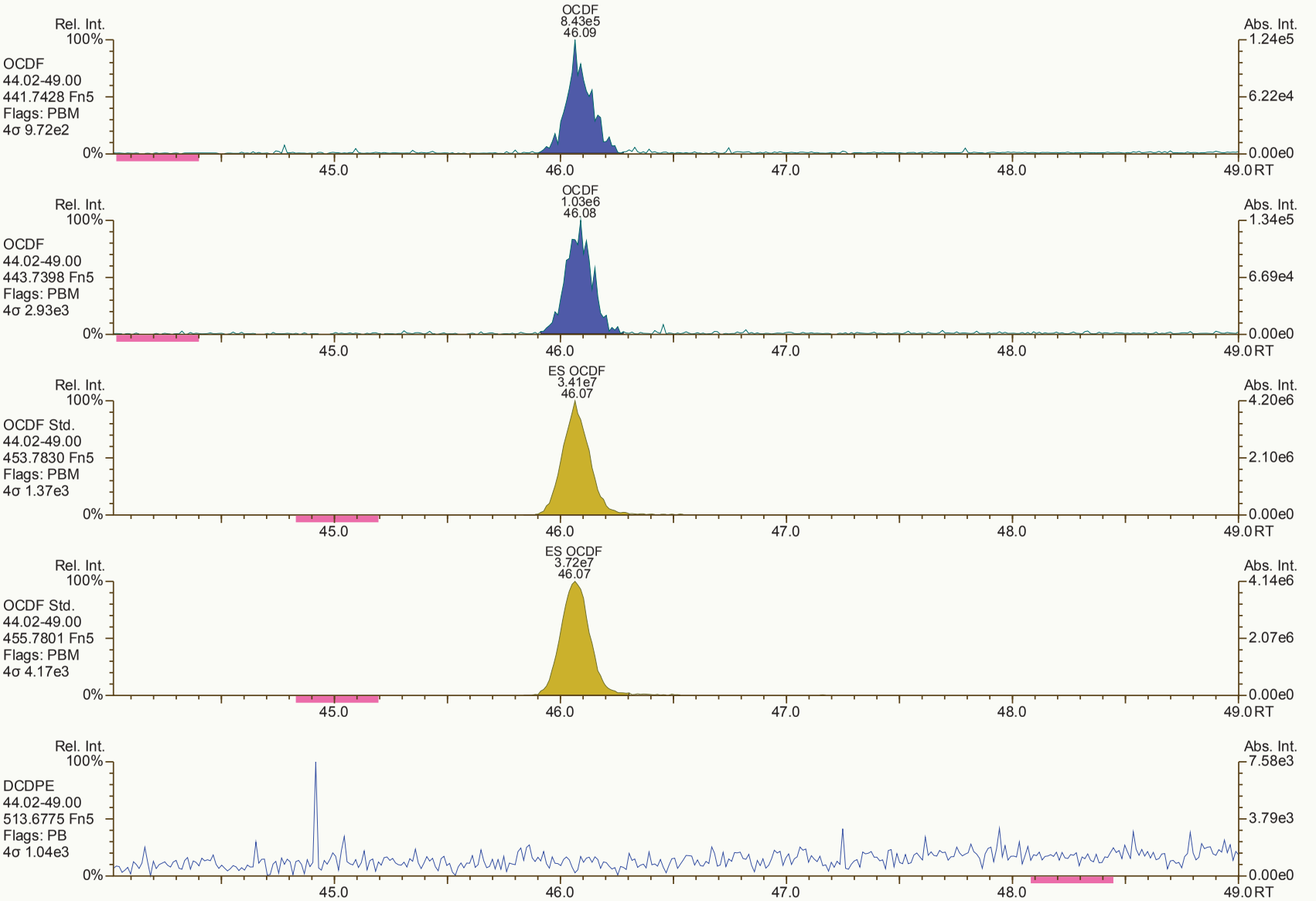


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8583, 8013, 6835 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9724, 8001, 2356 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 20:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS2_160106_CA | **UTP: 07-Jan-2016 10:52:23 ARL** | **Checkcode: 134-724-DJT**

Sample ID: SIL 15-104-3 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C07**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.43	1.45E+06	0.74	Y	1.19	1.18	0%
12378-PeCDD	32.23	6.24E+06	1.54	Y	1.02	1.06	4%
123478-HxCDD	36.32	5.05E+06	1.20	Y	1.08	1.11	2%
123678-HxCDD	36.43	5.31E+06	1.28	Y	1.05	1.13	8%
123789-HxCDD	36.73	5.46E+06	1.23	Y	0.99	1.07	8%
1234678-HpCDD	40.64	4.39E+06	1.01	Y	1.02	1.06	4%
OCDD	45.80	6.80E+06	0.94	Y	1.09	1.14	4%
2378-TCDF	25.47	2.14E+06	0.80	Y	1.09	1.17	8%
12378-PeCDF	30.66	9.16E+06	1.54	Y	1.03	1.06	3%
23478-PeCDF	31.85	9.38E+06	1.51	Y	1.02	1.09	6%
123478-HxCDF	35.30	7.63E+06	1.22	Y	1.29	1.33	3%
123678-HxCDF	35.44	7.85E+06	1.26	Y	1.17	1.22	4%
234678-HxCDF	36.13	7.20E+06	1.24	Y	1.18	1.20	2%
123789-HxCDF	37.10	6.62E+06	1.22	Y	1.18	1.25	6%
1234678-HpCDF	39.03	6.18E+06	1.00	Y	1.38	1.40	2%
1234789-HpCDF	41.37	5.24E+06	1.08	Y	1.30	1.39	7%
OCDF	46.12	8.51E+06	0.88	Y	1.03	1.12	8%
ES 2378-TCDD	26.41	6.12E+07	0.78	Y	1.06	1.03	-3%
ES 12378-PeCDD	32.21	5.91E+07	1.54	Y	0.99	1.00	0%
ES 123478-HxCDD	36.30	4.55E+07	1.29	Y	1.09	0.96	-12%
ES 123678-HxCDD	36.42	4.69E+07	1.26	Y	1.10	0.99	-10%
ES 123789-HxCDD	36.72	5.08E+07	1.25	Y	1.24	1.07	-14%
ES 1234678-HpCDD	40.62	4.15E+07	1.05	Y	0.93	0.87	-7%
ES OCDD	45.77	5.98E+07	0.91	Y	0.71	0.63	-11%
ES 2378-TCDF	25.45	9.13E+07	0.79	Y	1.02	0.97	-5%
ES 12378-PeCDF	30.65	8.64E+07	1.58	Y	0.96	0.92	-4%
ES 23478-PeCDF	31.83	8.63E+07	1.55	Y	0.95	0.92	-3%
ES 123478-HxCDF	35.28	5.75E+07	0.54	Y	1.32	1.21	-8%
ES 123678-HxCDF	35.42	6.45E+07	0.55	Y	1.51	1.36	-10%
ES 234678-HxCDF	36.11	5.99E+07	0.53	Y	1.38	1.26	-9%
ES 123789-HxCDF	37.09	5.28E+07	0.54	Y	1.25	1.11	-11%
ES 1234678-HpCDF	39.01	4.41E+07	0.47	Y	1.03	0.93	-9%
ES 1234789-HpCDF	41.35	3.76E+07	0.45	Y	0.87	0.79	-9%
ES OCDF	46.10	7.58E+07	0.90	Y	0.92	0.80	-13%

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 20:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS2_160106_CA | **UTP: 07-Jan-2016 10:52:23 ARL** | **Checkcode: 134-724**

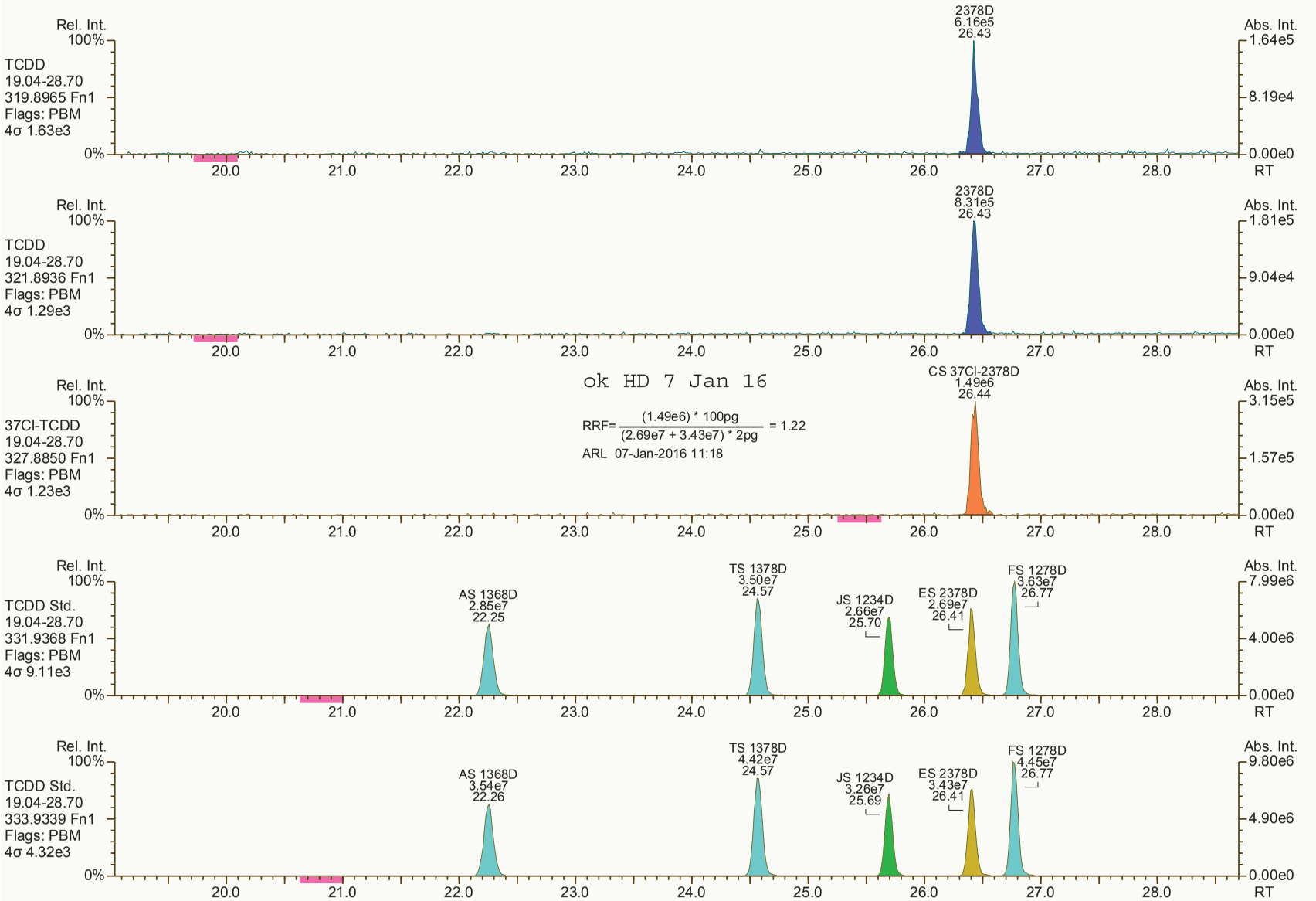
Sample ID: SIL 15-104-3 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C07**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.92E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.93	9.37E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.62	2.37E+07	1.29	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	1.49E+06	n/a	-	1.24	1.25	1%
CS 12347-PeCDD	31.68	5.83E+07	1.58	Y	0.94	0.98	5%
CS 12346-PeCDF	30.08	8.49E+07	1.58	Y	0.92	0.91	-2%
CS 123469-HxCDF	35.74	6.30E+07	0.53	Y	1.38	1.33	-4%
CS 1234689-HpCDF	39.67	4.00E+07	0.46	Y	0.88	0.84	-4%
SS 37Cl-2378-TCDD	26.44	1.49E+06	n/a	-	1.18	1.21	3%
SS 12347-PeCDD	31.68	5.83E+07	1.58	Y	0.94	0.99	4%
SS 12346-PeCDF	30.08	8.49E+07	1.58	Y	0.96	0.98	2%
SS 123469-HxCDF	35.74	6.30E+07	0.53	Y	0.92	0.98	7%
SS 1234689-HpCDF	39.67	4.00E+07	0.46	Y	0.86	0.91	6%
AS 1368-TCDD	22.25	6.39E+07	0.80	Y	1.05	1.08	3%
AS 1368-TCDF	20.14	1.25E+08	0.79	Y	1.40	1.33	-5%
FS 1278-TCDD	26.77	8.08E+07	0.81	Y	1.28	1.32	3%
FS 12478-PeCDD	30.90	6.65E+07	1.55	Y	1.11	1.13	1%
FS 123468-HxCDD	35.21	6.76E+07	1.23	Y	1.36	1.48	9%
FS 1234679-HpCDD	39.45	5.43E+07	1.06	Y	1.30	1.31	1%
TS 1378-TCDD	24.57	7.91E+07	0.79	Y	1.21	1.29	7%
OCDD-a	45.78	3.74E+05	2.29	Y	0.07	0.06	-7%
OCDF-a	46.11	4.27E+05	2.12	Y	0.06	0.06	-12%

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**

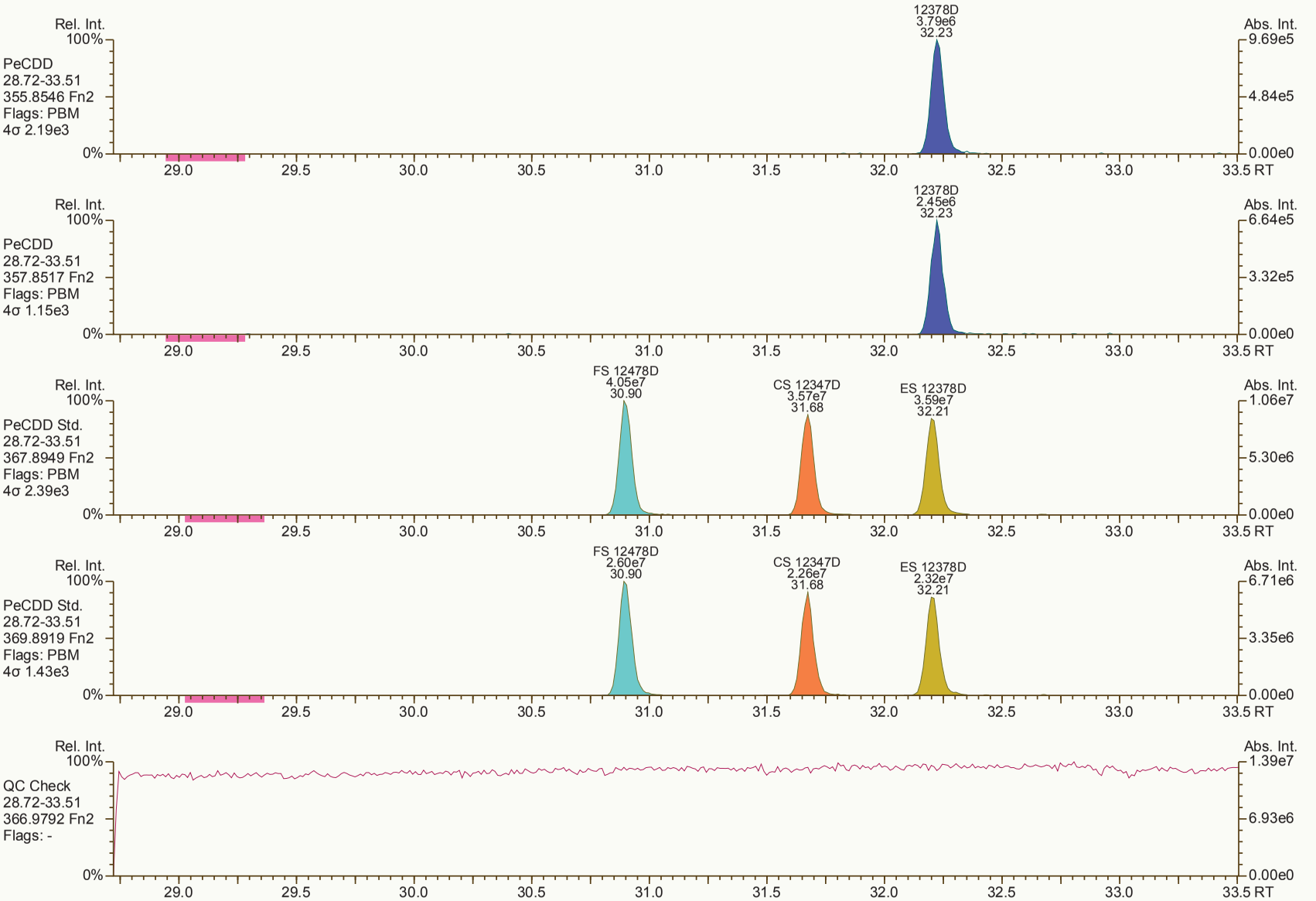
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 134-724 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2905, 4759, 5715 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 2 of 12*

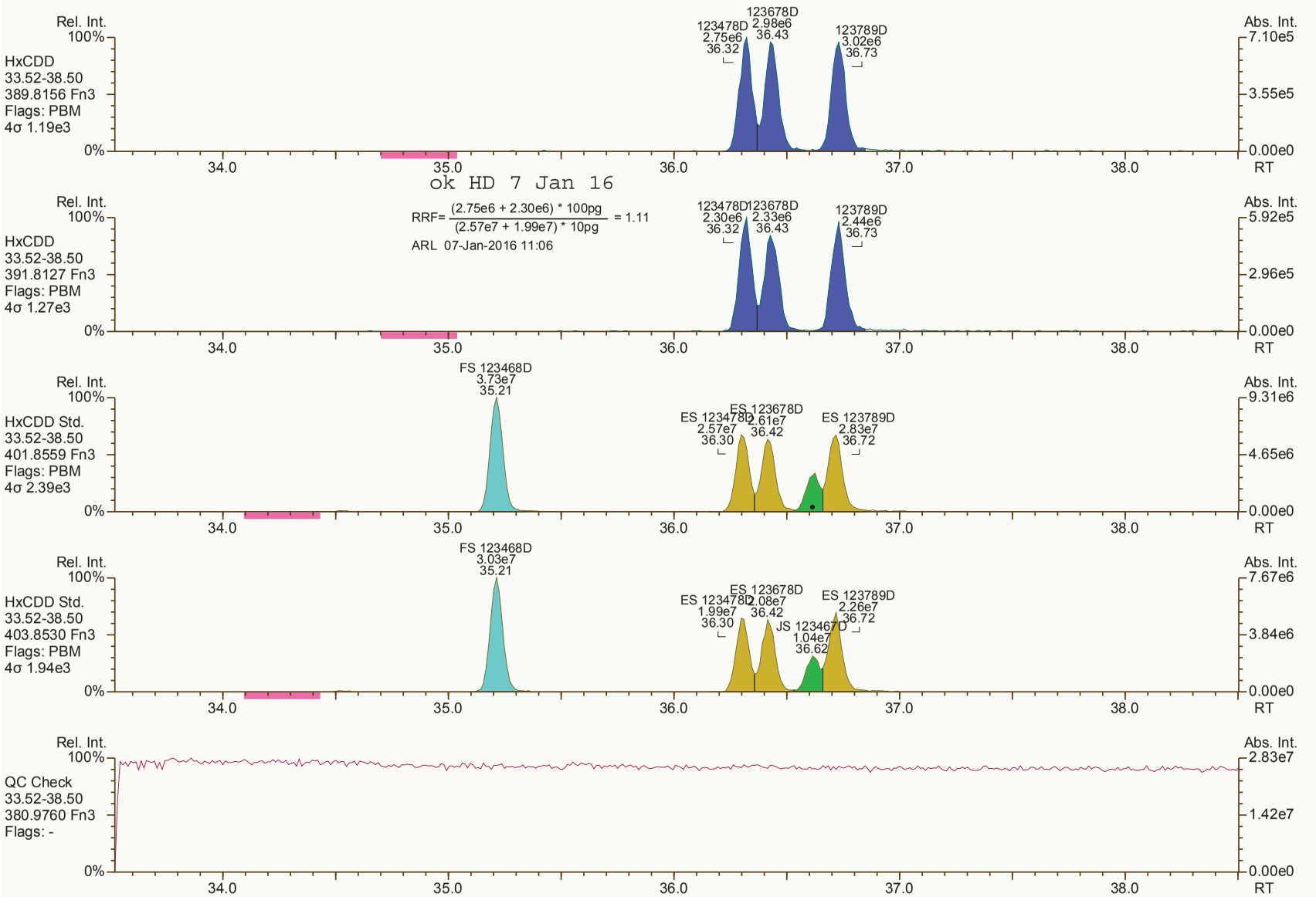
SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5718, 9709 scc: 134-724 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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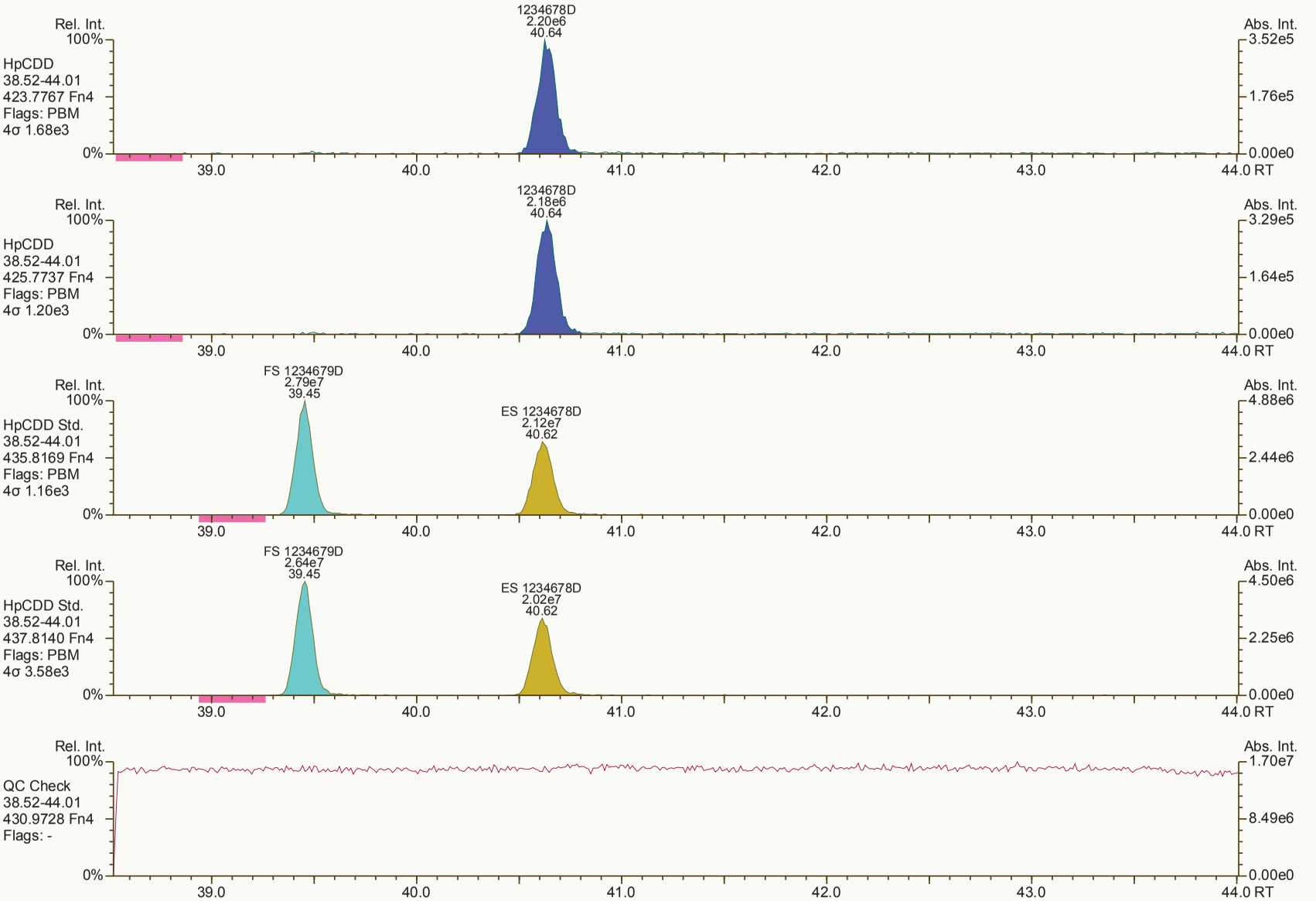
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0386, 5612 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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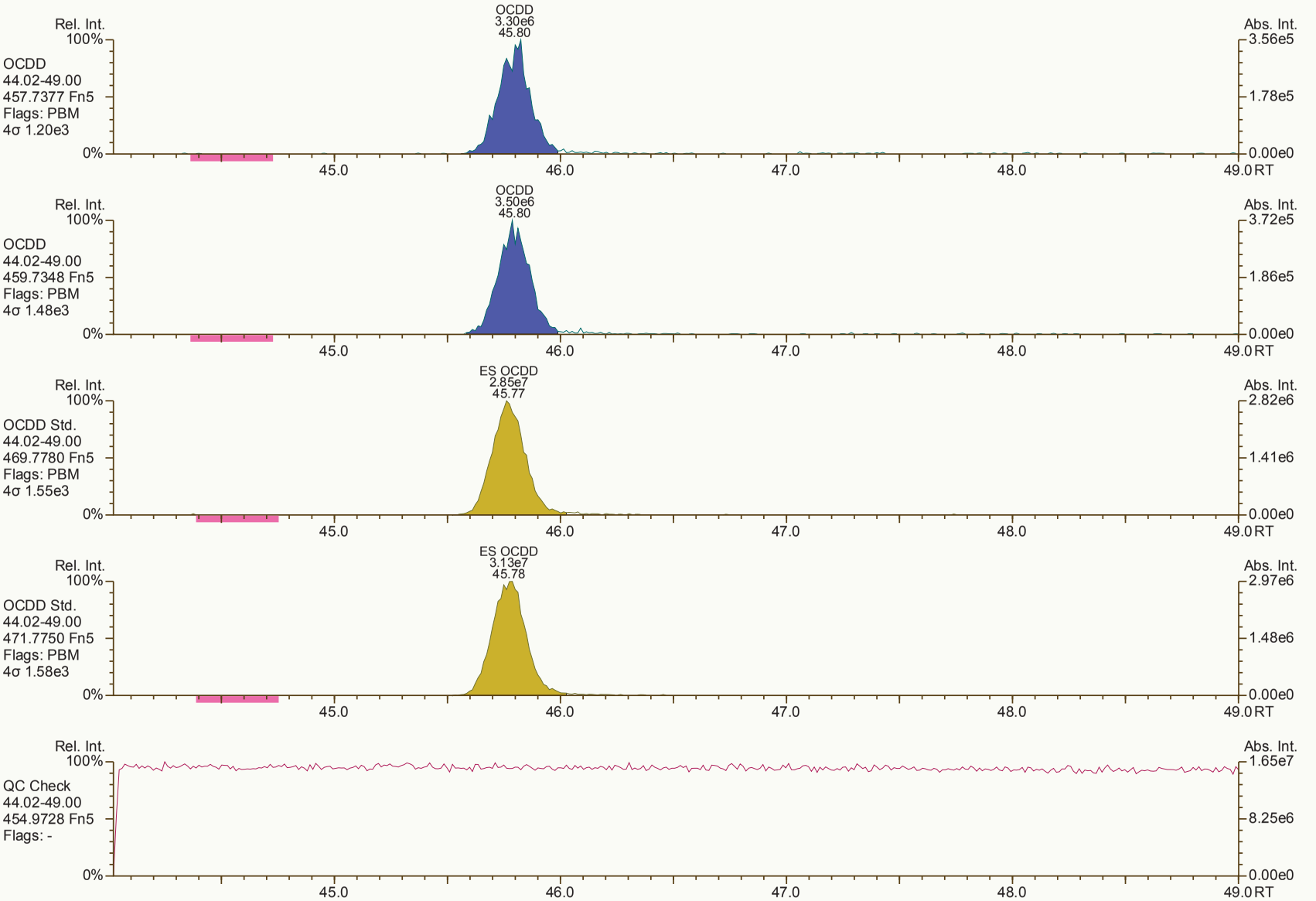
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3640, 4235 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 5 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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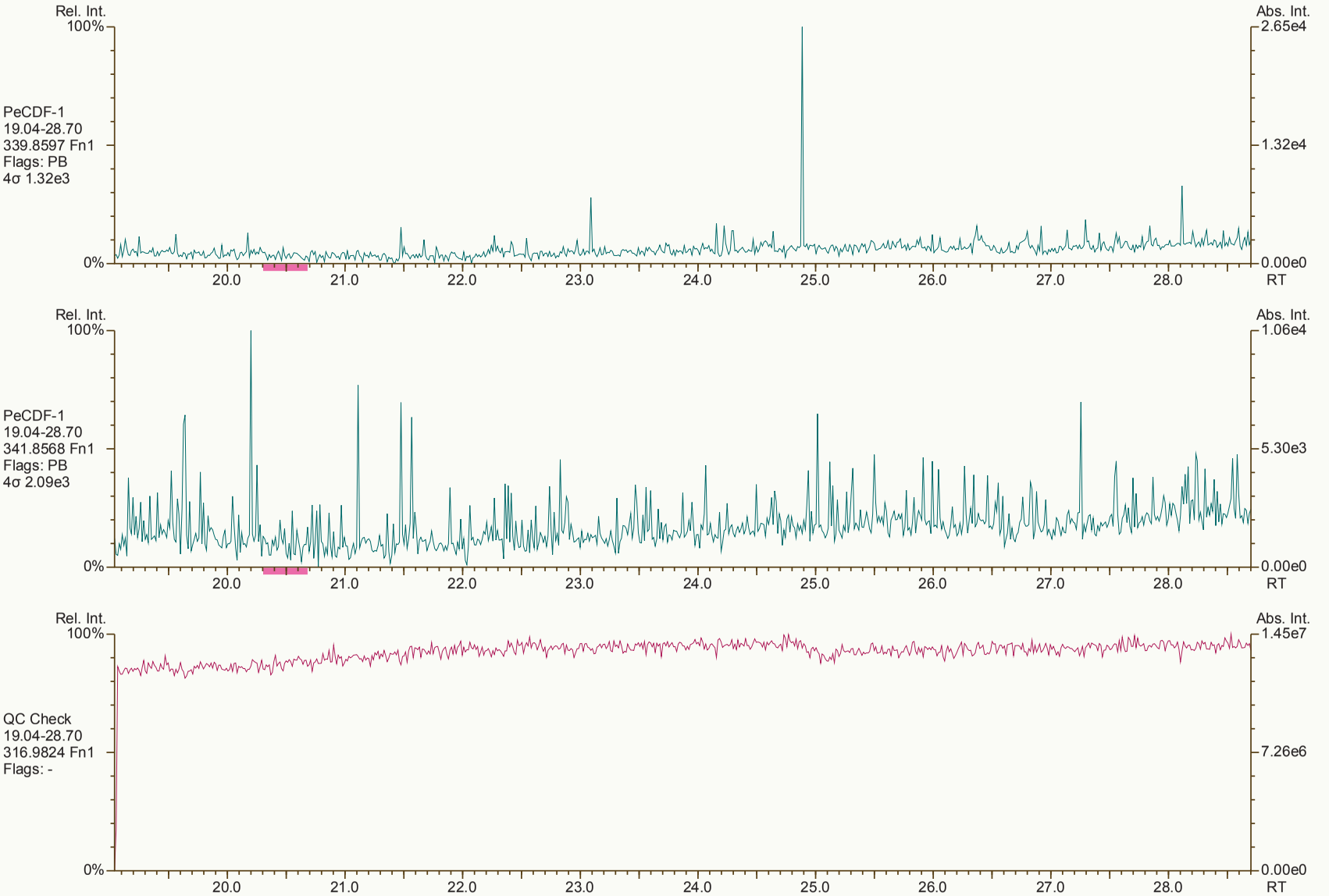
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7725, 5852 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 6 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7287, 2325, 5562 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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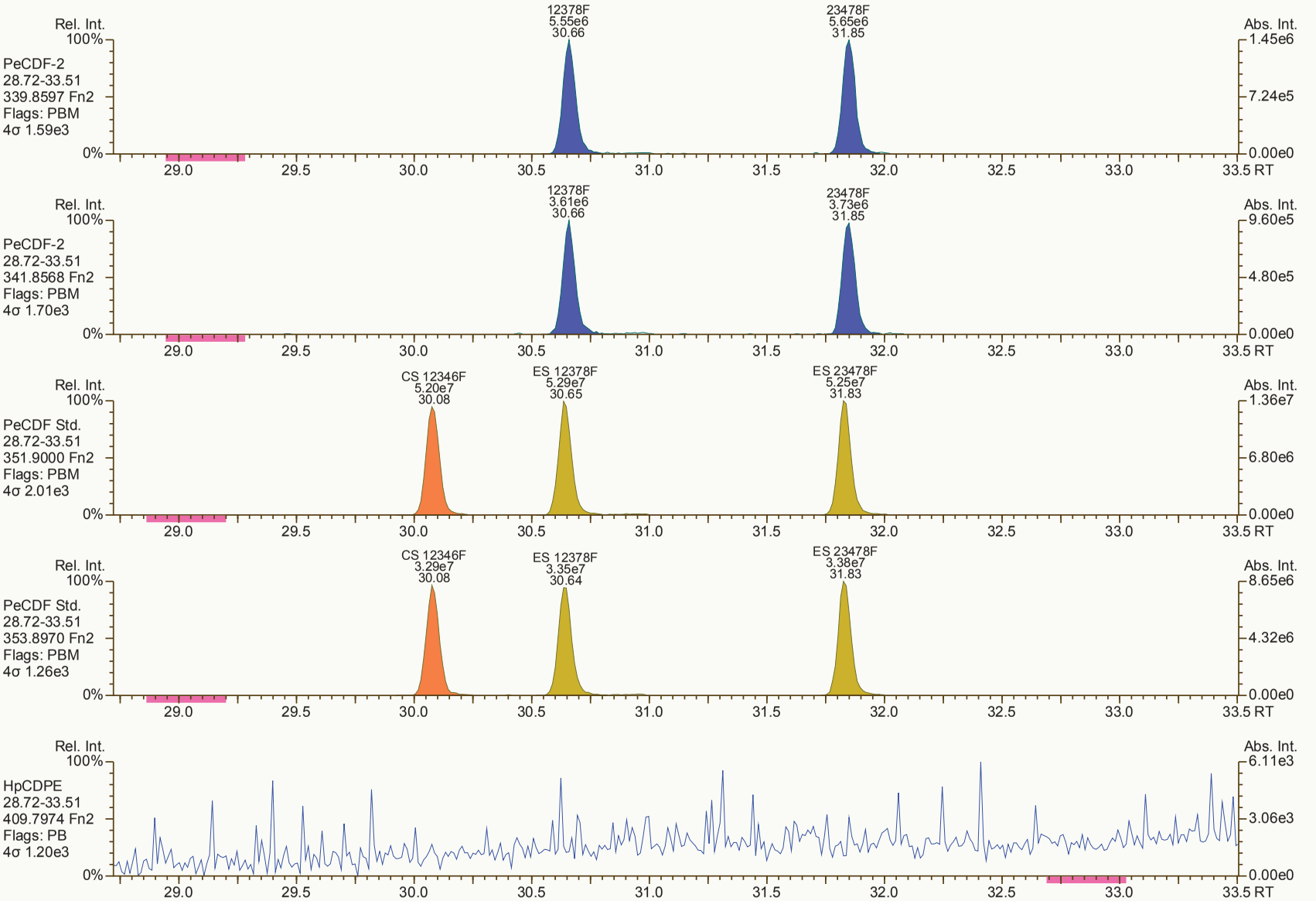
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1476 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 8 of 12*

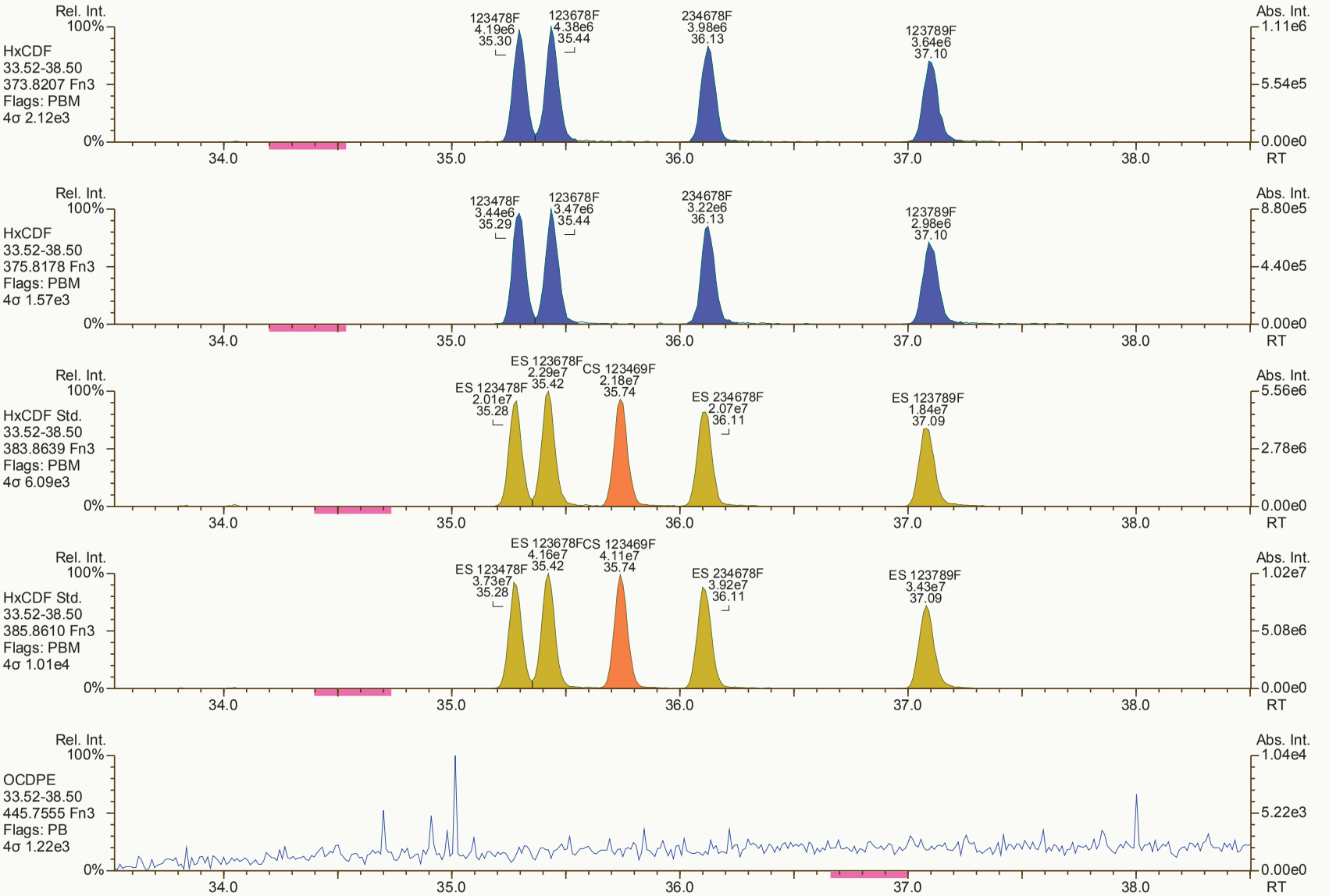
SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3679, 9082, 0535 scc: 134-724 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**

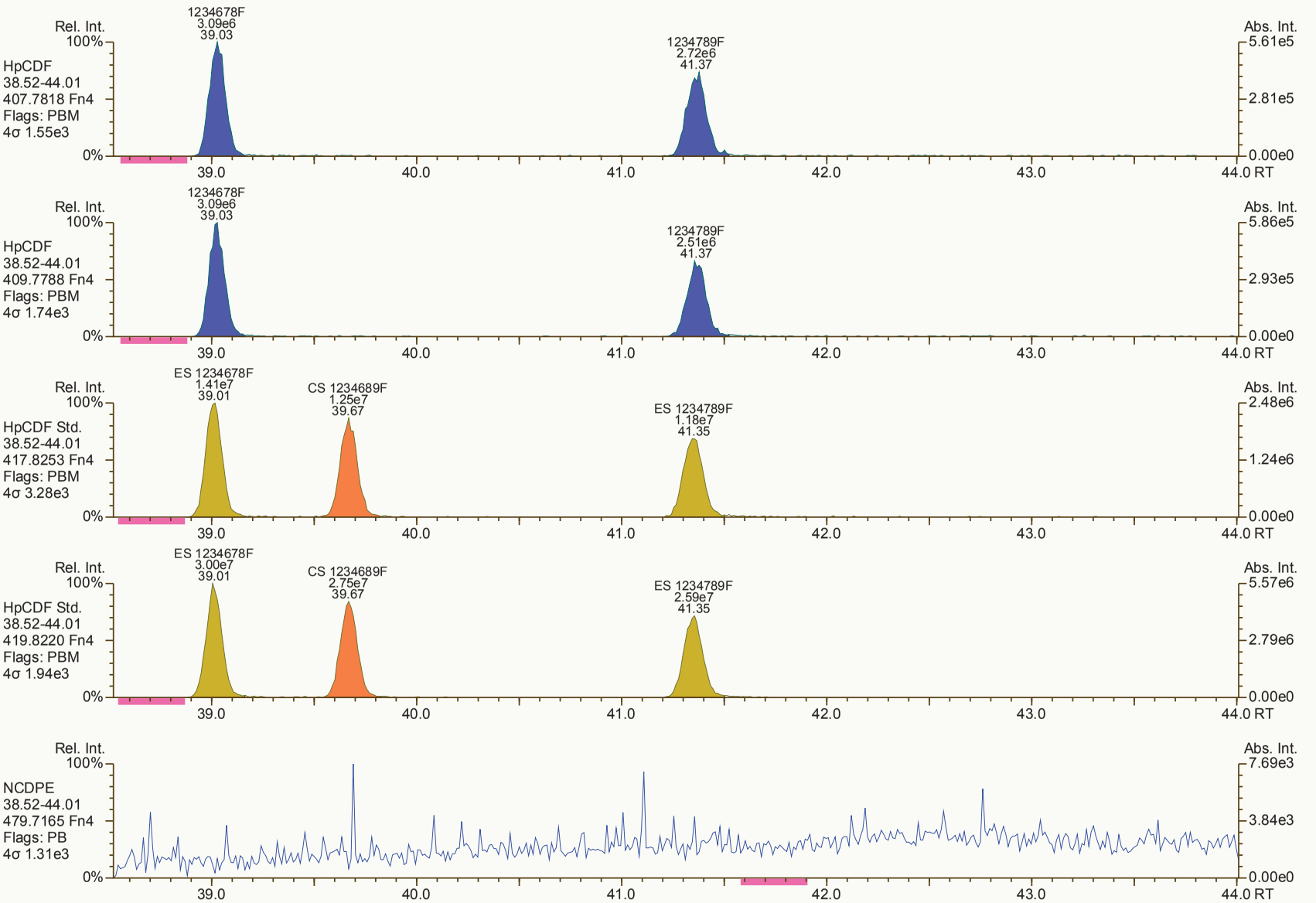
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3517, 7109, 3684 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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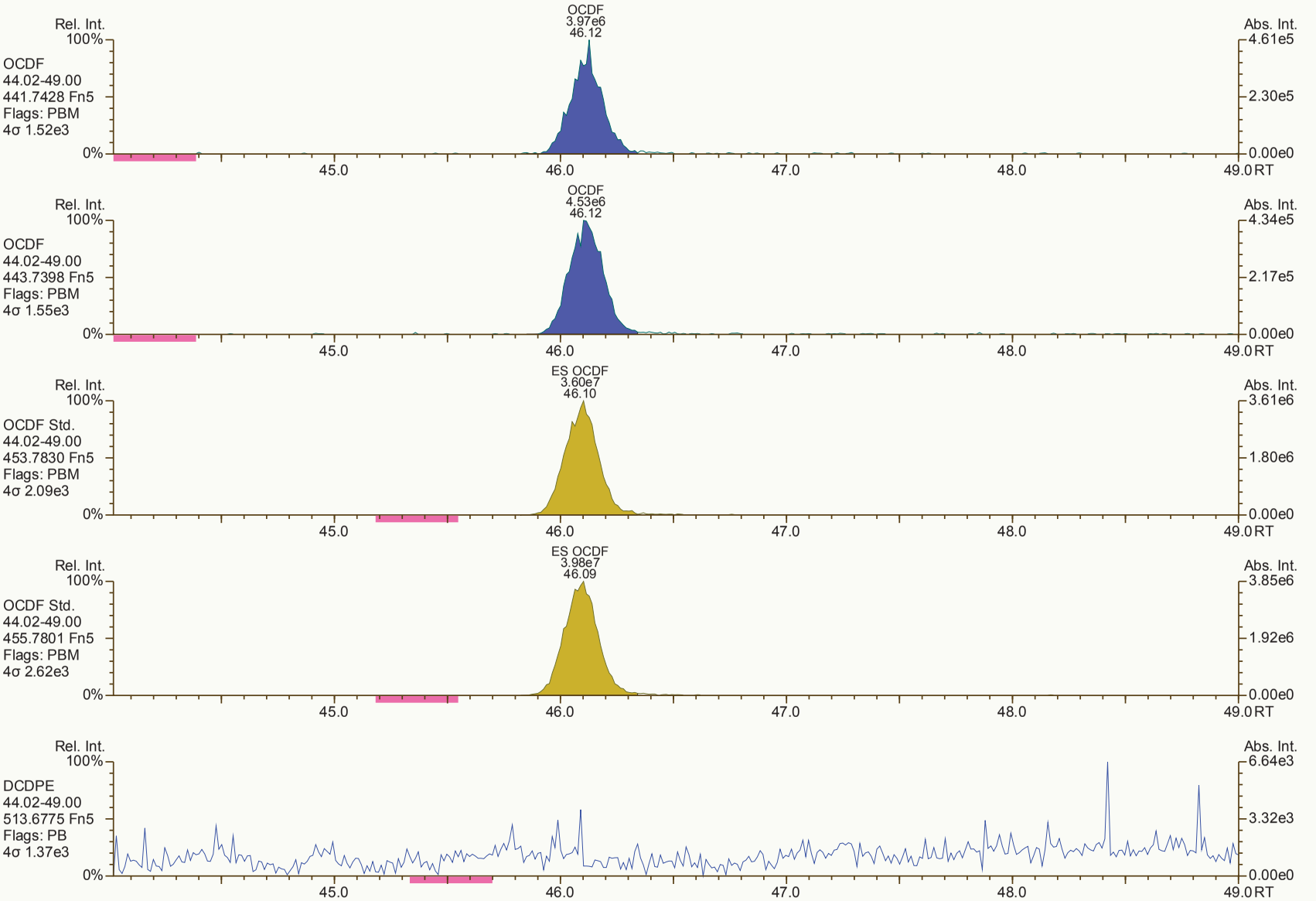
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4548, 1451, 0200 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5710, 8759, 1968 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 21:40 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_160106_CA | **UTP: 07-Jan-2016 10:52:24 ARL** | **Checkcode: 110-238-BKZ**

Sample ID: SIL 15-104-2 | **Report: 07 Jan 2016 11:22 AL** | **Datafile: 160106C08**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	7.19E+06	0.79	Y	1.19	1.16	-2%
12378-PeCDD	32.23	2.70E+07	1.57	Y	1.02	0.97	-4%
123478-HxCDD	36.32	2.58E+07	1.28	Y	1.08	1.05	-3%
123678-HxCDD	36.44	2.57E+07	1.27	Y	1.05	1.00	-4%
123789-HxCDD	36.73	2.67E+07	1.25	Y	0.99	0.93	-7%
1234678-HpCDD	40.60	1.99E+07	1.05	Y	1.02	1.00	-2%
OCDD	45.89	3.31E+07	0.88	Y	1.09	1.05	-4%
2378-TCDF	25.47	9.32E+06	0.81	Y	1.09	1.03	-5%
12378-PeCDF	30.67	4.07E+07	1.54	Y	1.03	0.98	-5%
23478-PeCDF	31.86	3.94E+07	1.54	Y	1.02	0.97	-5%
123478-HxCDF	35.31	3.58E+07	1.22	Y	1.29	1.21	-7%
123678-HxCDF	35.46	3.77E+07	1.22	Y	1.17	1.12	-5%
234678-HxCDF	36.13	3.50E+07	1.24	Y	1.18	1.11	-6%
123789-HxCDF	37.10	3.19E+07	1.25	Y	1.18	1.10	-7%
1234678-HpCDF	39.02	3.06E+07	1.06	Y	1.38	1.34	-3%
1234789-HpCDF	41.40	2.35E+07	1.00	Y	1.30	1.26	-3%
OCDF	46.18	4.06E+07	0.92	Y	1.03	1.01	-2%
ES 2378-TCDD	26.41	6.19E+07	0.80	Y	1.06	1.07	1%
ES 12378-PeCDD	32.21	5.55E+07	1.59	Y	0.99	0.96	-3%
ES 123478-HxCDD	36.31	4.91E+07	1.25	Y	1.09	1.11	2%
ES 123678-HxCDD	36.42	5.12E+07	1.27	Y	1.10	1.16	6%
ES 123789-HxCDD	36.72	5.78E+07	1.30	Y	1.24	1.31	5%
ES 1234678-HpCDD	40.58	4.00E+07	1.05	Y	0.93	0.91	-3%
ES OCDD	45.87	6.33E+07	0.93	Y	0.71	0.72	1%
ES 2378-TCDF	25.45	9.07E+07	0.81	Y	1.02	1.04	1%
ES 12378-PeCDF	30.65	8.29E+07	1.59	Y	0.96	0.95	-2%
ES 23478-PeCDF	31.84	8.11E+07	1.58	Y	0.95	0.93	-2%
ES 123478-HxCDF	35.30	5.91E+07	0.54	Y	1.32	1.34	1%
ES 123678-HxCDF	35.44	6.74E+07	0.54	Y	1.51	1.53	1%
ES 234678-HxCDF	36.11	6.33E+07	0.54	Y	1.38	1.43	4%
ES 123789-HxCDF	37.09	5.79E+07	0.55	Y	1.25	1.31	5%
ES 1234678-HpCDF	39.00	4.57E+07	0.45	Y	1.03	1.04	1%
ES 1234789-HpCDF	41.38	3.74E+07	0.45	Y	0.87	0.85	-3%
ES OCDF	46.16	8.04E+07	0.92	Y	0.92	0.91	-1%

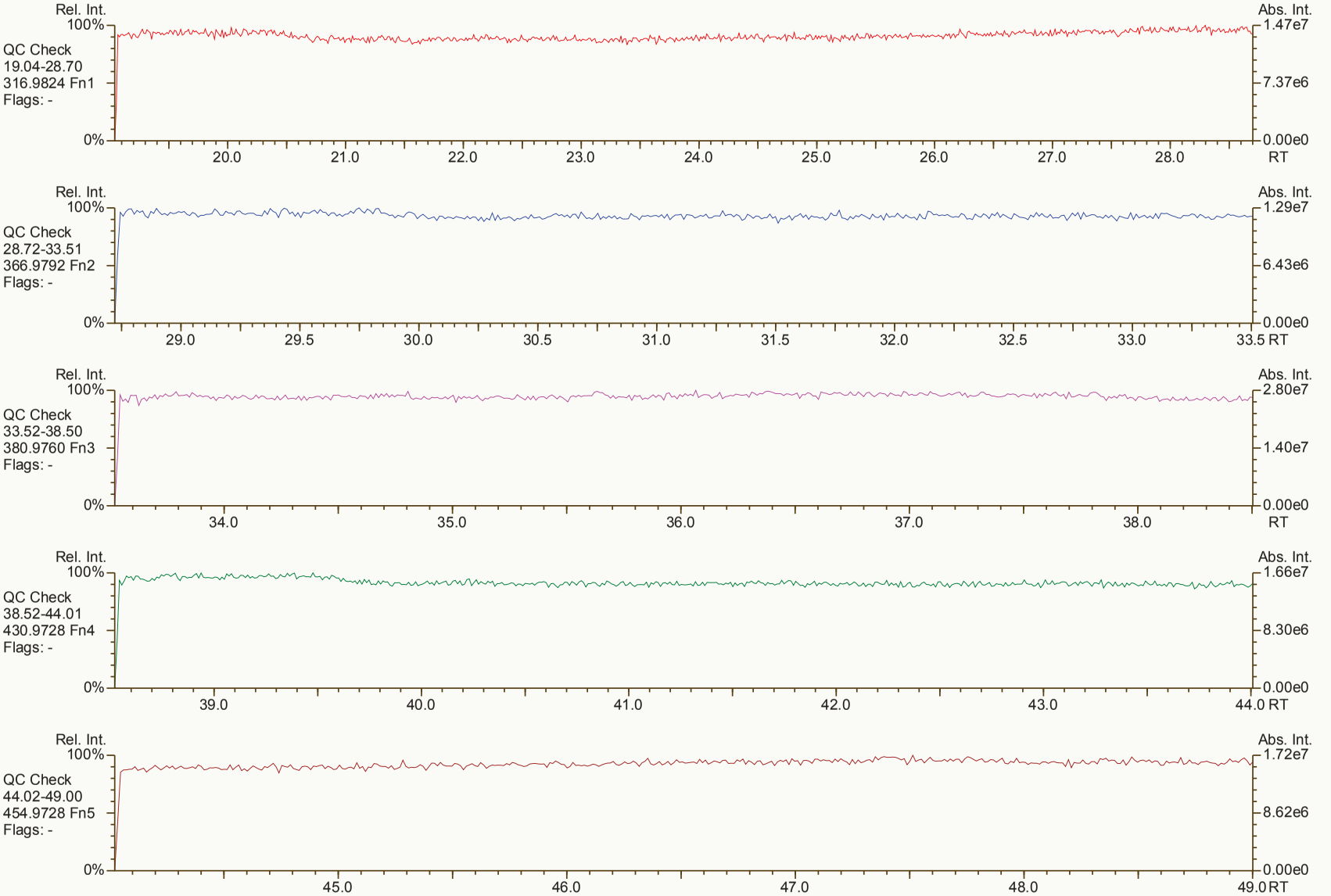
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 21:40 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_160106_CA | **UTP: 07-Jan-2016 10:52:24 ARL** | **Checkcode: 110-238**

Sample ID: SIL 15-104-2 | **Report: 07 Jan 2016 11:22 AL** | **Datafile: 160106C08**

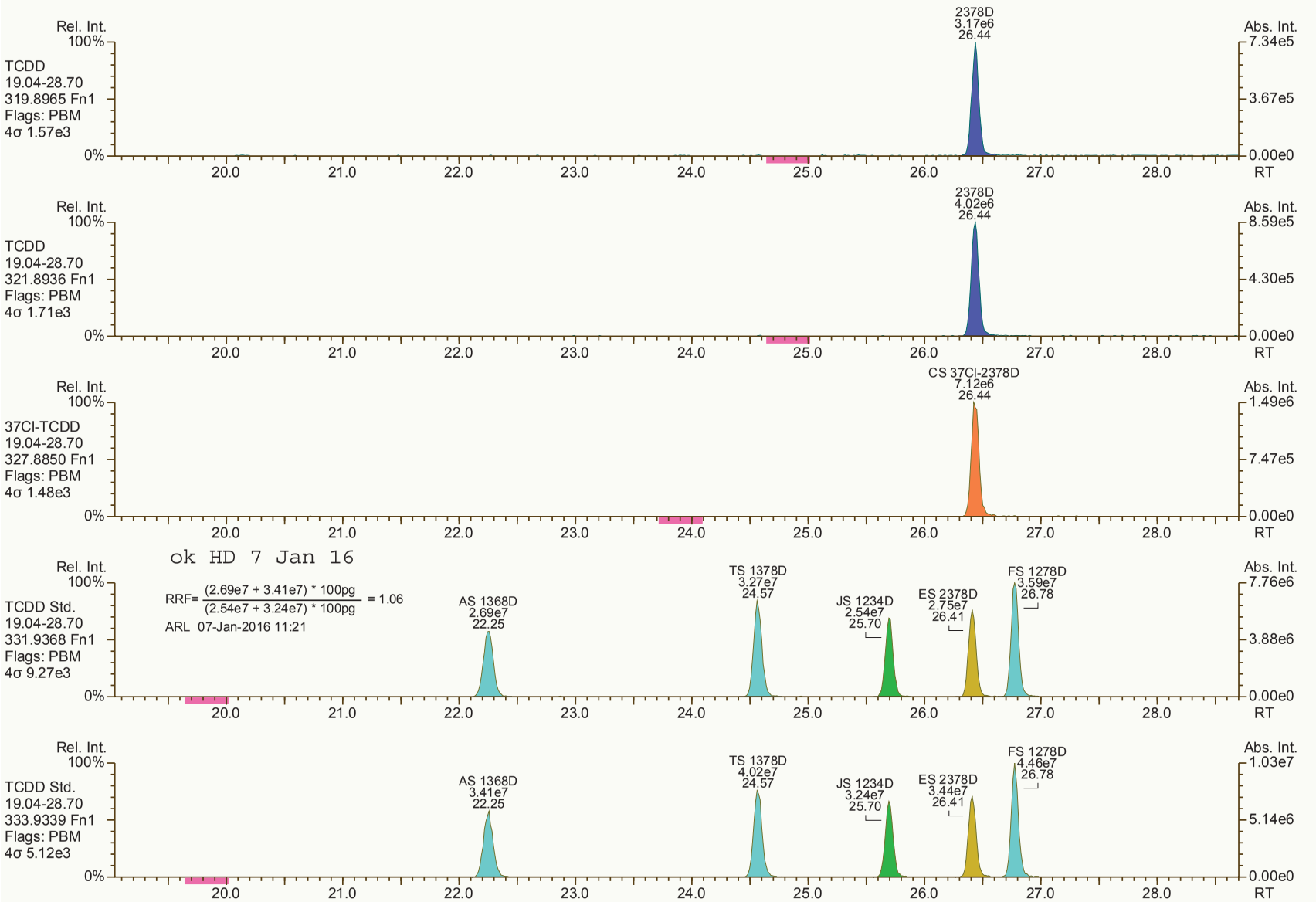
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.78E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.93	8.74E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.61	2.21E+07	1.23	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	7.12E+06	n/a	-	1.24	1.23	-1%
CS 12347-PeCDD	31.68	5.29E+07	1.60	Y	0.94	0.92	-2%
CS 12346-PeCDF	30.09	7.96E+07	1.58	Y	0.92	0.91	-1%
CS 123469-HxCDF	35.76	6.30E+07	0.52	Y	1.38	1.43	3%
CS 1234689-HpCDF	39.65	3.98E+07	0.47	Y	0.88	0.90	2%
SS 37Cl-2378-TCDD	26.44	7.12E+06	n/a	-	1.18	1.15	-2%
SS 12347-PeCDD	31.68	5.29E+07	1.60	Y	0.94	0.95	1%
SS 12346-PeCDF	30.09	7.96E+07	1.58	Y	0.96	0.96	0%
SS 123469-HxCDF	35.76	6.30E+07	0.52	Y	0.92	0.93	2%
SS 1234689-HpCDF	39.65	3.98E+07	0.47	Y	0.86	0.87	1%
AS 1368-TCDD	22.25	6.10E+07	0.79	Y	1.05	1.06	1%
AS 1368-TCDF	20.15	1.32E+08	0.80	Y	1.40	1.50	7%
FS 1278-TCDD	26.78	8.05E+07	0.80	Y	1.28	1.30	1%
FS 12478-PeCDD	30.91	6.20E+07	1.57	Y	1.11	1.12	1%
FS 123468-HxCDD	35.23	6.78E+07	1.27	Y	1.36	1.38	2%
FS 1234679-HpCDD	39.42	5.67E+07	1.05	Y	1.30	1.42	9%
TS 1378-TCDD	24.57	7.29E+07	0.81	Y	1.21	1.18	-2%
OCDD-a	45.88	2.14E+06	2.17	Y	0.07	0.07	1%
OCDF-a	46.18	2.74E+06	2.65	Y	0.06	0.07	7%

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



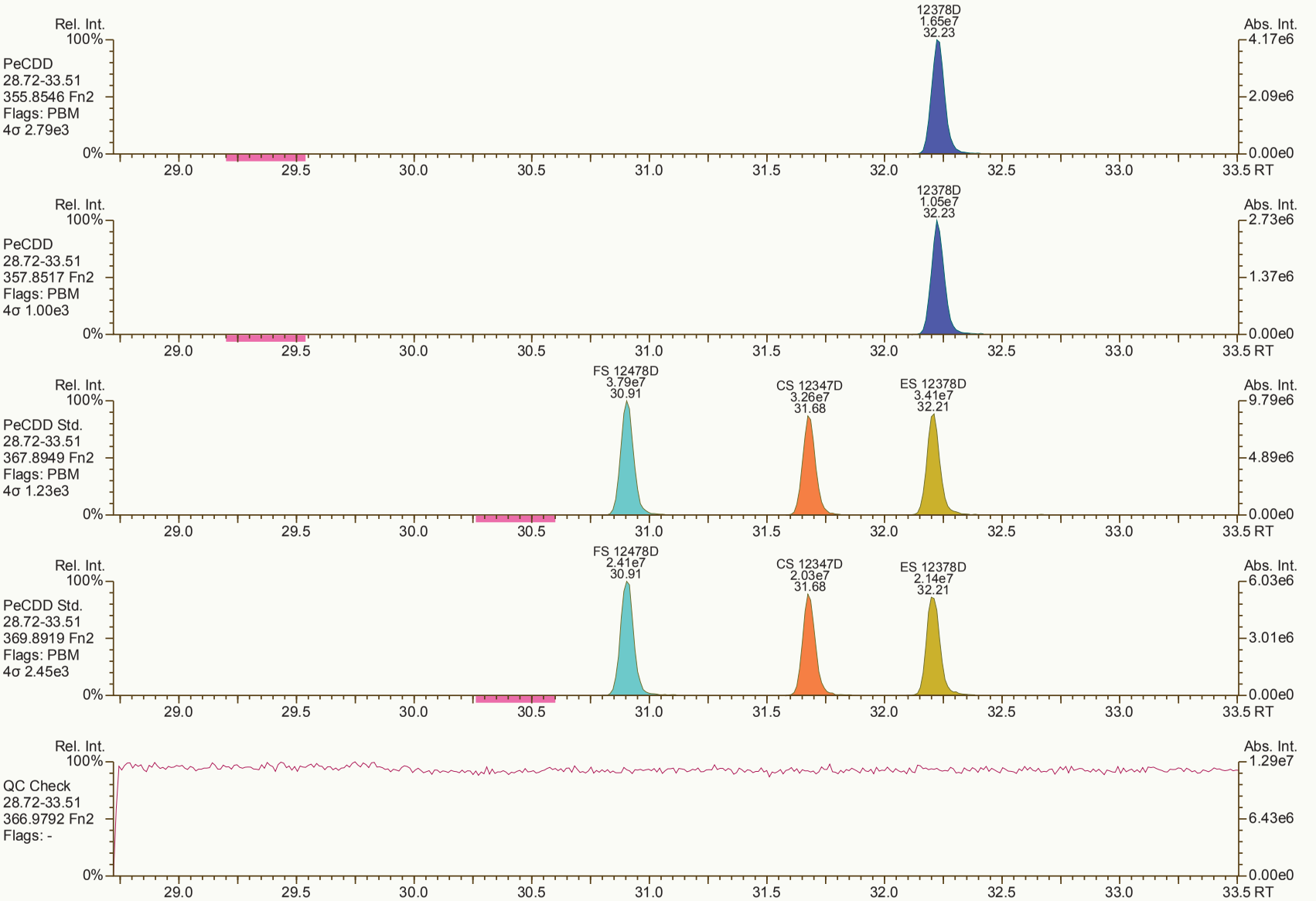
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 110-238 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6355, 3403, 7389 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 2 of 12*

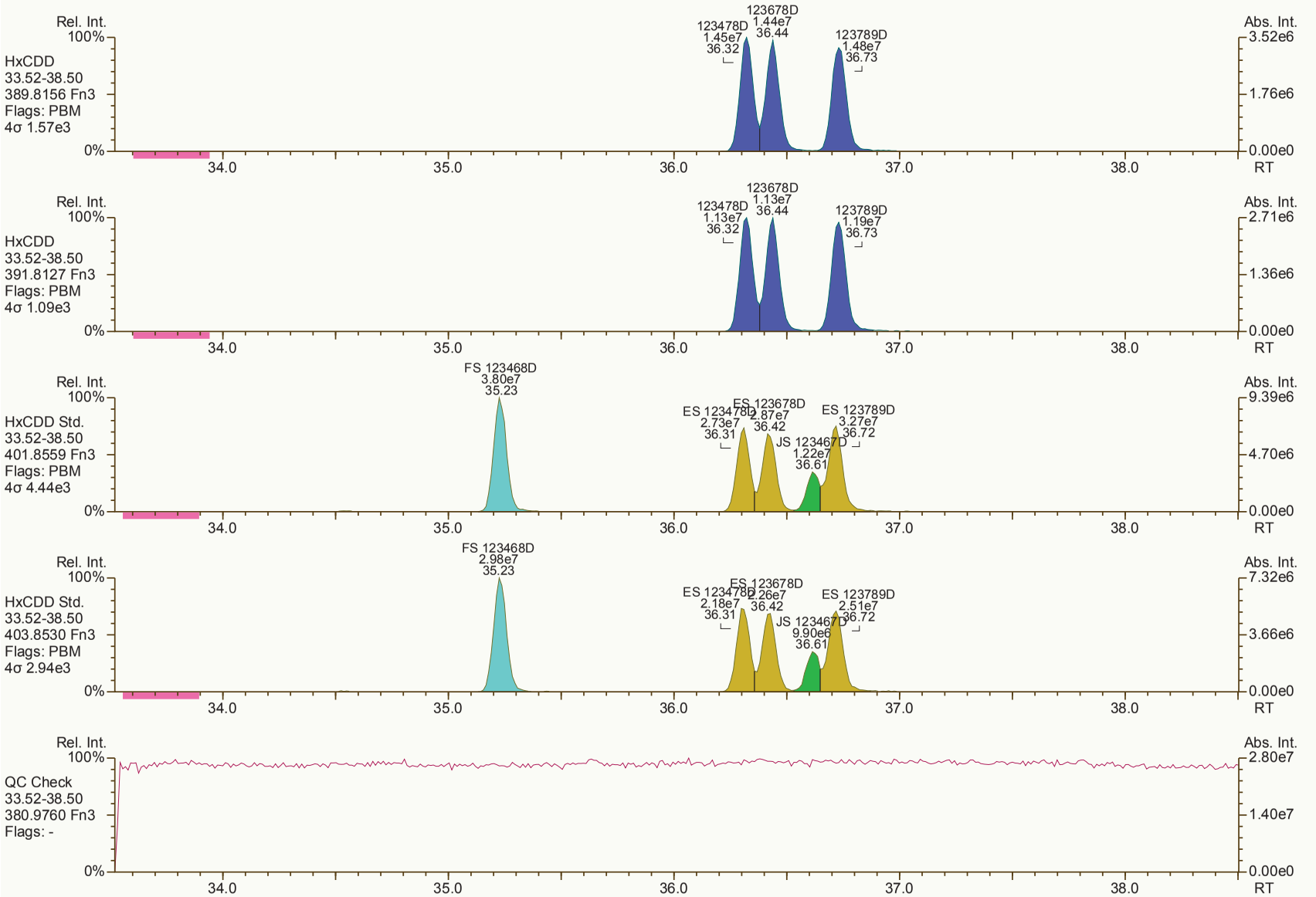
SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7745, 0881 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**

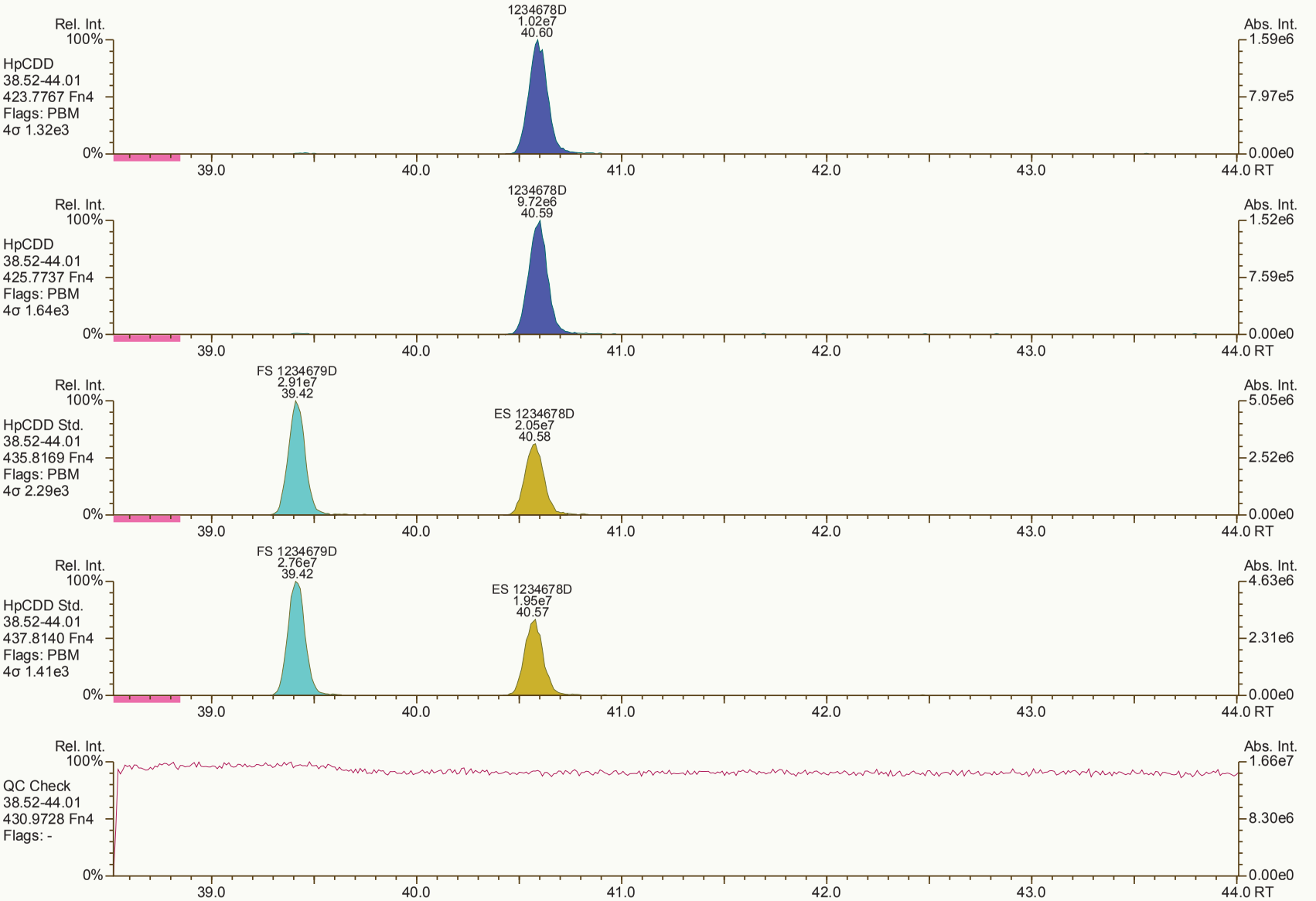
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*

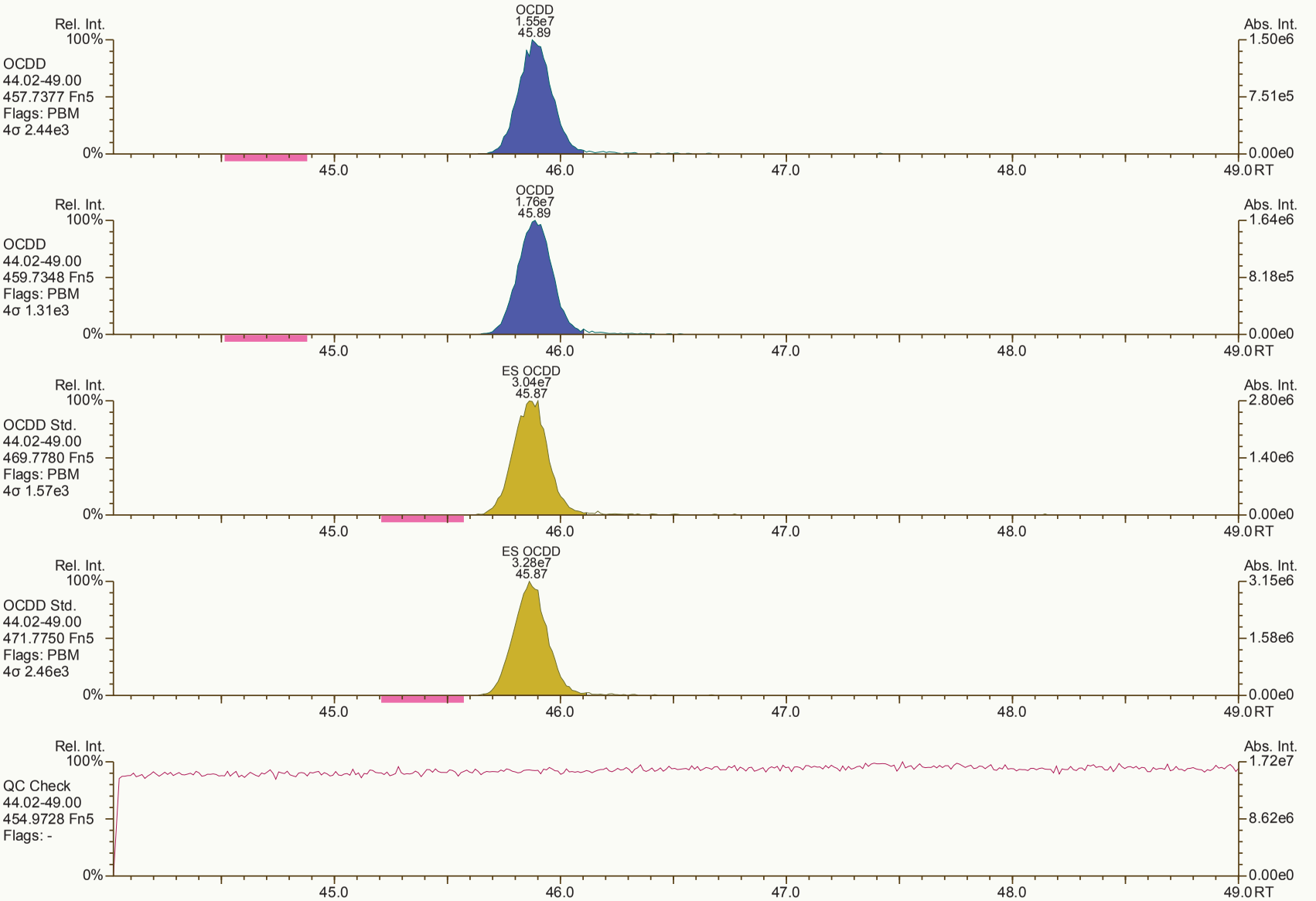
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6261, 9404 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5290, 8113 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 5 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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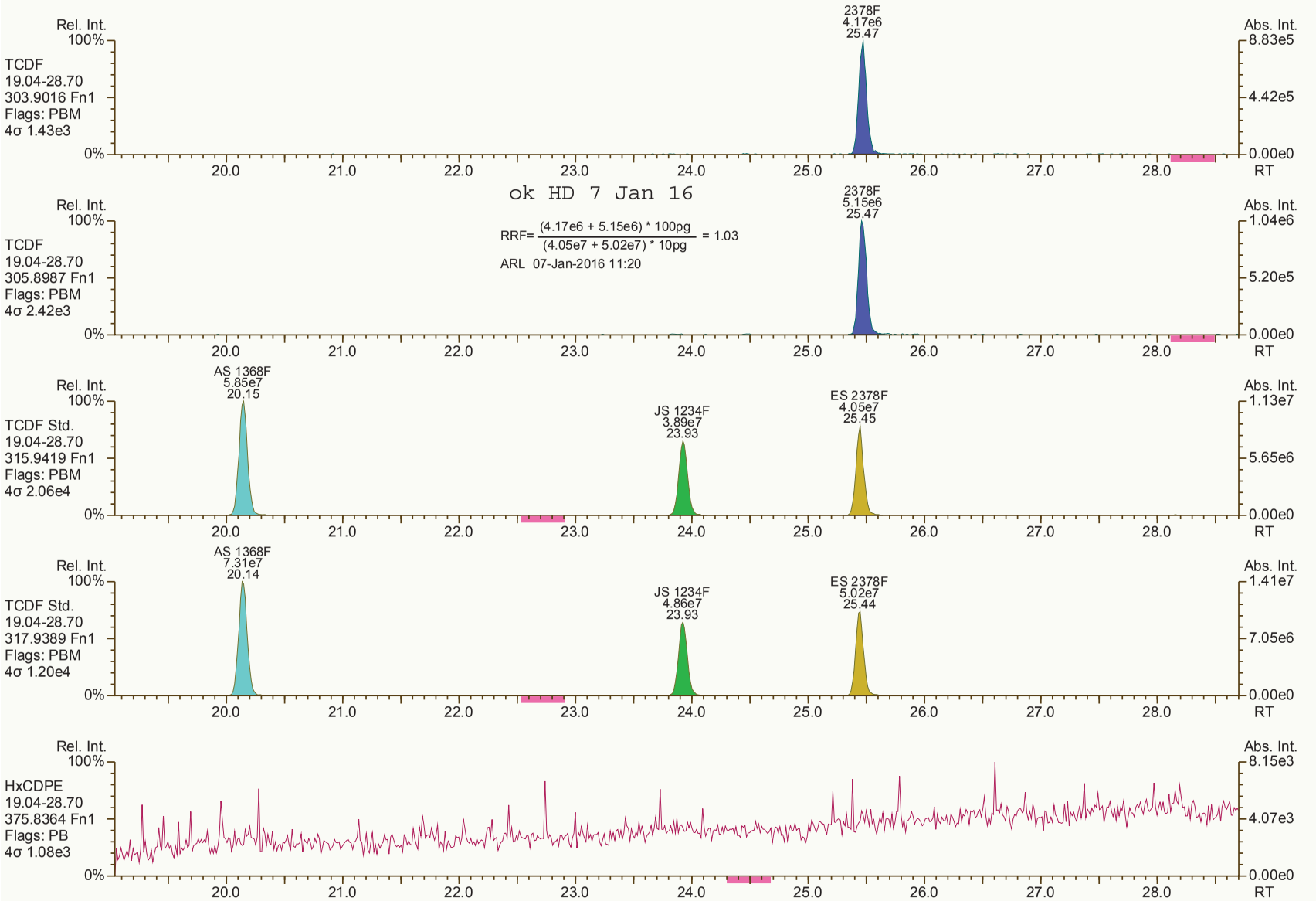
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6352, 8501 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 6 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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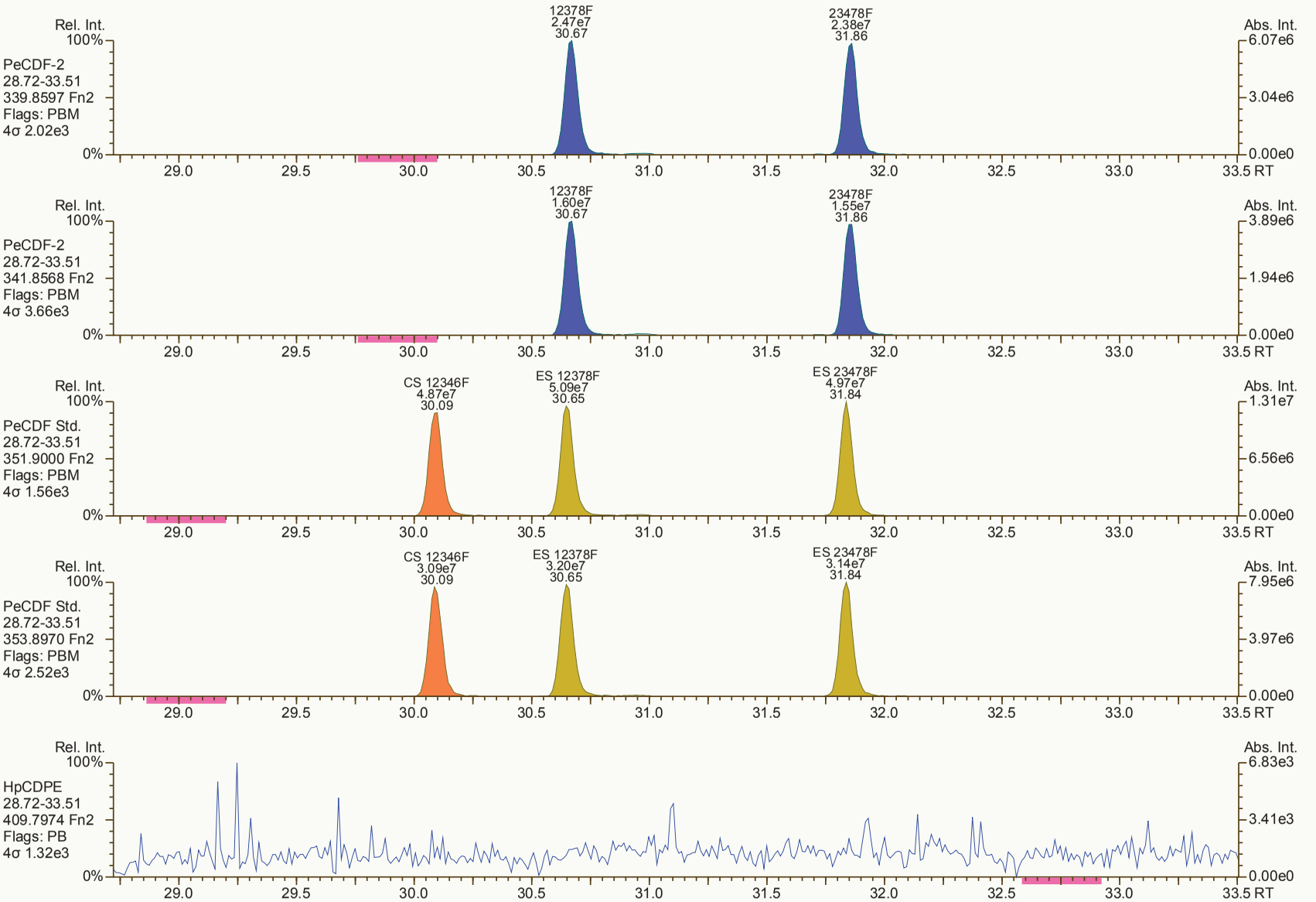
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6792, 0670, 2415 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2060 scc: 110-238 *Revised: 07-Jan-2016 09:29 (ARL) Printed: 07-Jan-2016 11:30 Page 8 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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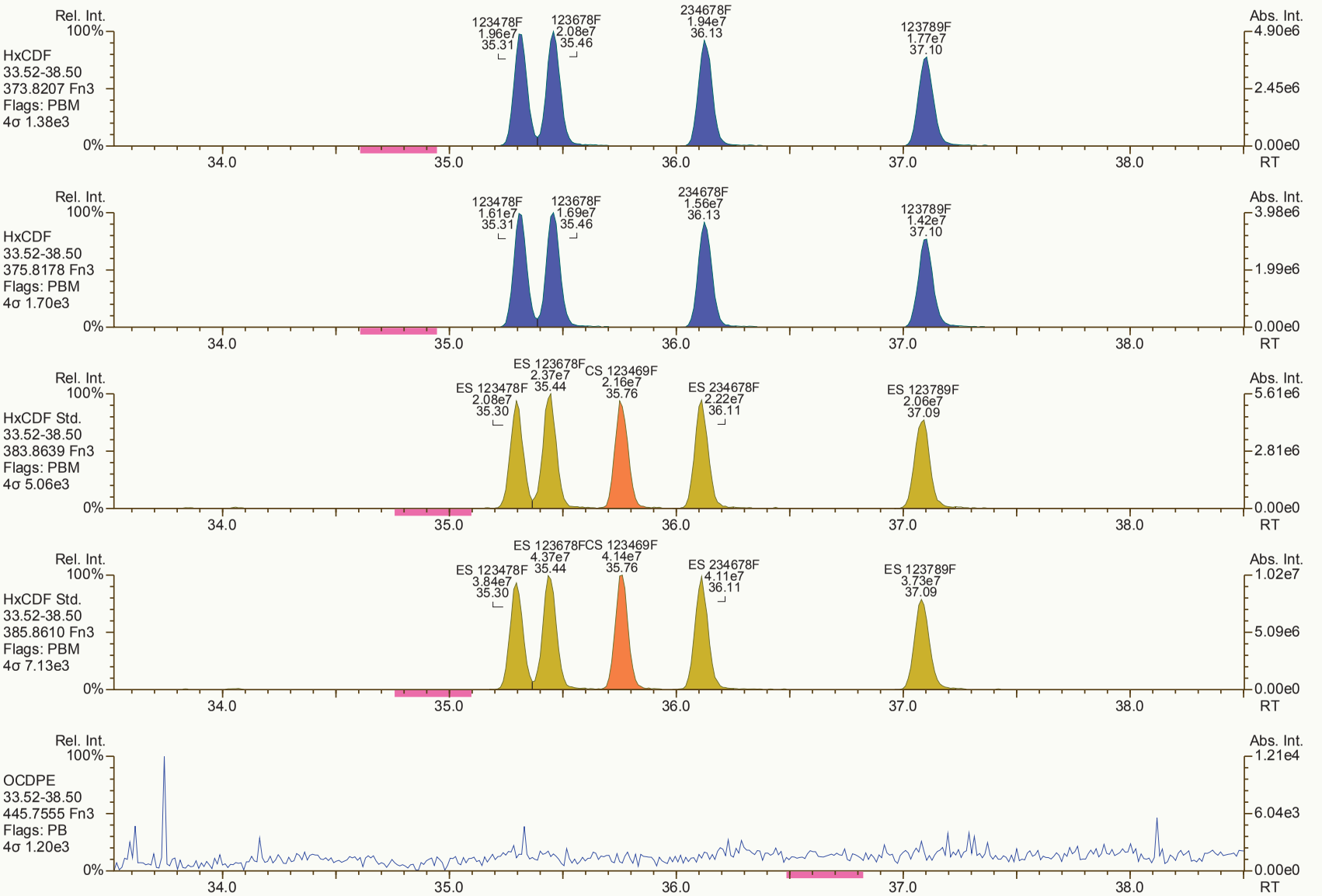
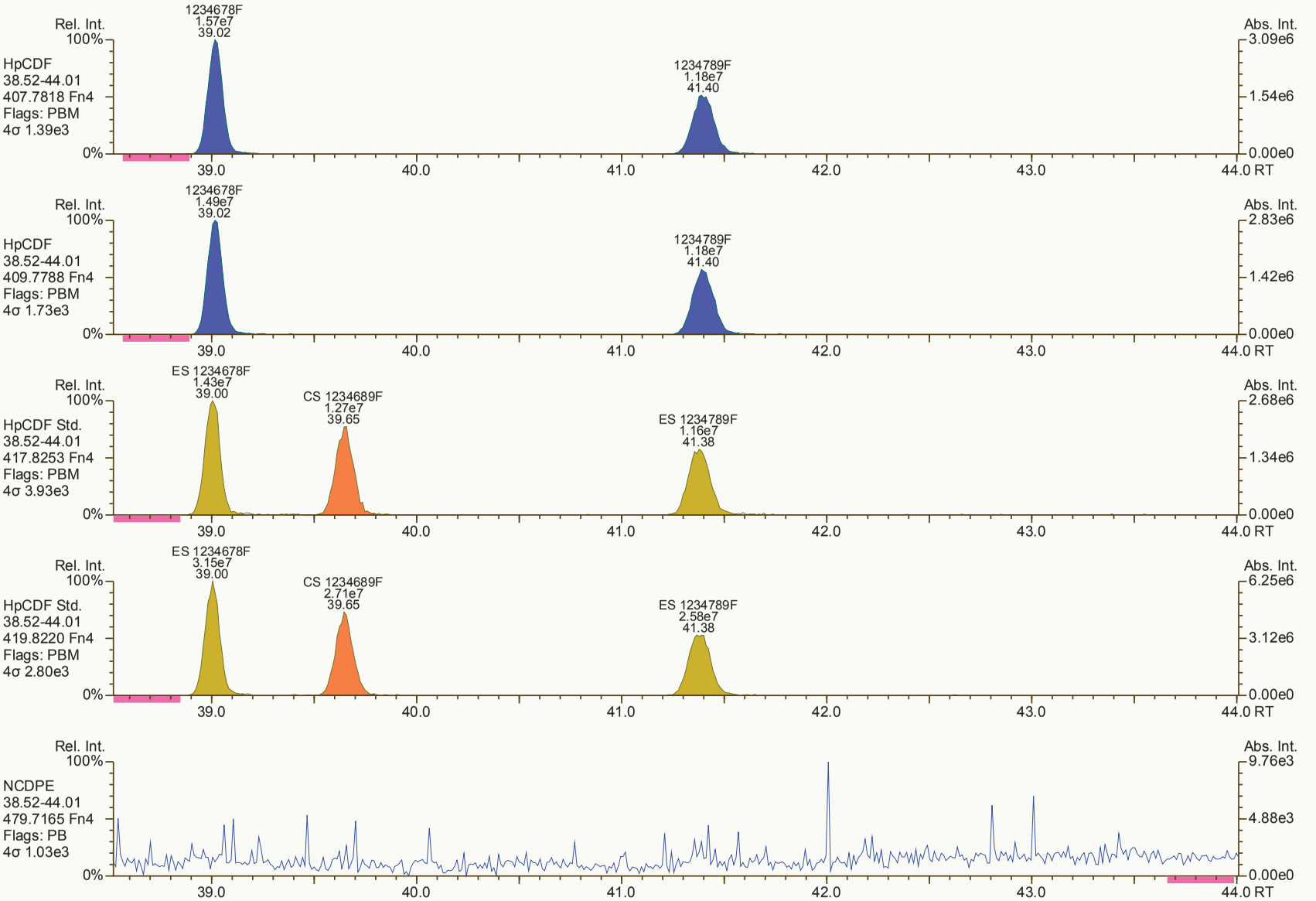
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7362, 7353, 8782 scc: 110-238 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0195, 7140, 9629 scc: 110-238 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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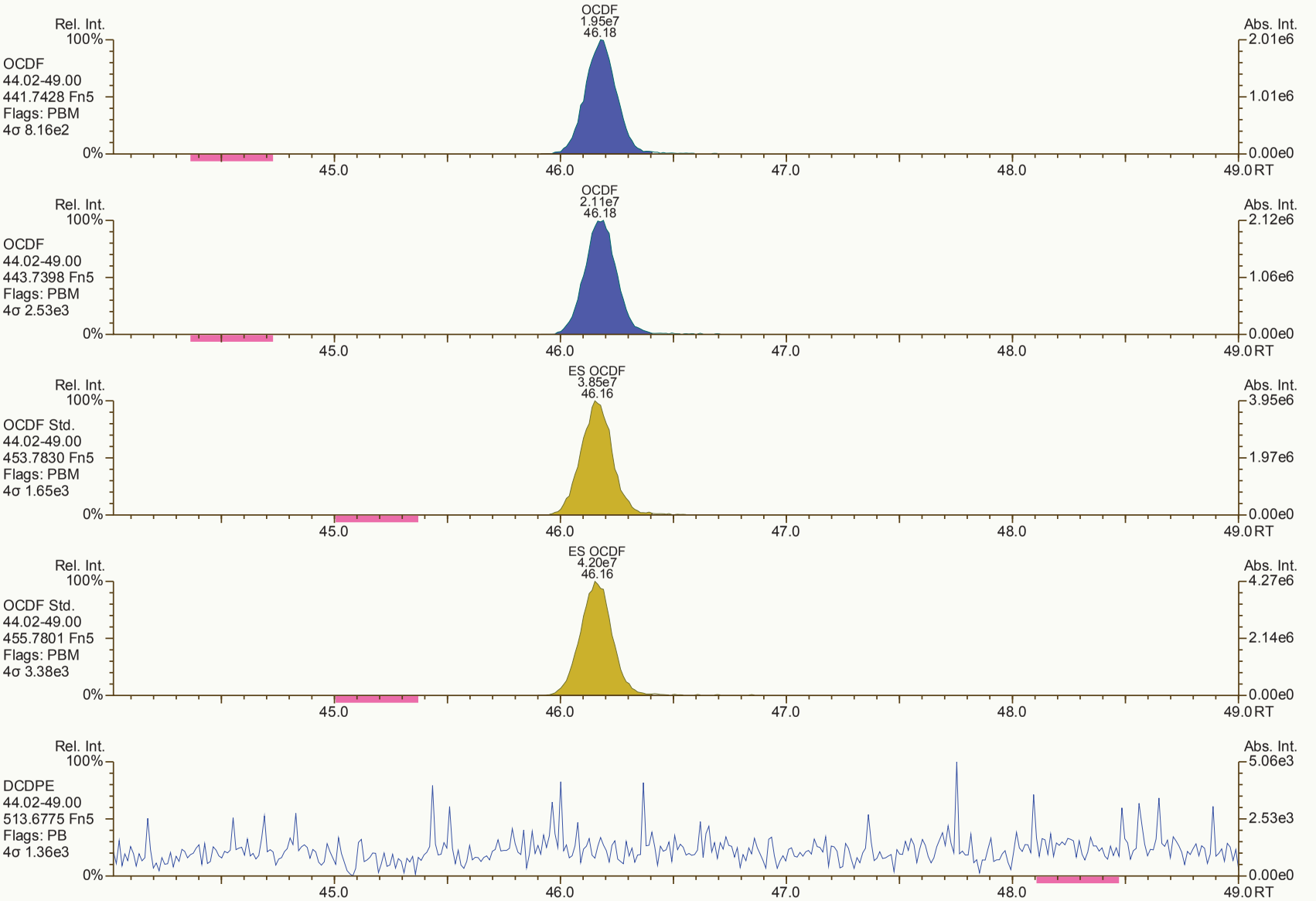
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8215, 3907, 3506 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5518, 5754, 7823 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 22:32 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS4_160106_CA | **UTP: 07-Jan-2016 10:52:25 ARL** | **Checkcode: 873-132-BRL**

Sample ID: SIL 15-104-1 | **Report: 07 Jan 2016 11:23 AL** | **Datafile: 160106C09**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	2.79E+07	0.78	Y	1.19	1.19	0%
12378-PeCDD	32.23	1.15E+08	1.59	Y	1.02	1.02	1%
123478-HxCDD	36.32	9.79E+07	1.26	Y	1.08	1.07	-1%
123678-HxCDD	36.44	9.89E+07	1.26	Y	1.05	1.09	4%
123789-HxCDD	36.74	1.02E+08	1.25	Y	0.99	0.98	-1%
1234678-HpCDD	40.66	8.10E+07	1.06	Y	1.02	1.03	1%
OCDD	45.78	1.32E+08	0.90	Y	1.09	1.10	1%
2378-TCDF	25.48	3.93E+07	0.79	Y	1.09	1.11	2%
12378-PeCDF	30.67	1.69E+08	1.56	Y	1.03	1.05	1%
23478-PeCDF	31.86	1.69E+08	1.55	Y	1.02	1.03	1%
123478-HxCDF	35.30	1.45E+08	1.23	Y	1.29	1.28	-1%
123678-HxCDF	35.46	1.53E+08	1.24	Y	1.17	1.19	2%
234678-HxCDF	36.13	1.36E+08	1.26	Y	1.18	1.18	0%
123789-HxCDF	37.12	1.21E+08	1.25	Y	1.18	1.15	-2%
1234678-HpCDF	39.04	1.18E+08	1.00	Y	1.38	1.37	0%
1234789-HpCDF	41.42	9.88E+07	1.01	Y	1.30	1.30	0%
OCDF	46.08	1.64E+08	0.92	Y	1.03	1.05	1%
ES 2378-TCDD	26.41	5.86E+07	0.81	Y	1.06	1.02	-4%
ES 12378-PeCDD	32.21	5.63E+07	1.59	Y	0.99	0.98	-1%
ES 123478-HxCDD	36.31	4.58E+07	1.25	Y	1.09	1.08	-1%
ES 123678-HxCDD	36.43	4.52E+07	1.26	Y	1.10	1.06	-3%
ES 123789-HxCDD	36.73	5.19E+07	1.26	Y	1.24	1.22	-2%
ES 1234678-HpCDD	40.64	3.92E+07	1.07	Y	0.93	0.92	-1%
ES OCDD	45.77	6.00E+07	0.93	Y	0.71	0.70	-1%
ES 2378-TCDF	25.45	8.88E+07	0.80	Y	1.02	1.00	-2%
ES 12378-PeCDF	30.65	8.07E+07	1.56	Y	0.96	0.91	-6%
ES 23478-PeCDF	31.84	8.18E+07	1.57	Y	0.95	0.92	-3%
ES 123478-HxCDF	35.29	5.66E+07	0.53	Y	1.32	1.33	1%
ES 123678-HxCDF	35.44	6.40E+07	0.53	Y	1.51	1.50	0%
ES 234678-HxCDF	36.11	5.77E+07	0.52	Y	1.38	1.35	-2%
ES 123789-HxCDF	37.10	5.24E+07	0.54	Y	1.25	1.23	-2%
ES 1234678-HpCDF	39.03	4.31E+07	0.46	Y	1.03	1.01	-1%
ES 1234789-HpCDF	41.40	3.80E+07	0.47	Y	0.87	0.89	2%
ES OCDF	46.06	7.85E+07	0.91	Y	0.92	0.92	0%

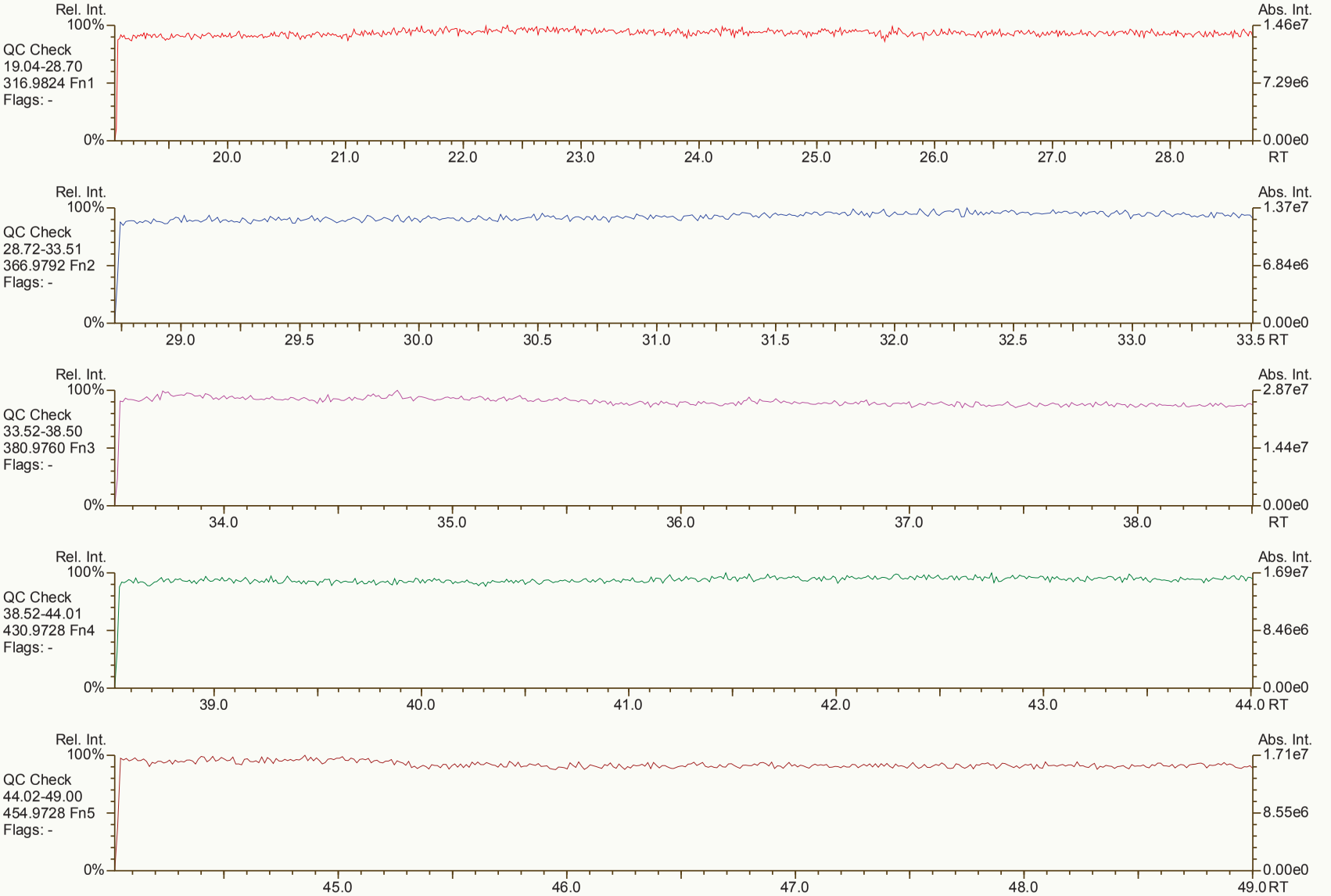
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 22:32 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS4_160106_CA | **UTP: 07-Jan-2016 10:52:25 ARL** | **Checkcode: 873-132**

Sample ID: SIL 15-104-1 | **Report: 07 Jan 2016 11:23 AL** | **Datafile: 160106C09**

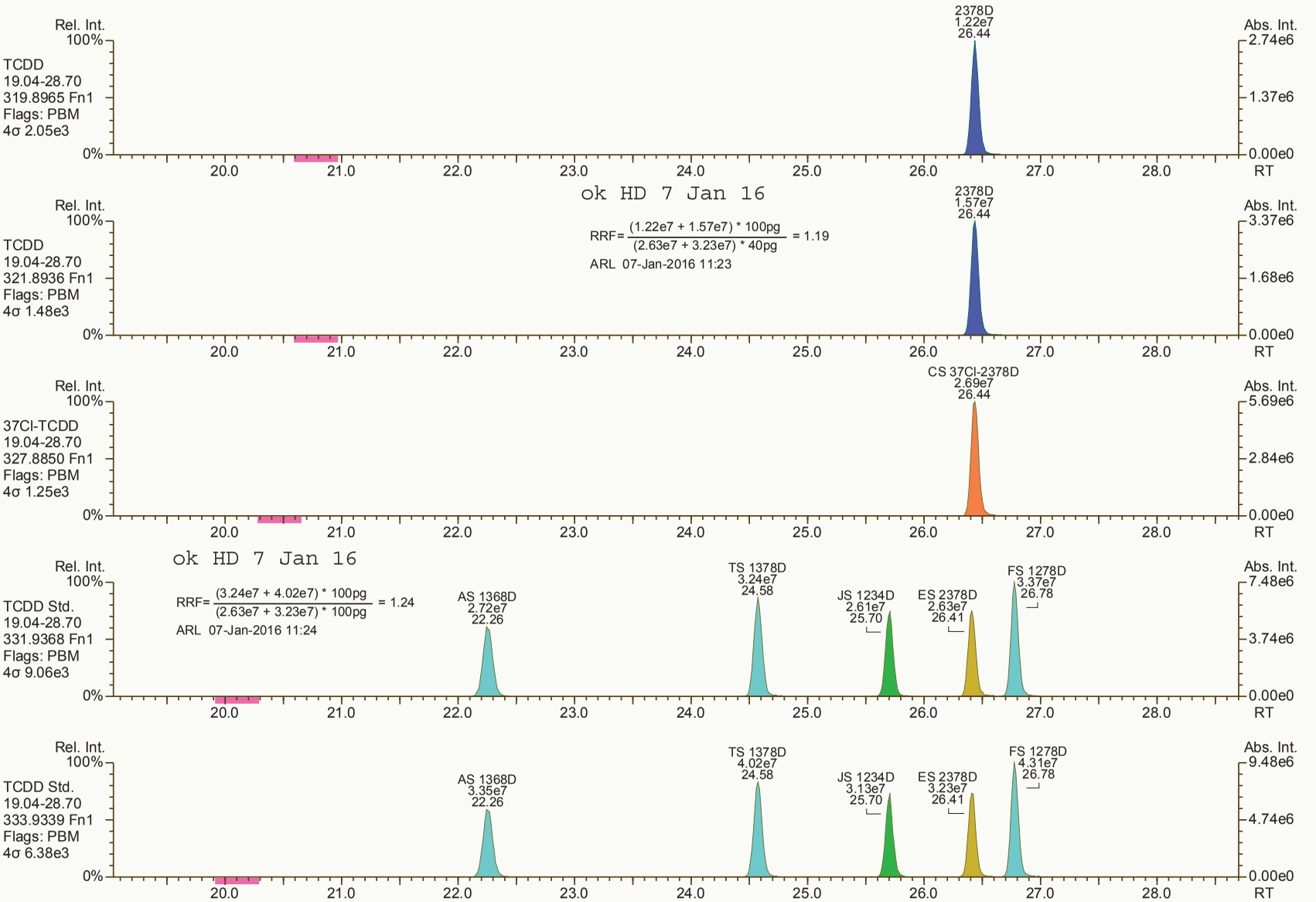
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.74E+07	0.83	Y	-	-	-
JS 1234-TCDF	23.93	8.88E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.62	2.13E+07	1.25	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	2.69E+07	n/a	-	1.24	1.17	-6%
CS 12347-PeCDD	31.68	5.30E+07	1.61	Y	0.94	0.92	-2%
CS 12346-PeCDF	30.09	8.00E+07	1.58	Y	0.92	0.90	-2%
CS 123469-HxCDF	35.76	5.82E+07	0.53	Y	1.38	1.37	-1%
CS 1234689-HpCDF	39.69	3.84E+07	0.46	Y	0.88	0.90	2%
SS 37Cl-2378-TCDD	26.44	2.69E+07	n/a	-	1.18	1.15	-3%
SS 12347-PeCDD	31.68	5.30E+07	1.61	Y	0.94	0.94	0%
SS 12346-PeCDF	30.09	8.00E+07	1.58	Y	0.96	0.99	3%
SS 123469-HxCDF	35.76	5.82E+07	0.53	Y	0.92	0.91	-1%
SS 1234689-HpCDF	39.69	3.84E+07	0.46	Y	0.86	0.89	3%
AS 1368-TCDD	22.26	6.07E+07	0.81	Y	1.05	1.06	1%
AS 1368-TCDF	20.14	1.21E+08	0.80	Y	1.40	1.36	-3%
FS 1278-TCDD	26.78	7.68E+07	0.78	Y	1.28	1.31	2%
FS 12478-PeCDD	30.91	6.08E+07	1.61	Y	1.11	1.08	-3%
FS 123468-HxCDD	35.22	6.37E+07	1.27	Y	1.36	1.39	2%
FS 1234679-HpCDD	39.47	5.30E+07	1.04	Y	1.30	1.35	4%
TS 1378-TCDD	24.58	7.26E+07	0.81	Y	1.21	1.24	3%
OCDD-a	45.78	8.42E+06	2.50	Y	0.07	0.07	4%
OCDF-a	46.08	1.07E+07	2.45	Y	0.06	0.07	7%

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



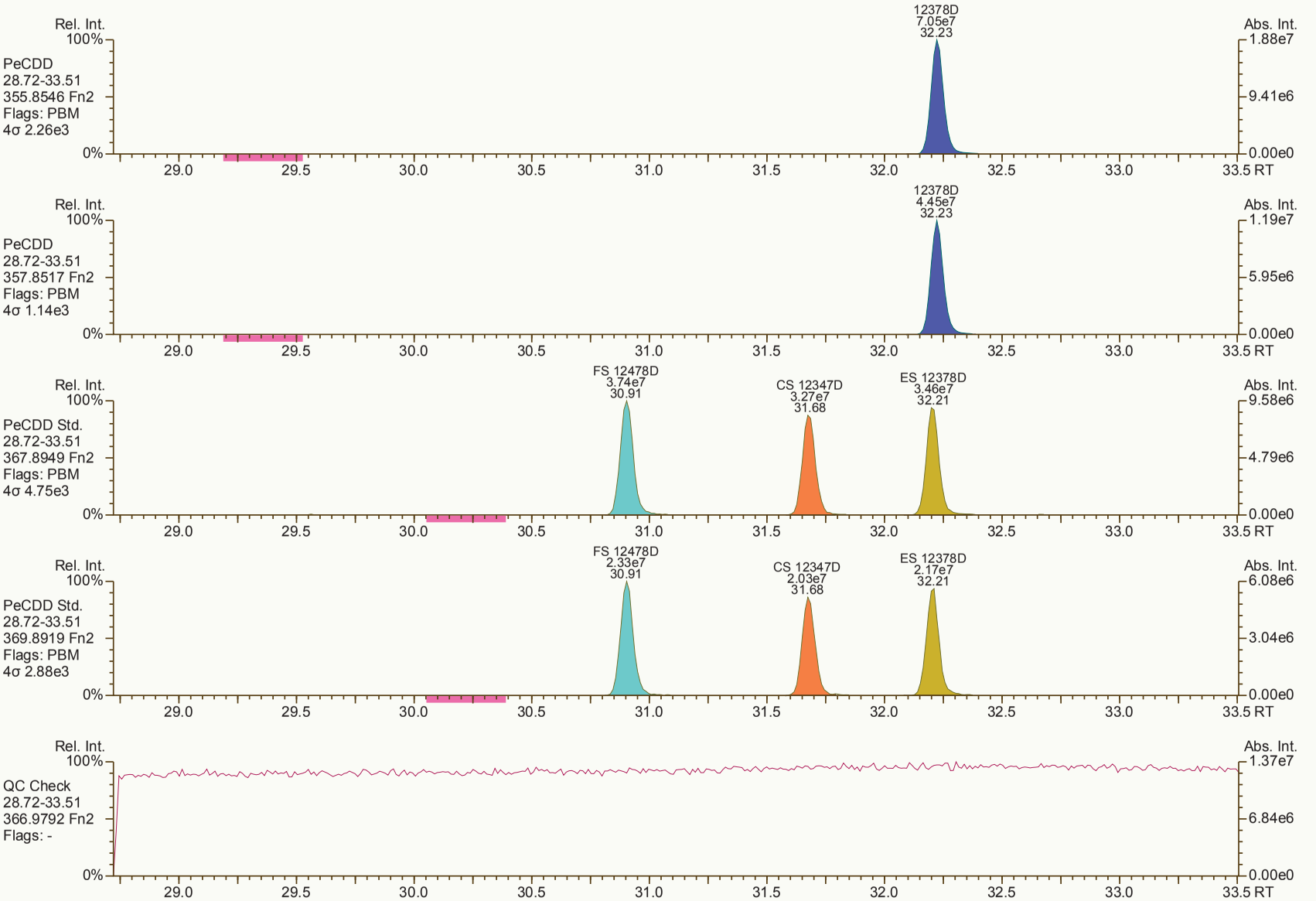
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 873-132 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4974, 4312, 2969 scc: 873-132 *PKD: 07-Jan-2016 09:36 Printed: 07-Jan-2016 11:30 Page 2 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



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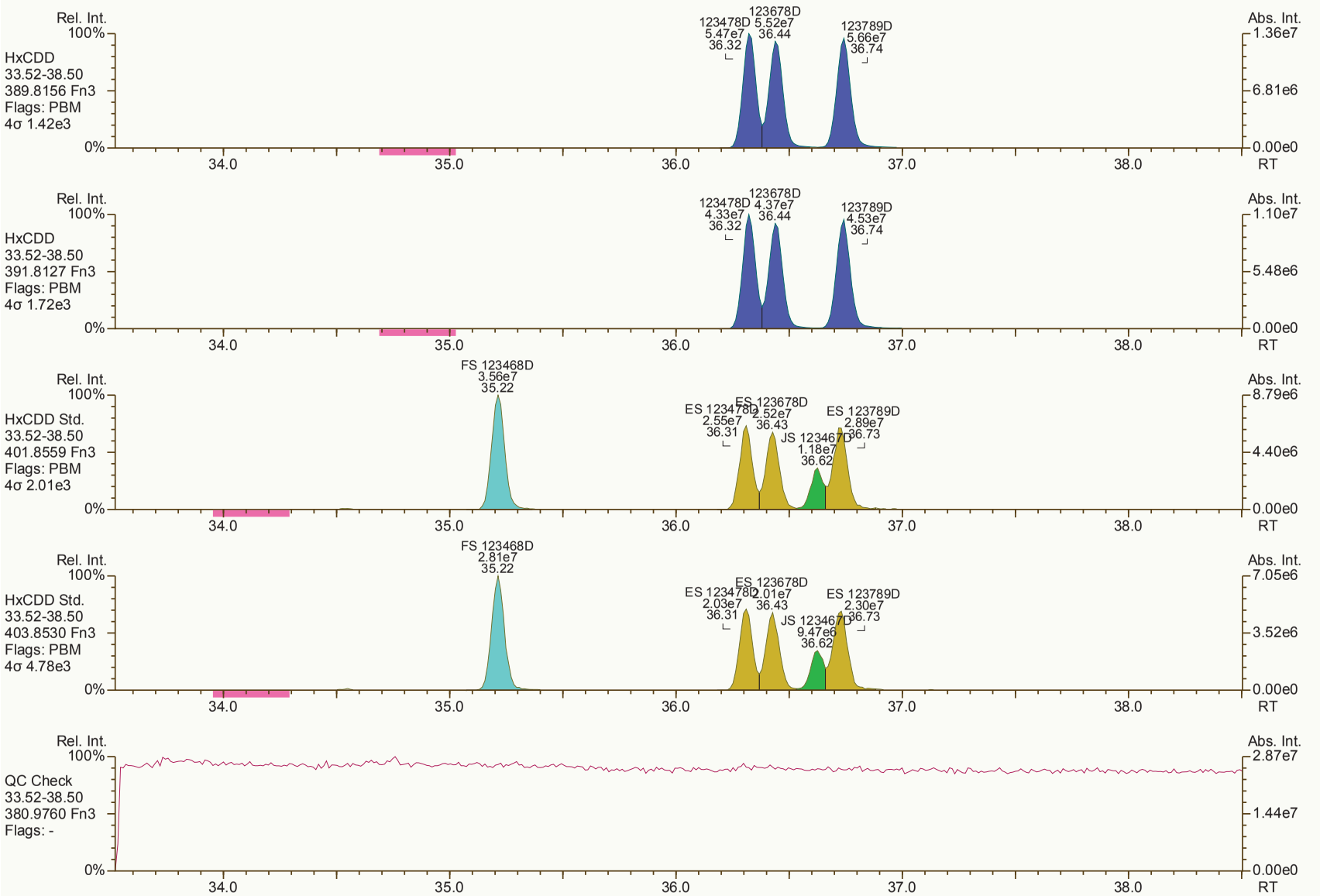
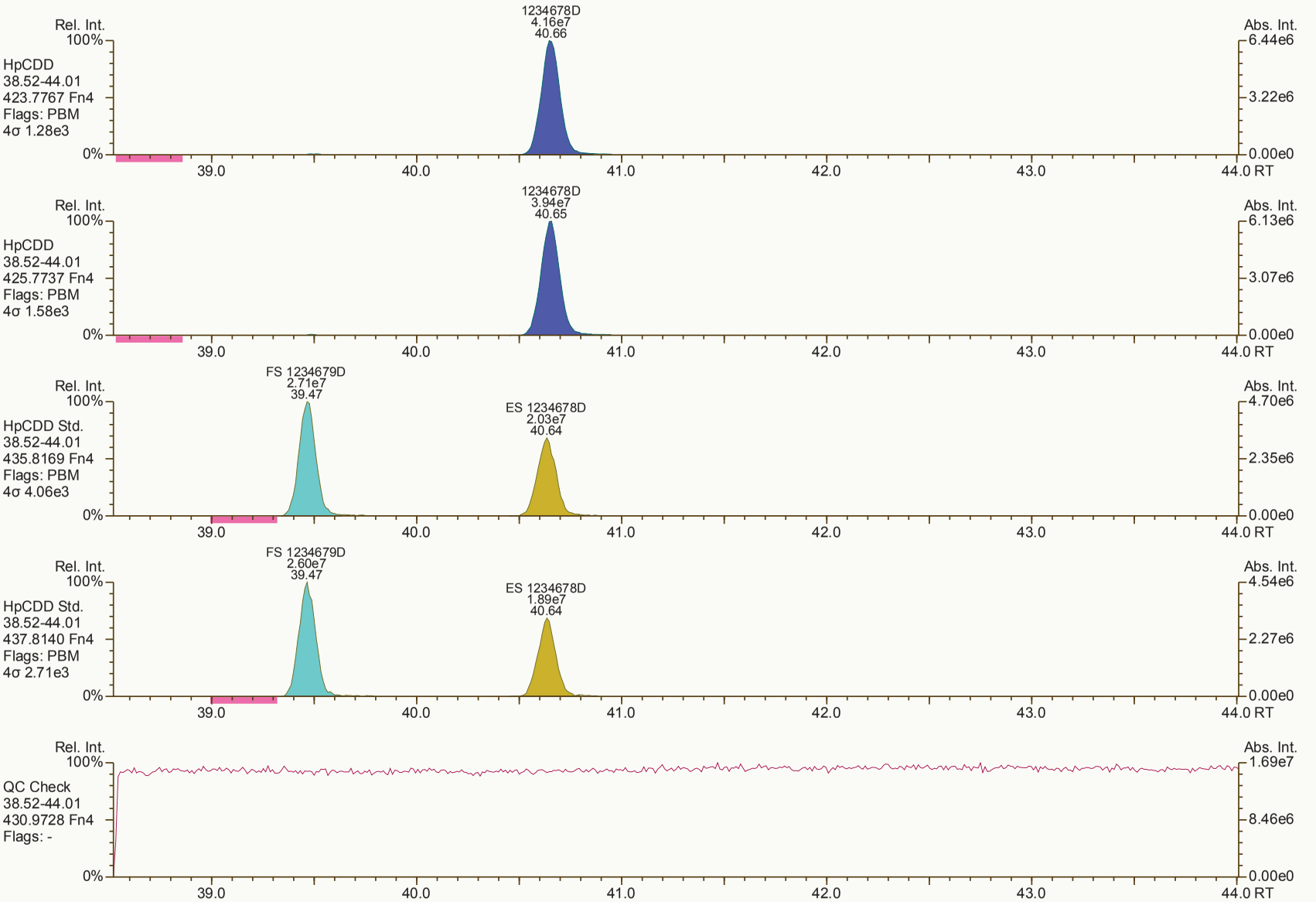
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5648, 4512 scc: 873-132 *Revised: 07-Jan-2016 09:40 (ARL) Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5713, 9953 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



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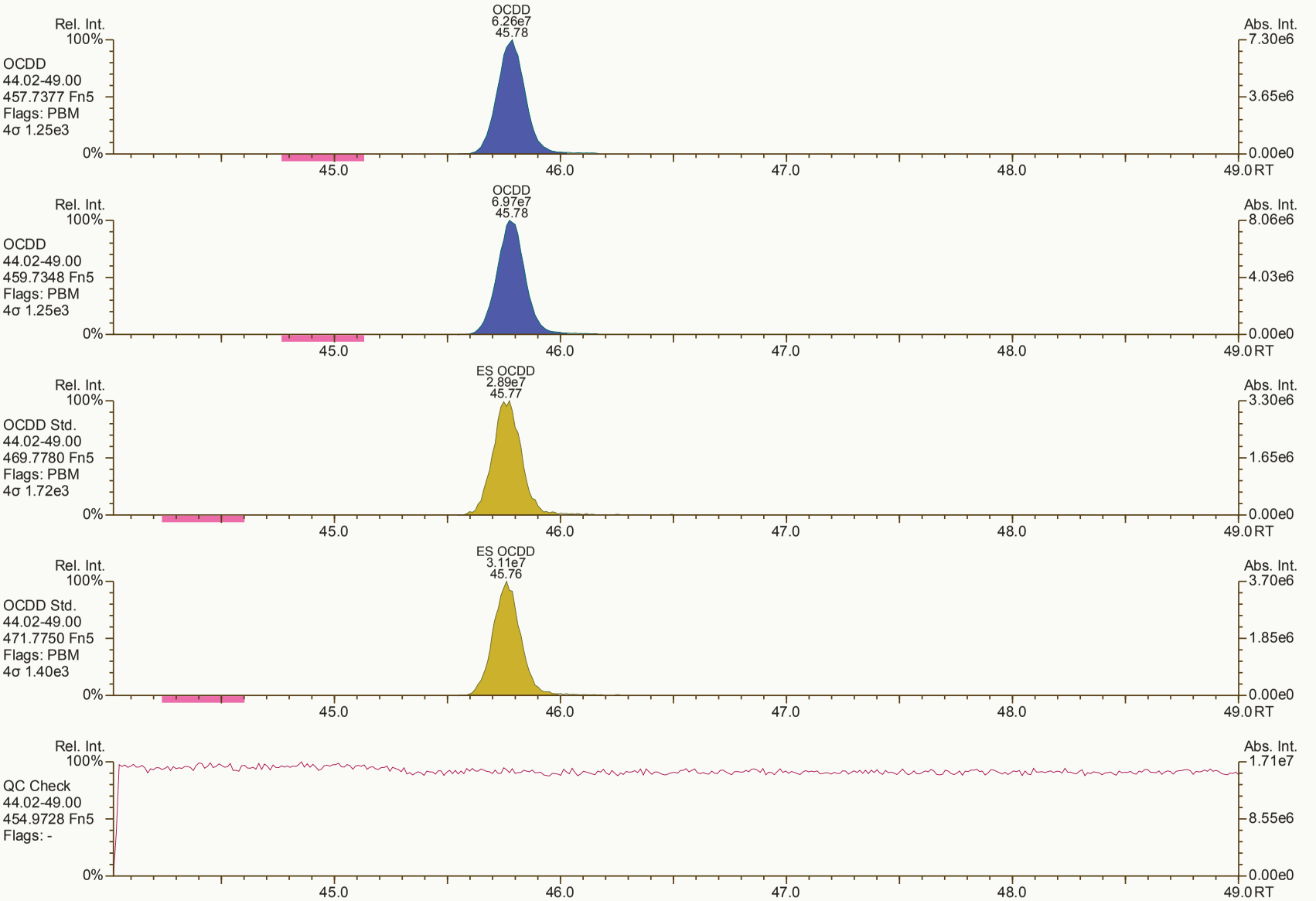
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3763, 2808 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0583, 3746 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 6 of 12*

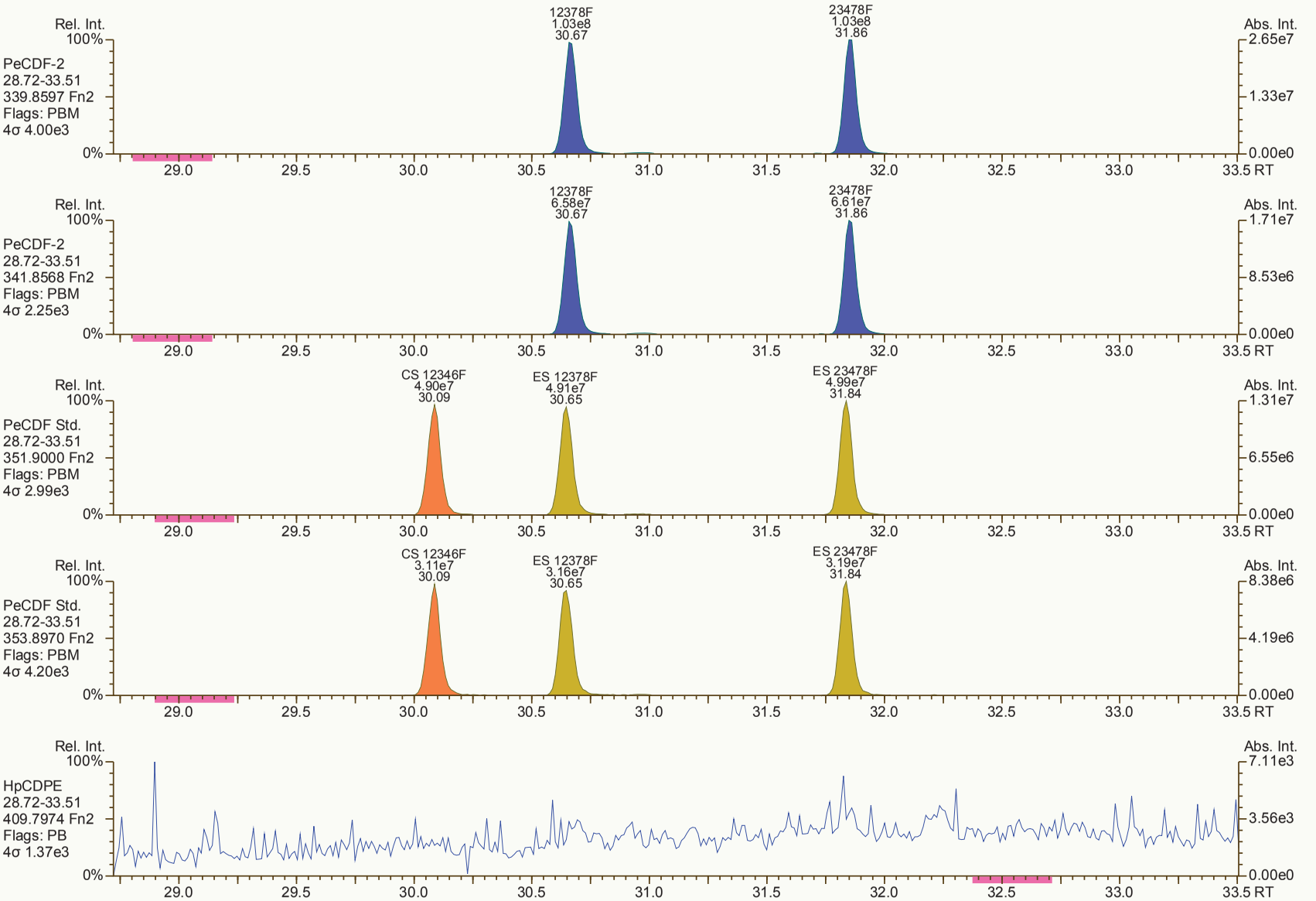
SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2776, 2467, 2654 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

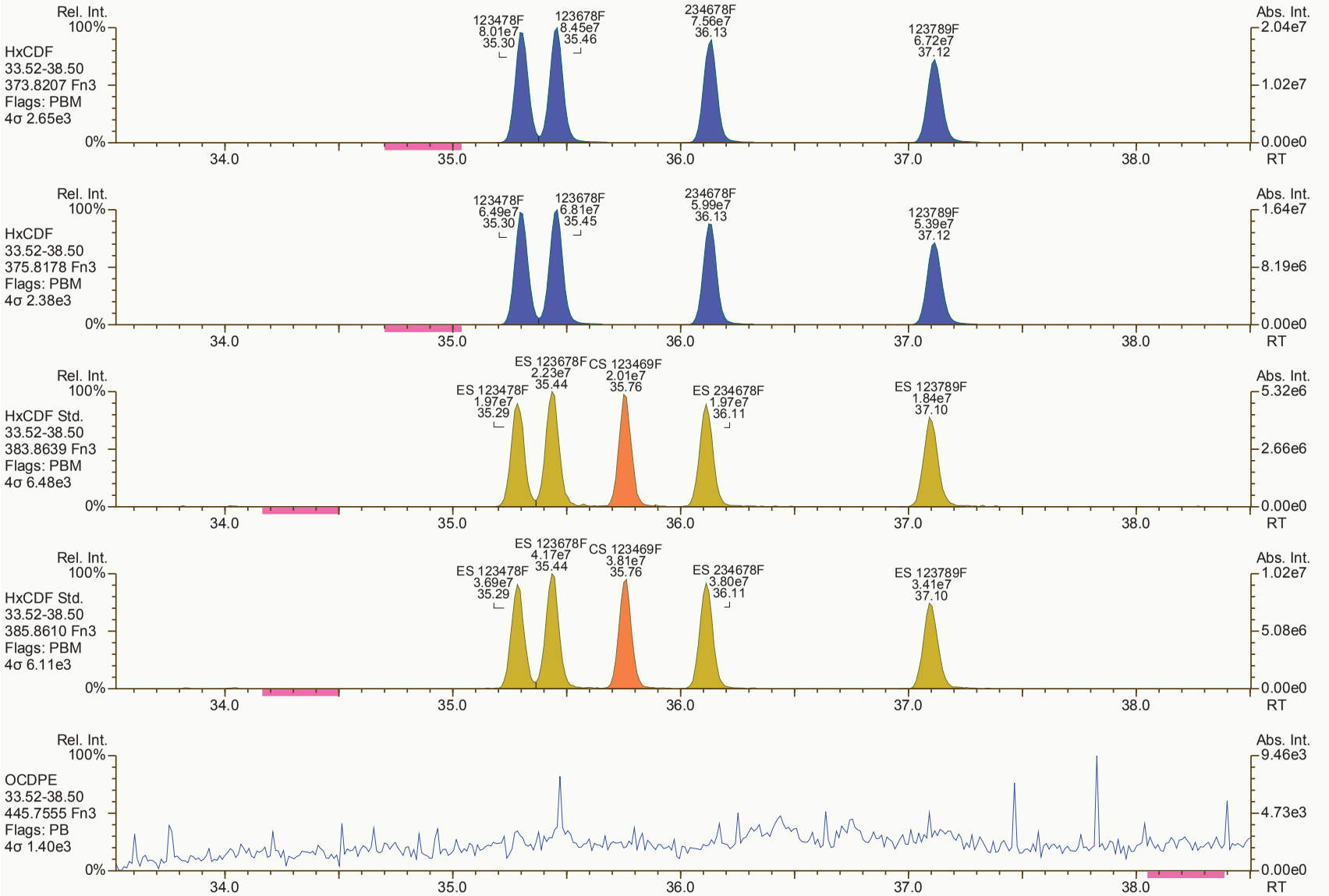
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2116 scc: 873-132 *PKD: 07-Jan-2016 09:36 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9921, 7318, 4281 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5270, 5250, 6447 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3940, 2762, 8020 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3228, 4168, 6984 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 23:25 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS5_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 040-020-RVJ**

Sample ID: SIL 15-103-4 | **Report: 07 Jan 2016 11:27 AL** | **Datafile: 160106C10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.42	1.23E+08	0.78	Y	1.19	1.17	-2%
12378-PeCDD	32.22	5.01E+08	1.57	Y	1.02	1.01	-1%
123478-HxCDD	36.34	4.58E+08	1.27	Y	1.08	1.08	0%
123678-HxCDD	36.46	4.50E+08	1.26	Y	1.05	1.02	-3%
123789-HxCDD	36.75	4.78E+08	1.25	Y	0.99	0.96	-3%
1234678-HpCDD	40.59	3.82E+08	1.04	Y	1.02	1.00	-2%
OCDD	45.82	6.20E+08	0.89	Y	1.09	1.08	-1%
2378-TCDF	25.45	1.63E+08	0.79	Y	1.09	1.06	-2%
12378-PeCDF	30.66	8.00E+08	1.57	Y	1.03	1.03	0%
23478-PeCDF	31.85	7.46E+08	1.55	Y	1.02	1.02	0%
123478-HxCDF	35.31	6.53E+08	1.24	Y	1.29	1.24	-4%
123678-HxCDF	35.46	6.94E+08	1.24	Y	1.17	1.14	-3%
234678-HxCDF	36.15	6.38E+08	1.24	Y	1.18	1.19	0%
123789-HxCDF	37.12	5.91E+08	1.25	Y	1.18	1.16	-2%
1234678-HpCDF	39.00	5.71E+08	1.03	Y	1.38	1.36	-1%
1234789-HpCDF	41.36	4.45E+08	1.02	Y	1.30	1.26	-3%
OCDF	46.12	7.85E+08	0.90	Y	1.03	1.03	-1%
ES 2378-TCDD	26.40	5.27E+07	0.83	Y	1.06	1.07	1%
ES 12378-PeCDD	32.20	4.97E+07	1.60	Y	0.99	1.01	2%
ES 123478-HxCDD	36.33	4.24E+07	1.23	Y	1.09	1.08	-1%
ES 123678-HxCDD	36.44	4.42E+07	1.26	Y	1.10	1.12	3%
ES 123789-HxCDD	36.74	4.95E+07	1.25	Y	1.24	1.26	1%
ES 1234678-HpCDD	40.57	3.82E+07	1.04	Y	0.93	0.97	4%
ES OCDD	45.80	5.76E+07	0.92	Y	0.71	0.73	3%
ES 2378-TCDF	25.43	7.68E+07	0.81	Y	1.02	1.02	0%
ES 12378-PeCDF	30.64	7.76E+07	1.56	Y	0.96	1.03	7%
ES 23478-PeCDF	31.83	7.33E+07	1.57	Y	0.95	0.98	3%
ES 123478-HxCDF	35.29	5.26E+07	0.54	Y	1.32	1.34	1%
ES 123678-HxCDF	35.44	6.08E+07	0.53	Y	1.51	1.55	2%
ES 234678-HxCDF	36.13	5.38E+07	0.55	Y	1.38	1.37	-1%
ES 123789-HxCDF	37.10	5.08E+07	0.55	Y	1.25	1.29	3%
ES 1234678-HpCDF	38.98	4.21E+07	0.46	Y	1.03	1.07	4%
ES 1234789-HpCDF	41.34	3.53E+07	0.47	Y	0.87	0.90	3%
ES OCDF	46.10	7.64E+07	0.91	Y	0.92	0.97	5%

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 23:25 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS5_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 040-020**

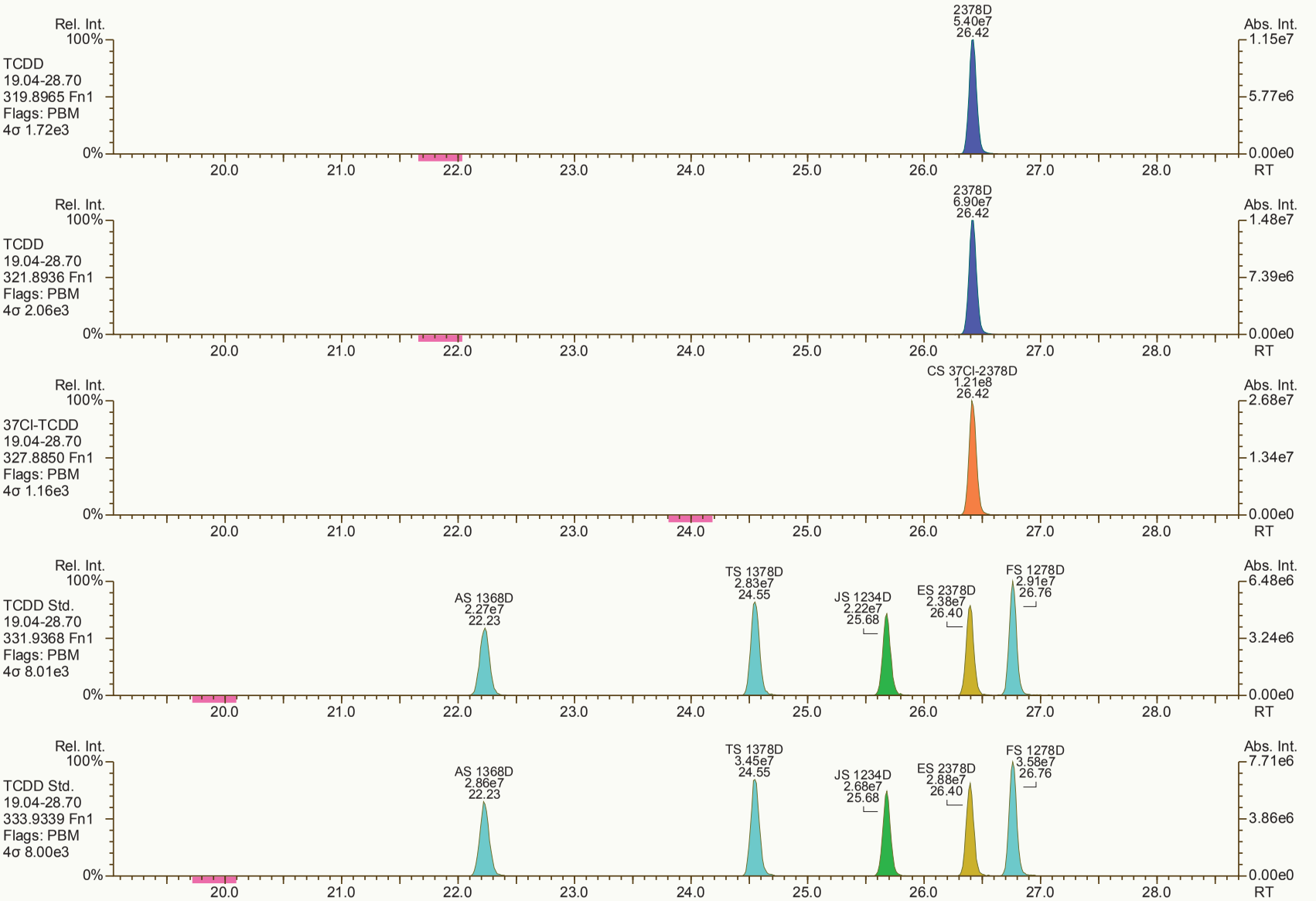
Sample ID: SIL 15-103-4 | **Report: 07 Jan 2016 11:27 AL** | **Datafile: 160106C10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.68	4.90E+07	0.83	Y	-	-	-
JS 1234-TCDF	23.91	7.50E+07	0.78	Y	-	-	-
JS 123467-HxCDD	36.63	1.97E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	26.42	1.21E+08	n/a	-	1.24	1.23	-1%
CS 12347-PeCDD	31.68	4.54E+07	1.61	Y	0.94	0.93	-1%
CS 12346-PeCDF	30.08	7.36E+07	1.63	Y	0.92	0.98	6%
CS 123469-HxCDF	35.76	5.35E+07	0.53	Y	1.38	1.36	-1%
CS 1234689-HpCDF	39.64	3.47E+07	0.46	Y	0.88	0.88	0%
SS 37Cl-2378-TCDD	26.42	1.21E+08	n/a	-	1.18	1.15	-3%
SS 12347-PeCDD	31.68	4.54E+07	1.61	Y	0.94	0.91	-3%
SS 12346-PeCDF	30.08	7.36E+07	1.63	Y	0.96	0.95	-1%
SS 123469-HxCDF	35.76	5.35E+07	0.53	Y	0.92	0.88	-4%
SS 1234689-HpCDF	39.64	3.47E+07	0.46	Y	0.86	0.82	-4%
AS 1368-TCDD	22.23	5.14E+07	0.79	Y	1.05	1.05	0%
AS 1368-TCDF	20.12	1.08E+08	0.79	Y	1.40	1.44	3%
FS 1278-TCDD	26.76	6.48E+07	0.81	Y	1.28	1.23	-4%
FS 12478-PeCDD	30.90	5.51E+07	1.59	Y	1.11	1.11	0%
FS 123468-HxCDD	35.23	5.38E+07	1.24	Y	1.36	1.27	-6%
FS 1234679-HpCDD	39.42	4.63E+07	1.05	Y	1.30	1.21	-7%
TS 1378-TCDD	24.55	6.28E+07	0.82	Y	1.21	1.19	-1%
OCDD-a	45.82	4.01E+07	2.42	Y	0.07	0.07	3%
OCDF-a	46.12	4.90E+07	2.51	Y	0.06	0.06	1%

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

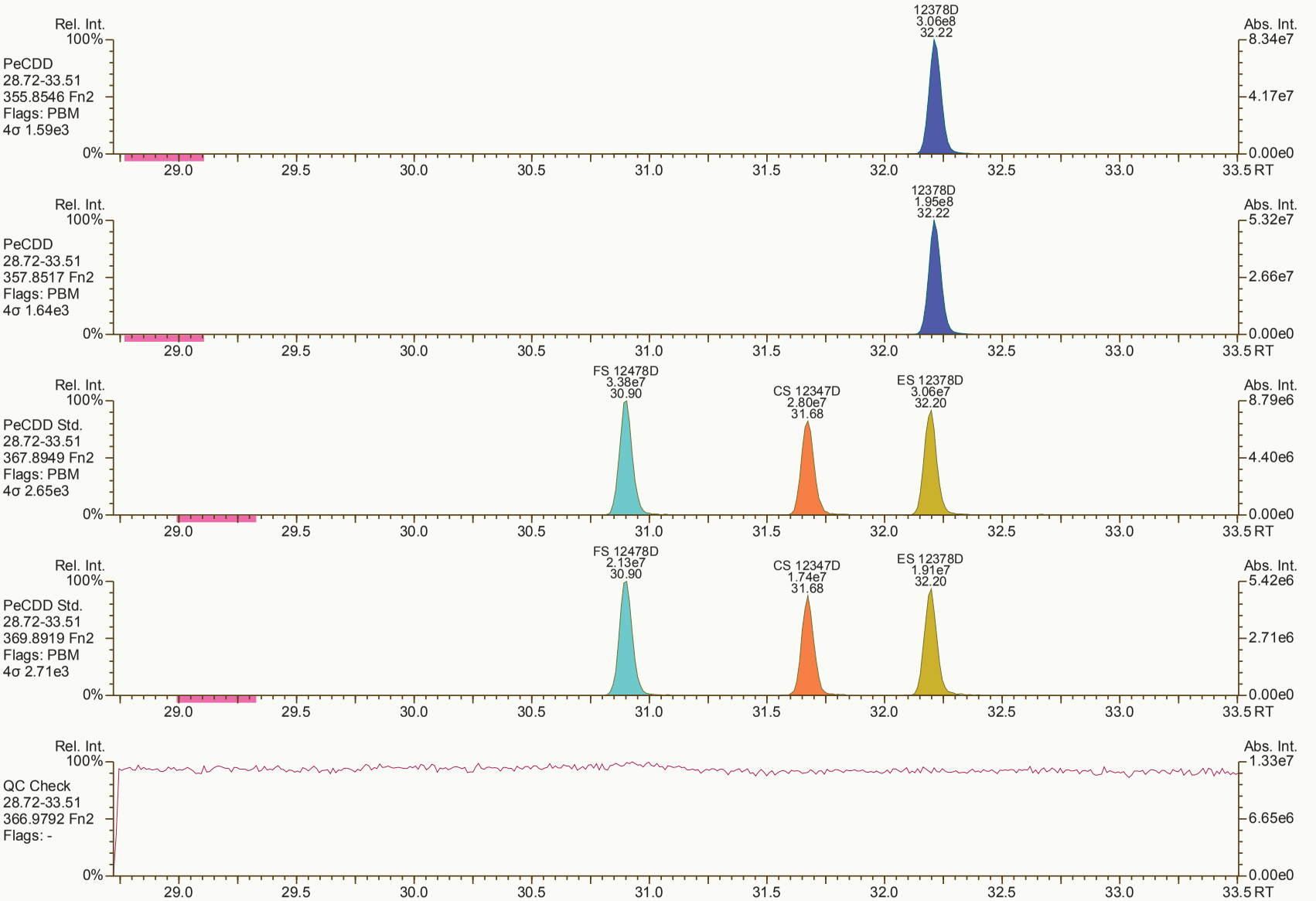
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 040-020 | *PKD: n/a Printed: 07-Jan-2016 11:31 Page 1 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



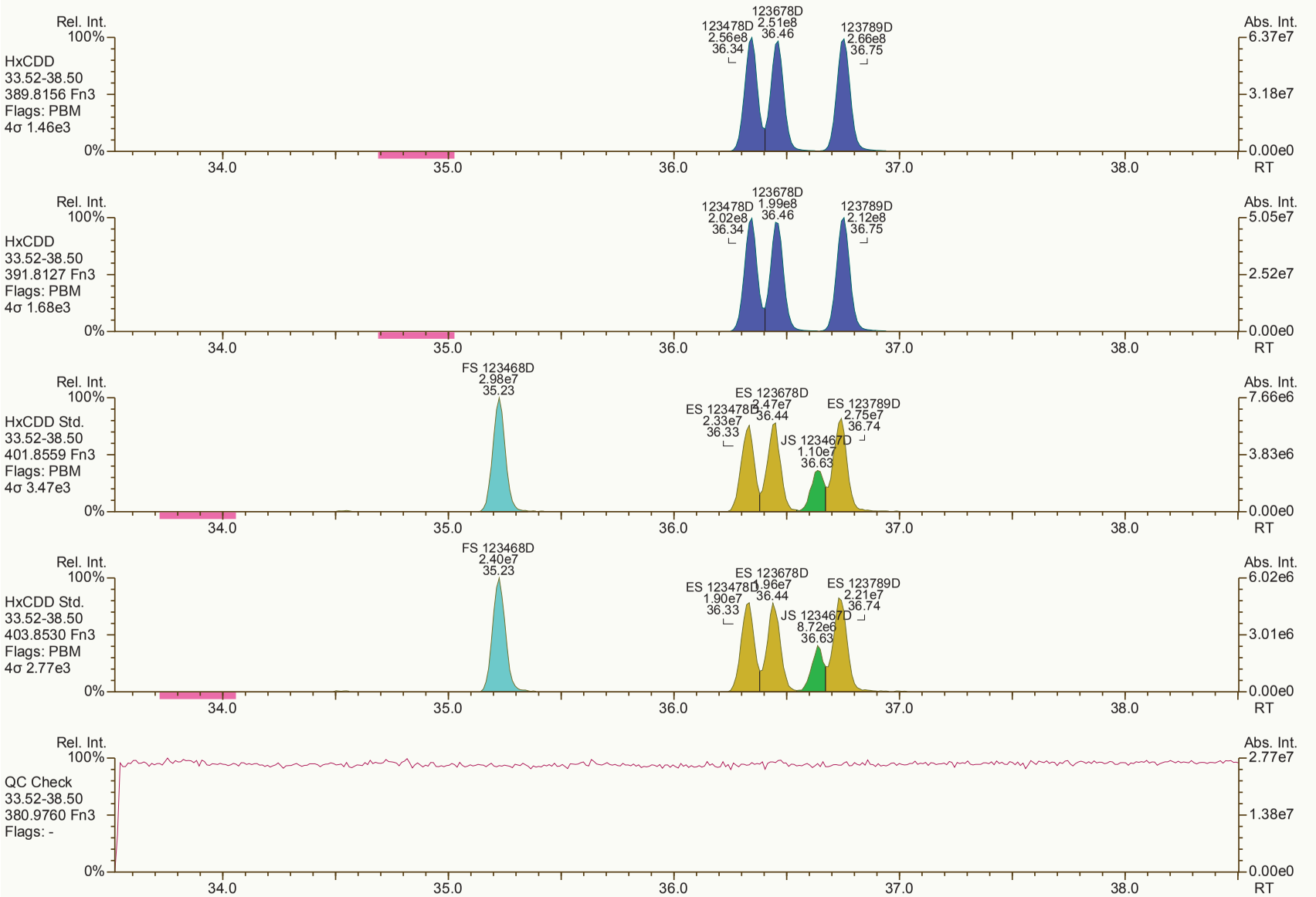
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5427, 8924, 7983 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 2 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2838, 1278 scc: 040-020 *PKD: 07-Jan-2016 09:47 Printed: 07-Jan-2016 11:31 Page 3 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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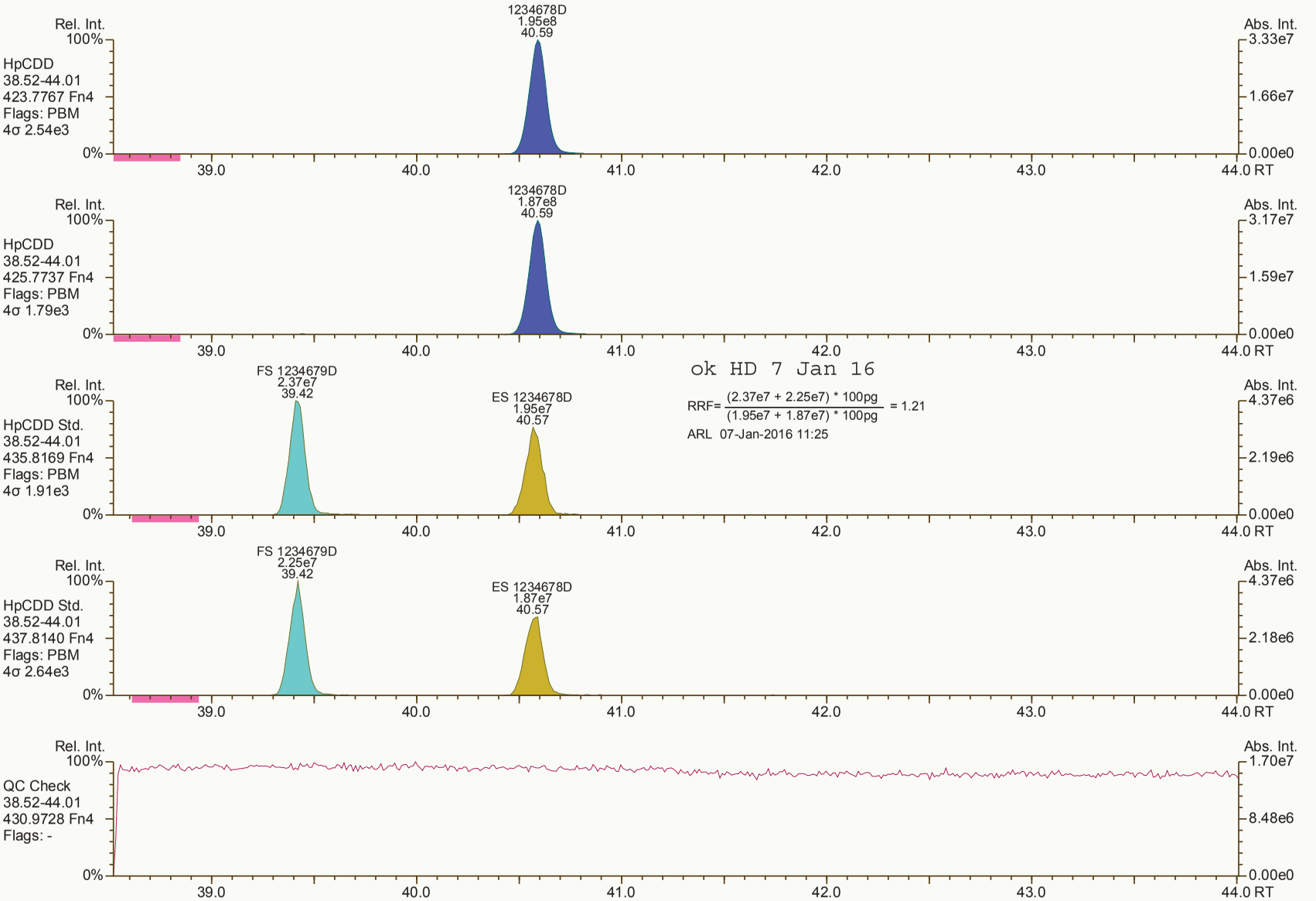
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4507, 2451 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 4 of 12*

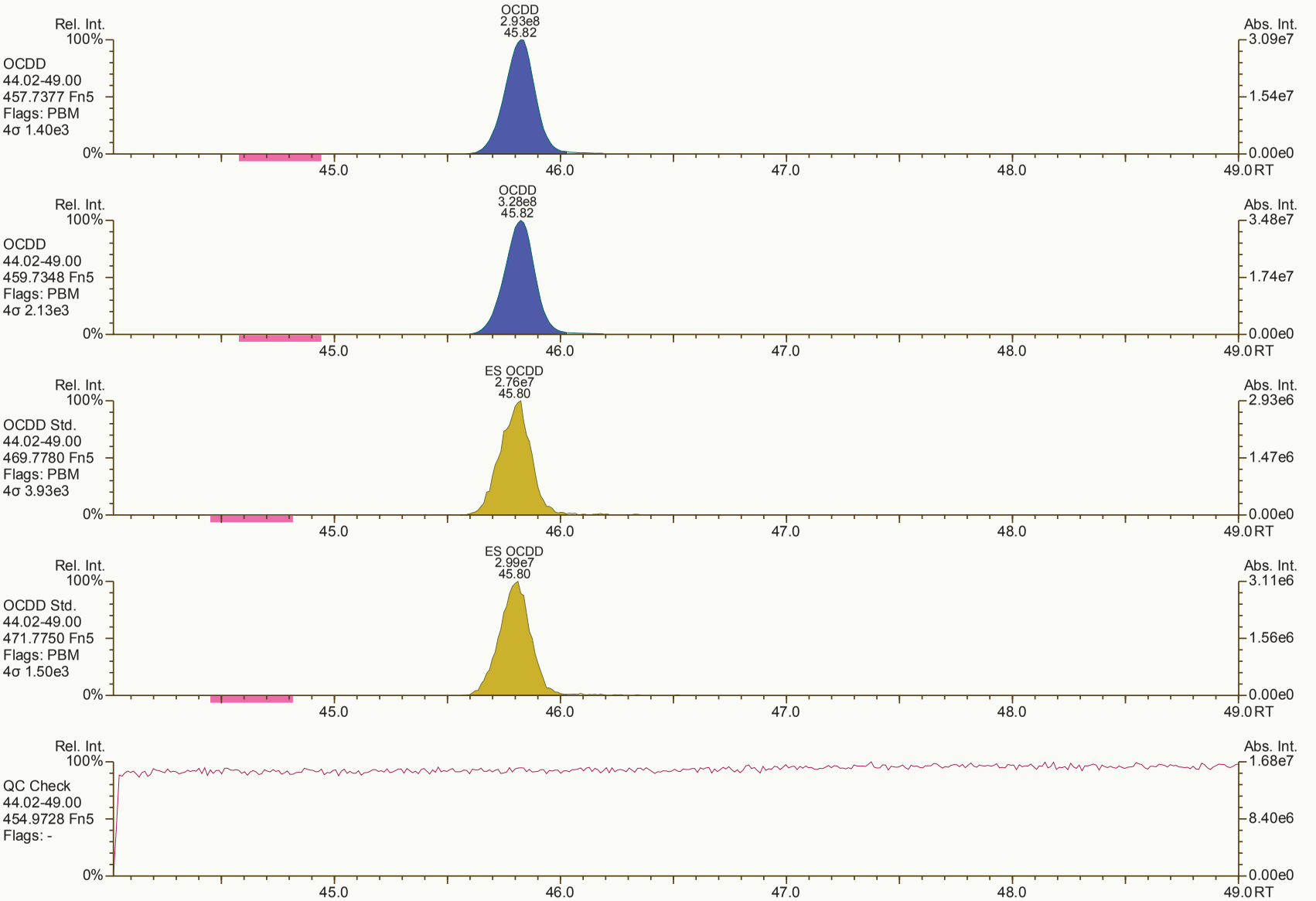
SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) — *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1409, 3882 scc: 040-020 — *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2106, 9637 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 6 of 12*

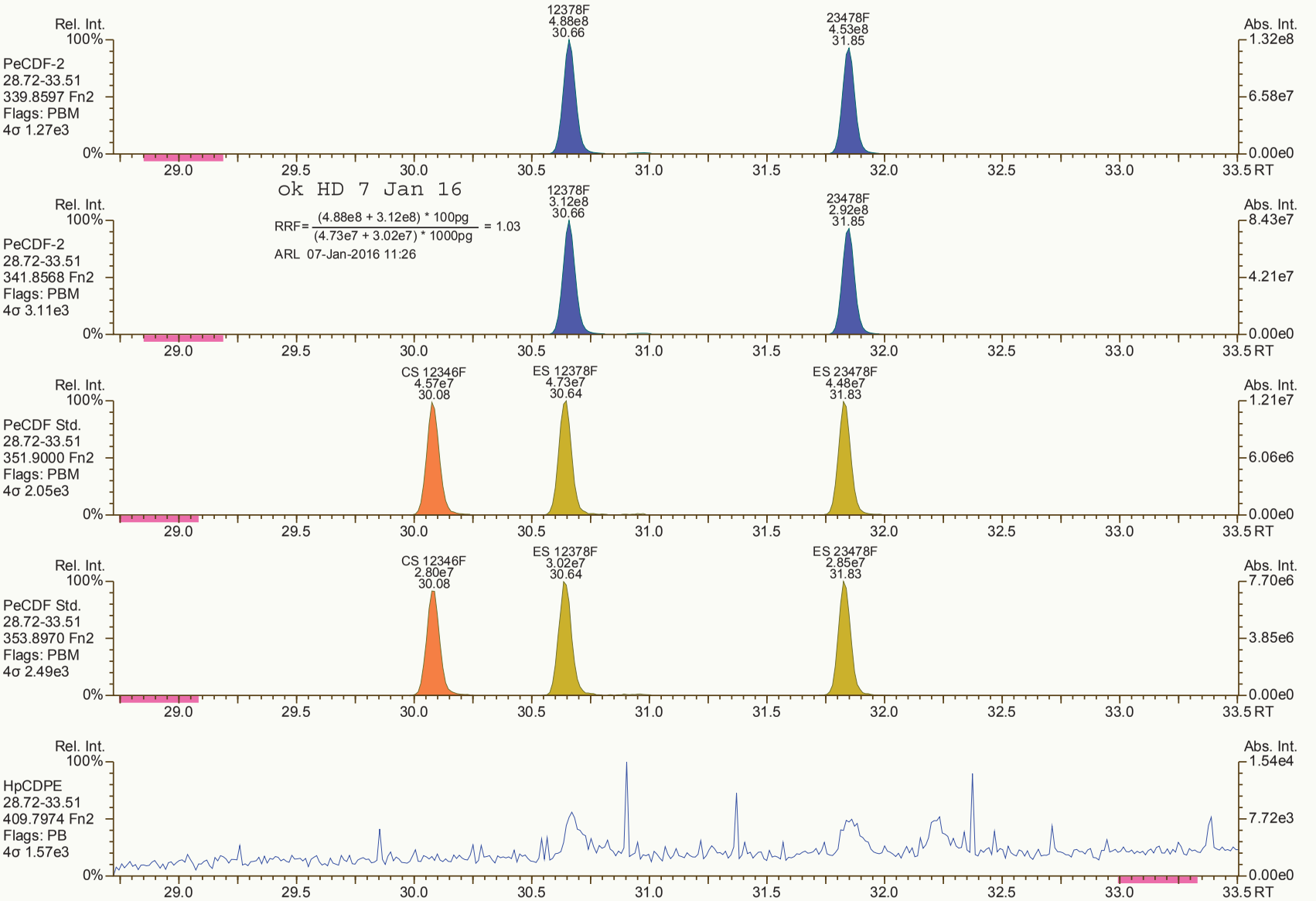
SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9430, 7299, 8804 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0948 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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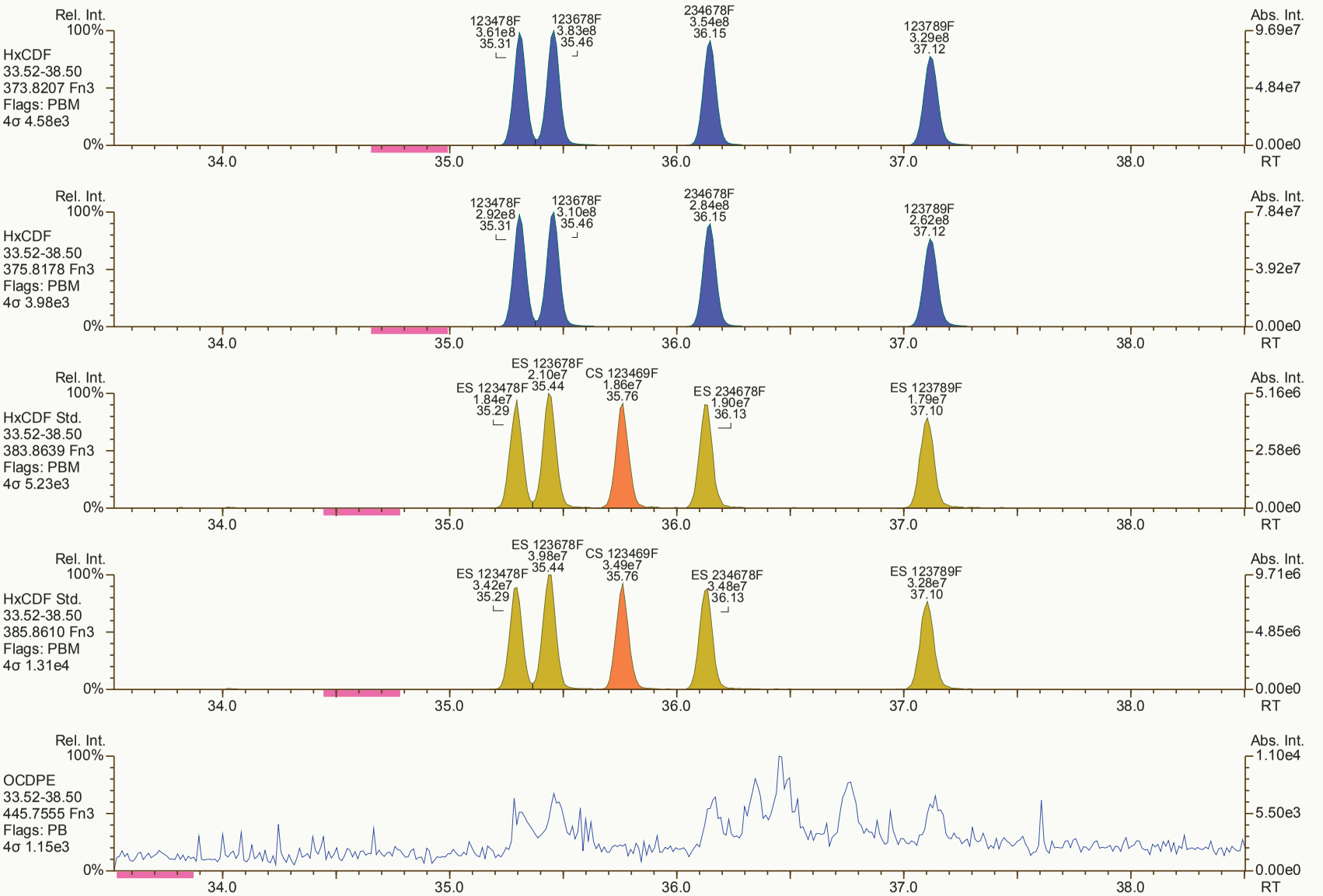
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8836, 2270, 2550 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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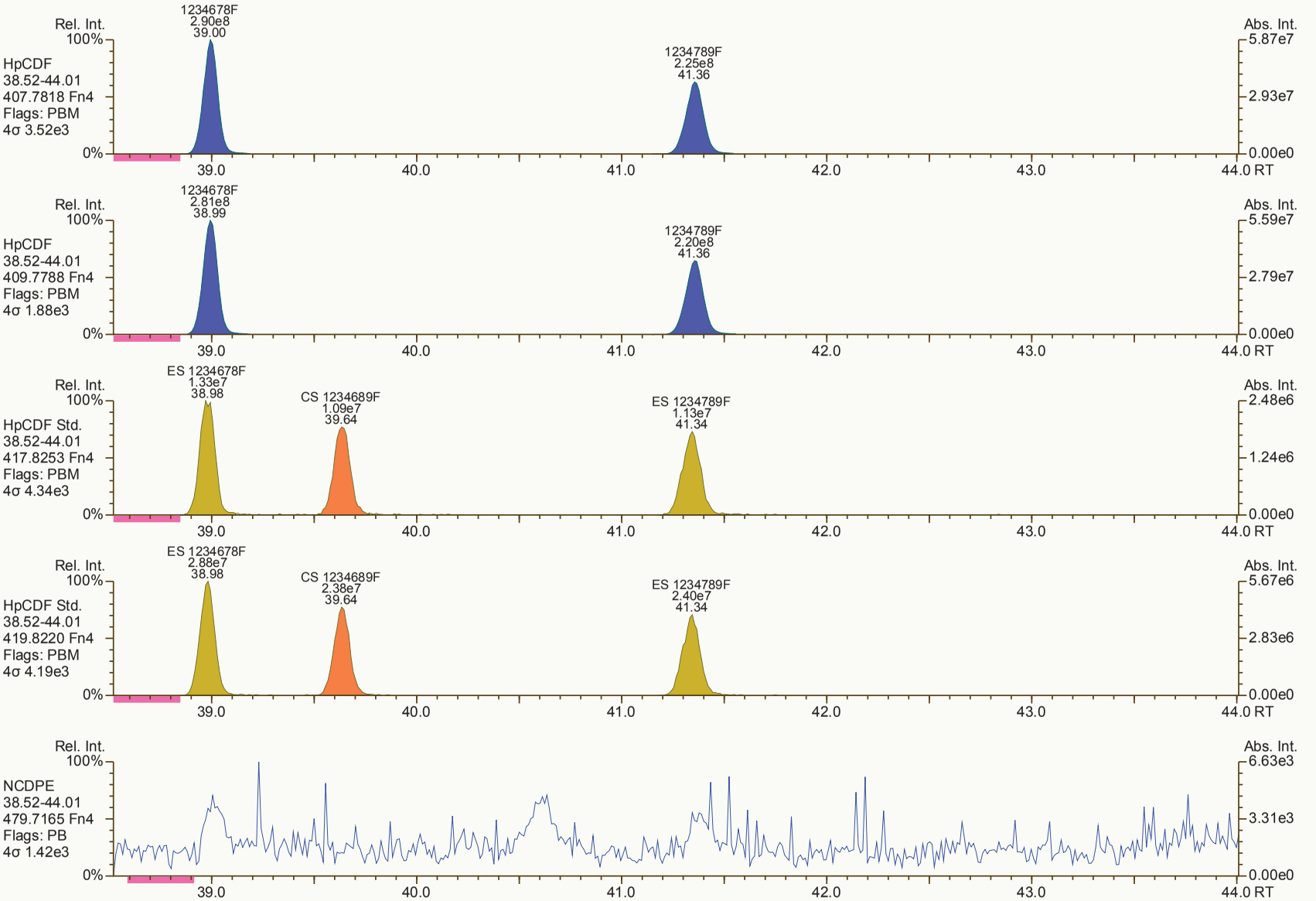
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6694, 6788, 6587 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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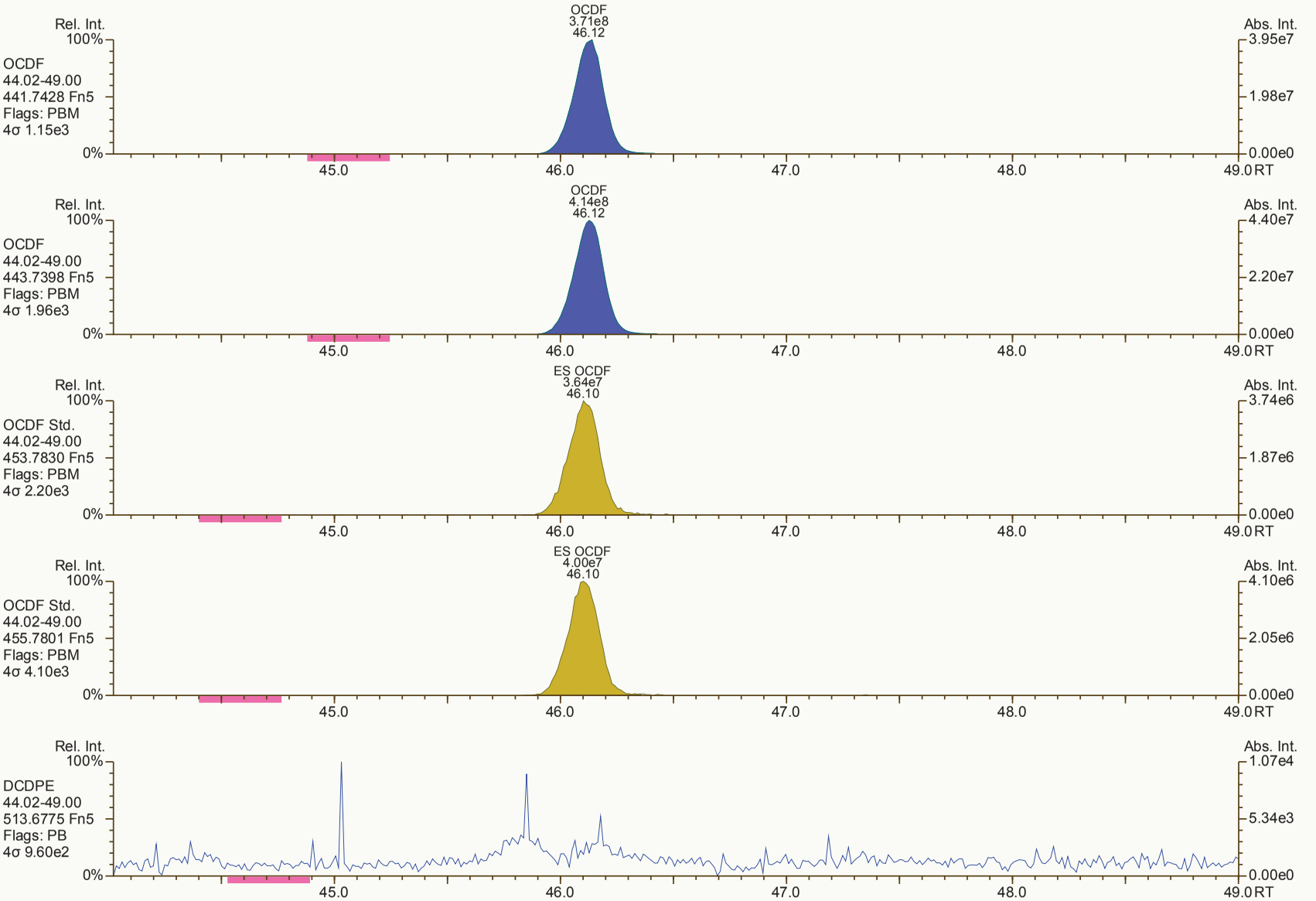
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1082, 0140, 0980 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0695, 7442, 7846 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 07 Jan 2016 00:17 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS6_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 804-666-MVB**

Sample ID: SIL 15-105-3 | **Report: 07 Jan 2016 11:29 AL** | **Datafile: 160106C11**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	3.67E+08	0.78	Y	1.19	1.13	-5%
12378-PeCDD	32.23	1.58E+09	1.58	Y	1.02	0.99	-2%
123478-HxCDD	36.34	1.51E+09	1.26	Y	1.08	1.04	-4%
123678-HxCDD	36.45	1.48E+09	1.27	Y	1.05	1.05	0%
123789-HxCDD	36.74	1.57E+09	1.26	Y	0.99	0.96	-3%
1234678-HpCDD	40.64	1.17E+09	1.05	Y	1.02	0.97	-5%
OCDD	45.91	2.08E+09	0.89	Y	1.09	1.06	-3%
2378-TCDF	25.47	5.14E+08	0.79	Y	1.09	1.05	-3%
12378-PeCDF	30.67	2.34E+09	1.56	Y	1.03	1.03	0%
23478-PeCDF	31.86	2.32E+09	1.57	Y	1.02	1.02	0%
123478-HxCDF	35.30	2.20E+09	1.25	Y	1.29	1.27	-2%
123678-HxCDF	35.45	2.29E+09	1.25	Y	1.17	1.15	-2%
234678-HxCDF	36.14	2.12E+09	1.24	Y	1.18	1.18	0%
123789-HxCDF	37.11	1.90E+09	1.25	Y	1.18	1.16	-2%
1234678-HpCDF	39.03	1.77E+09	1.03	Y	1.38	1.33	-3%
1234789-HpCDF	41.40	1.42E+09	1.02	Y	1.30	1.27	-2%
OCDF	46.20	2.65E+09	0.91	Y	1.03	1.01	-2%
ES 2378-TCDD	26.41	6.49E+07	0.80	Y	1.06	1.15	8%
ES 12378-PeCDD	32.21	6.33E+07	1.61	Y	0.99	1.12	13%
ES 123478-HxCDD	36.32	5.79E+07	1.28	Y	1.09	1.17	8%
ES 123678-HxCDD	36.44	5.66E+07	1.26	Y	1.10	1.14	5%
ES 123789-HxCDD	36.73	6.53E+07	1.27	Y	1.24	1.32	6%
ES 1234678-HpCDD	40.62	4.81E+07	1.06	Y	0.93	0.97	4%
ES OCDD	45.89	7.83E+07	0.91	Y	0.71	0.79	11%
ES 2378-TCDF	25.45	9.77E+07	0.80	Y	1.02	1.07	5%
ES 12378-PeCDF	30.65	9.11E+07	1.57	Y	0.96	1.00	4%
ES 23478-PeCDF	31.84	9.10E+07	1.57	Y	0.95	1.00	5%
ES 123478-HxCDF	35.28	6.93E+07	0.53	Y	1.32	1.40	6%
ES 123678-HxCDF	35.43	7.97E+07	0.54	Y	1.51	1.61	7%
ES 234678-HxCDF	36.12	7.22E+07	0.52	Y	1.38	1.46	6%
ES 123789-HxCDF	37.09	6.57E+07	0.53	Y	1.25	1.33	6%
ES 1234678-HpCDF	39.01	5.31E+07	0.47	Y	1.03	1.07	5%
ES 1234789-HpCDF	41.39	4.48E+07	0.47	Y	0.87	0.91	4%
ES OCDF	46.18	1.05E+08	0.91	Y	0.92	1.06	15%

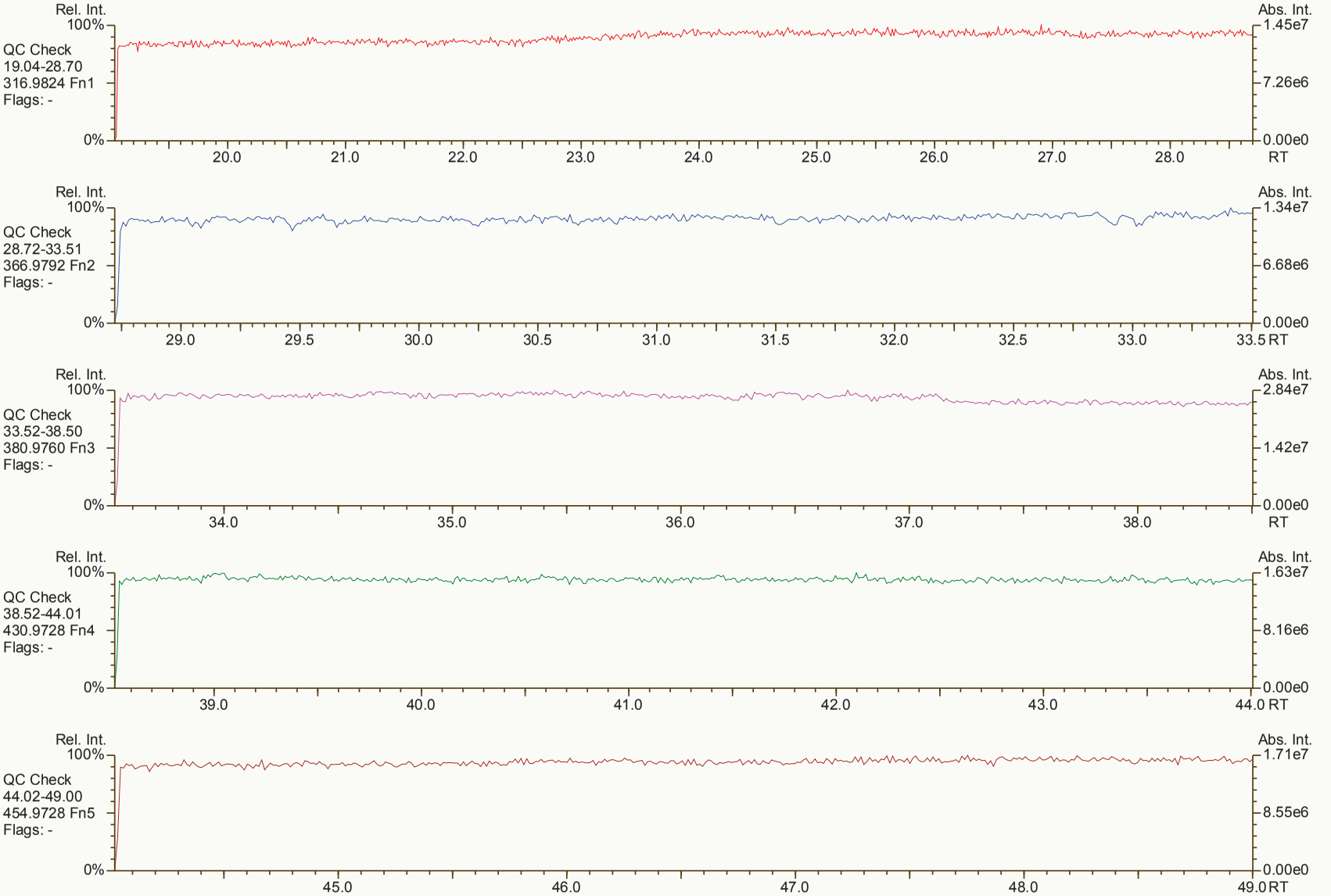
Dioxin/Furan QC Summary | **Acq'd: 07 Jan 2016 00:17 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS6_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 804-666**

Sample ID: SIL 15-105-3 | **Report: 07 Jan 2016 11:29 AL** | **Datafile: 160106C11**

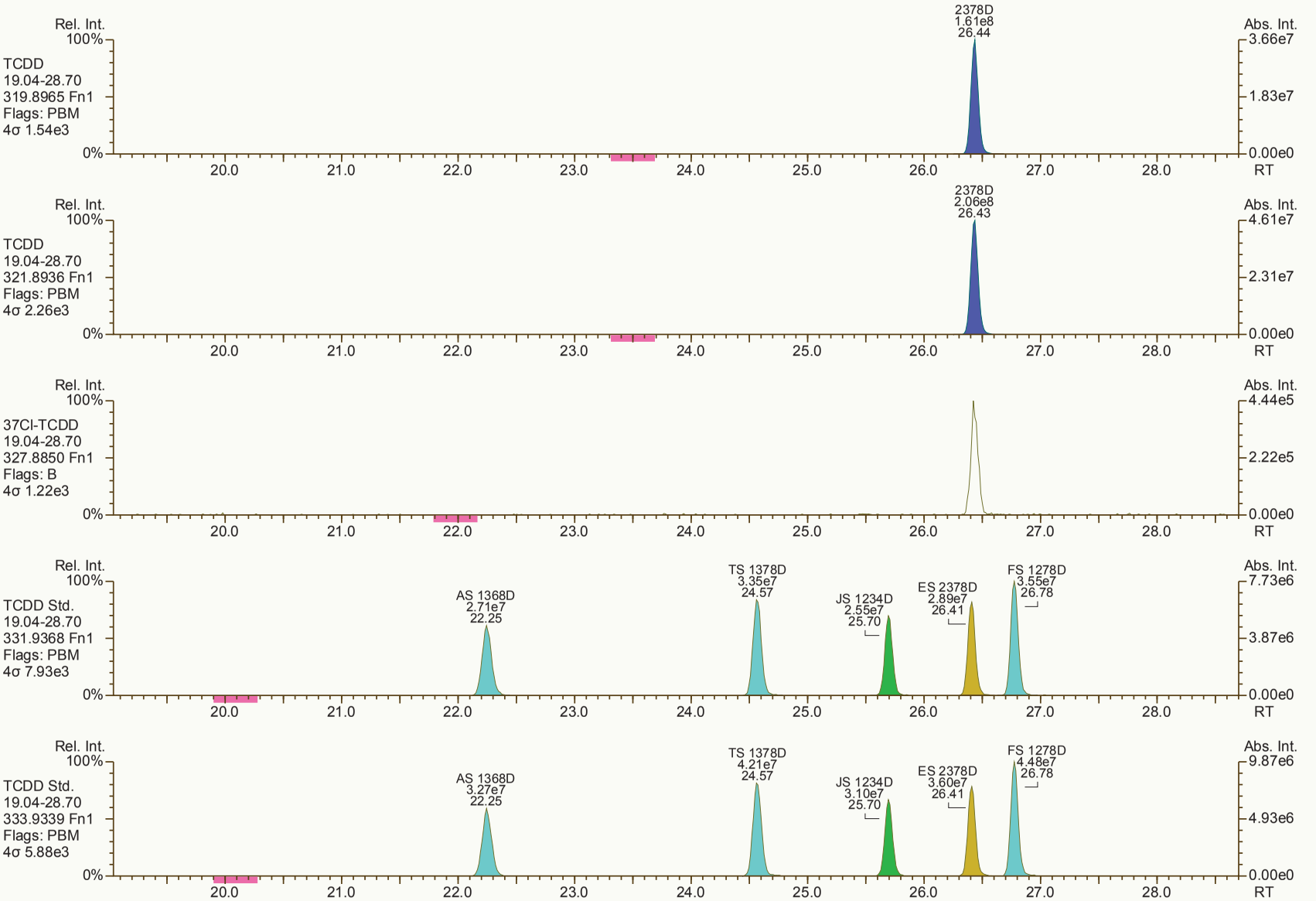
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.64E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.92	9.11E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.63	2.47E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	Not Fnd		n/a	-			
CS 12347-PeCDD	31.68	5.50E+07	1.55	Y	0.94	0.97	4%
CS 12346-PeCDF	30.09	8.37E+07	1.56	Y	0.92	0.92	-1%
CS 123469-HxCDF	35.75	6.66E+07	0.55	Y	1.38	1.35	-2%
CS 1234689-HpCDF	39.67	4.04E+07	0.46	Y	0.88	0.82	-7%
SS 37Cl-2378-TCDD	Not Fnd		n/a	-			
SS 12347-PeCDD	31.68	5.50E+07	1.55	Y	0.94	0.87	-8%
SS 12346-PeCDF	30.09	8.37E+07	1.56	Y	0.96	0.92	-4%
SS 123469-HxCDF	35.75	6.66E+07	0.55	Y	0.92	0.84	-9%
SS 1234689-HpCDF	39.67	4.04E+07	0.46	Y	0.86	0.76	-12%
AS 1368-TCDD	22.25	5.98E+07	0.83	Y	1.05	1.06	1%
AS 1368-TCDF	20.14	1.25E+08	0.80	Y	1.40	1.37	-2%
FS 1278-TCDD	26.78	8.03E+07	0.79	Y	1.28	1.24	-4%
FS 12478-PeCDD	30.91	6.35E+07	1.63	Y	1.11	1.00	-10%
FS 123468-HxCDD	35.22	7.07E+07	1.26	Y	1.36	1.22	-10%
FS 1234679-HpCDD	39.45	5.52E+07	1.09	Y	1.30	1.15	-12%
TS 1378-TCDD	24.57	7.56E+07	0.80	Y	1.21	1.17	-4%
OCDD-a	45.90	1.30E+08	2.42	Y	0.07	0.07	-1%
OCDF-a	46.20	1.61E+08	2.51	Y	0.06	0.06	-3%

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



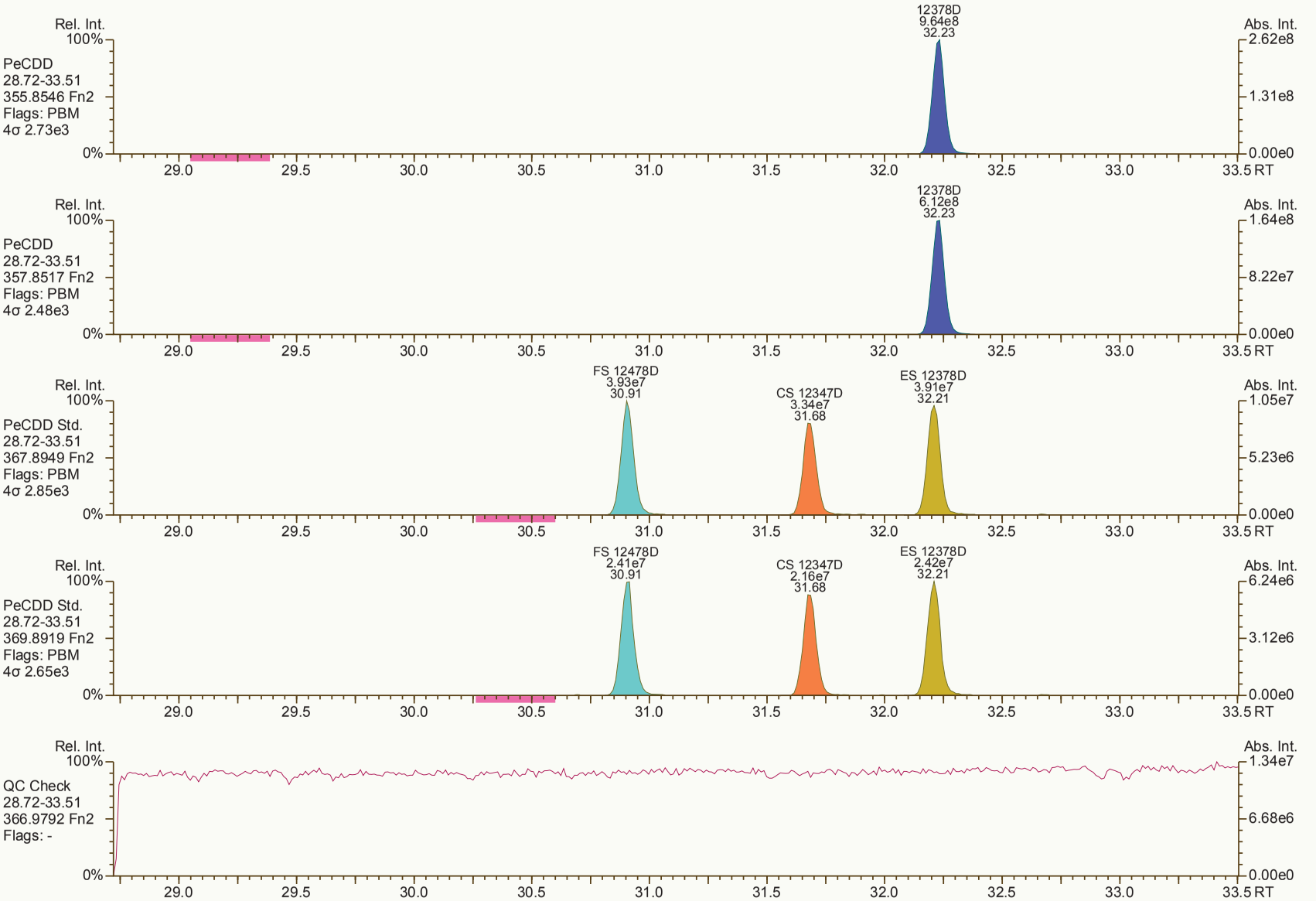
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 804-666 | *PKD: n/a Printed: 07-Jan-2016 11:31 Page 1 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3030, 7612, 7241 scc: 804-666 *Revised: 07-Jan-2016 10:40 (ARL) Printed: 07-Jan-2016 11:31 Page 2 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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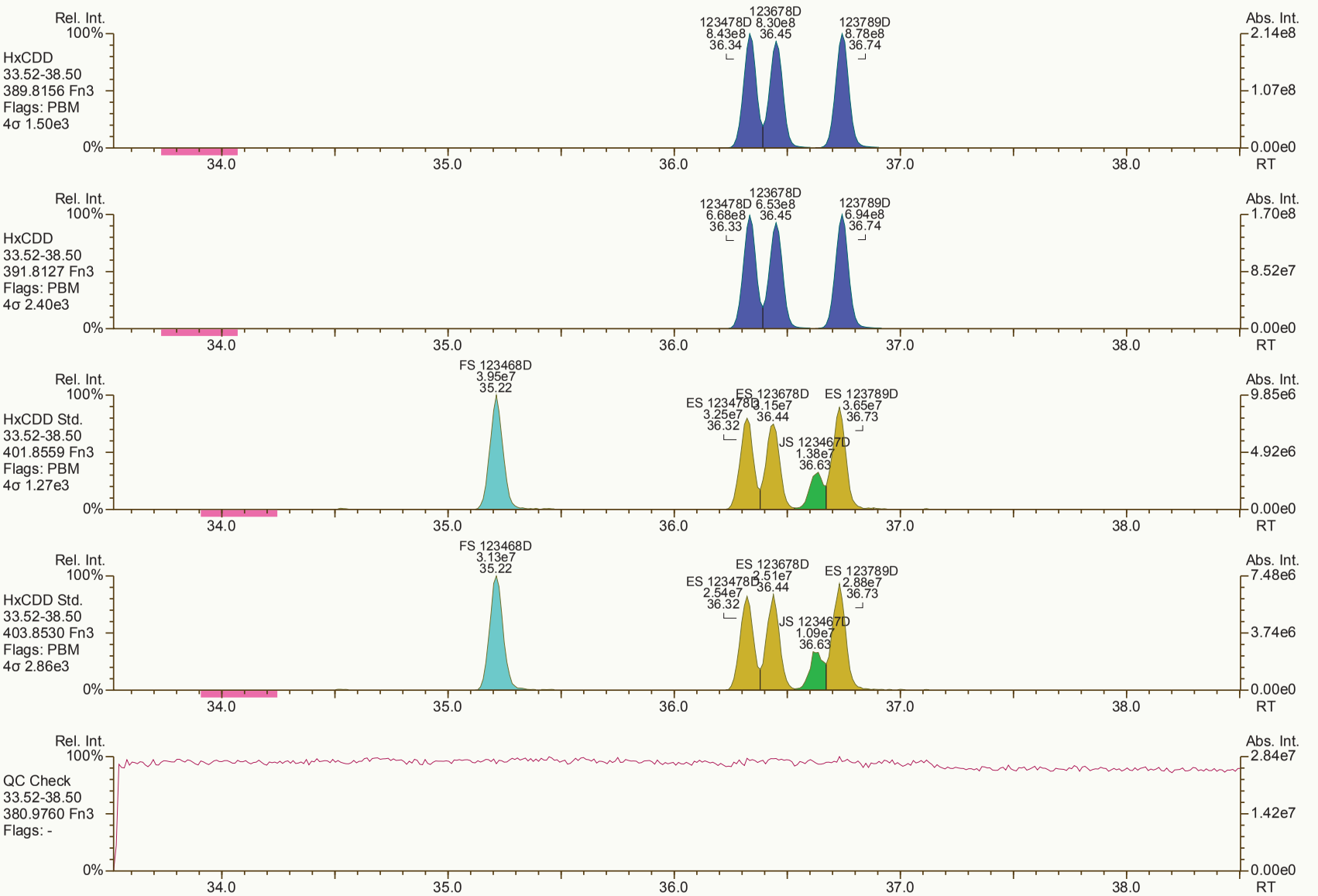
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2994, 3437 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 3 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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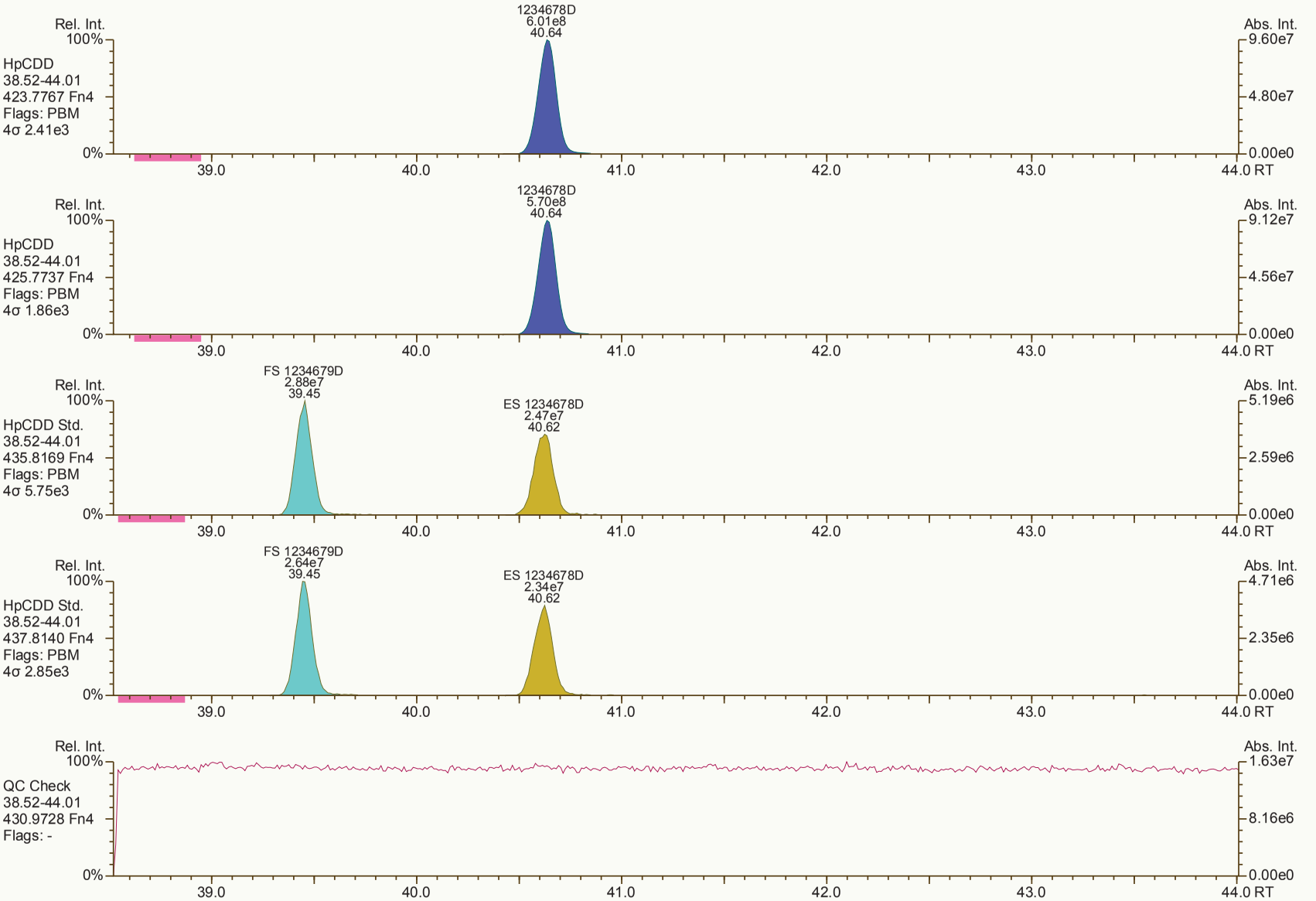
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1368, 6040 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 4 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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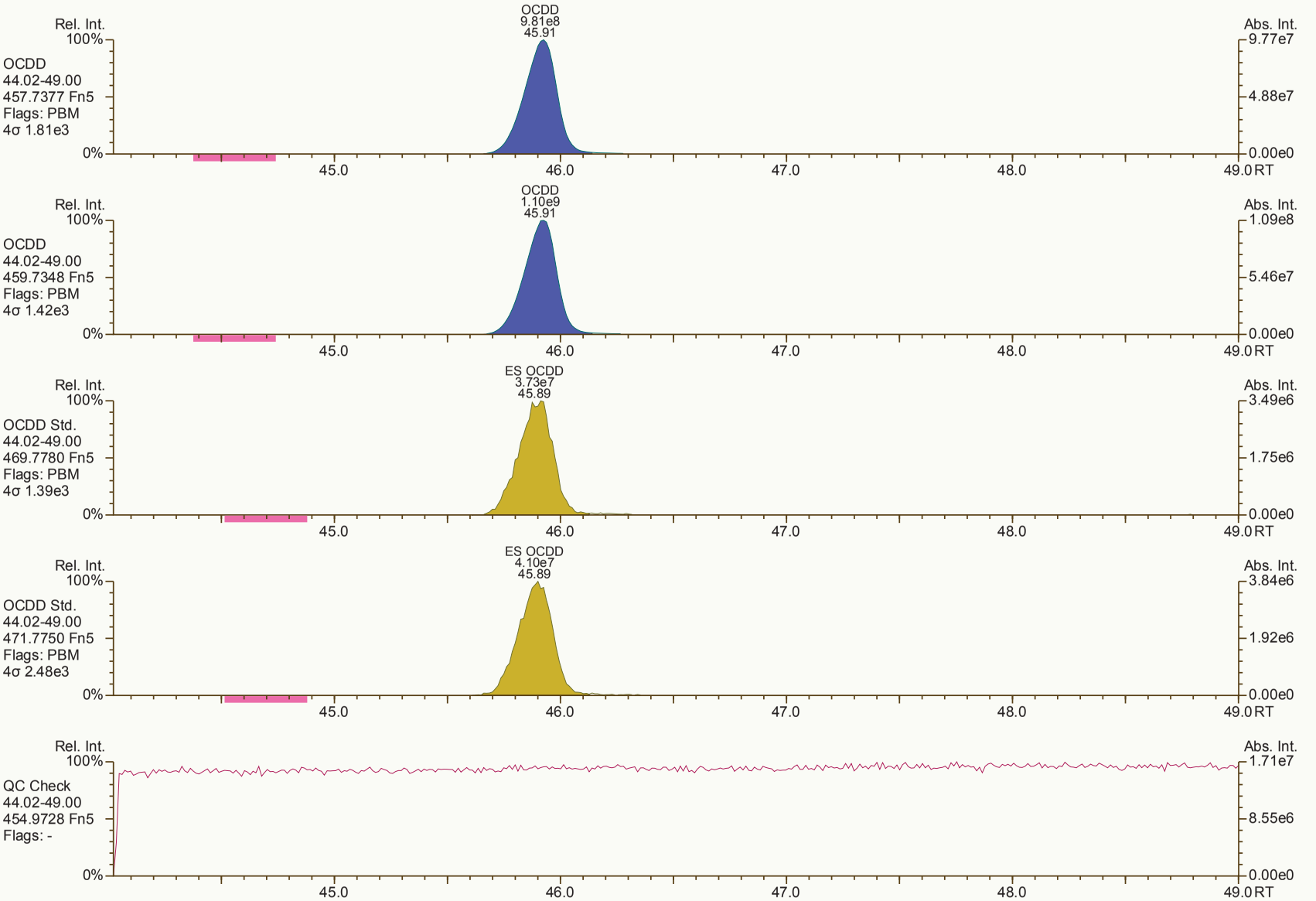
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1811, 2285 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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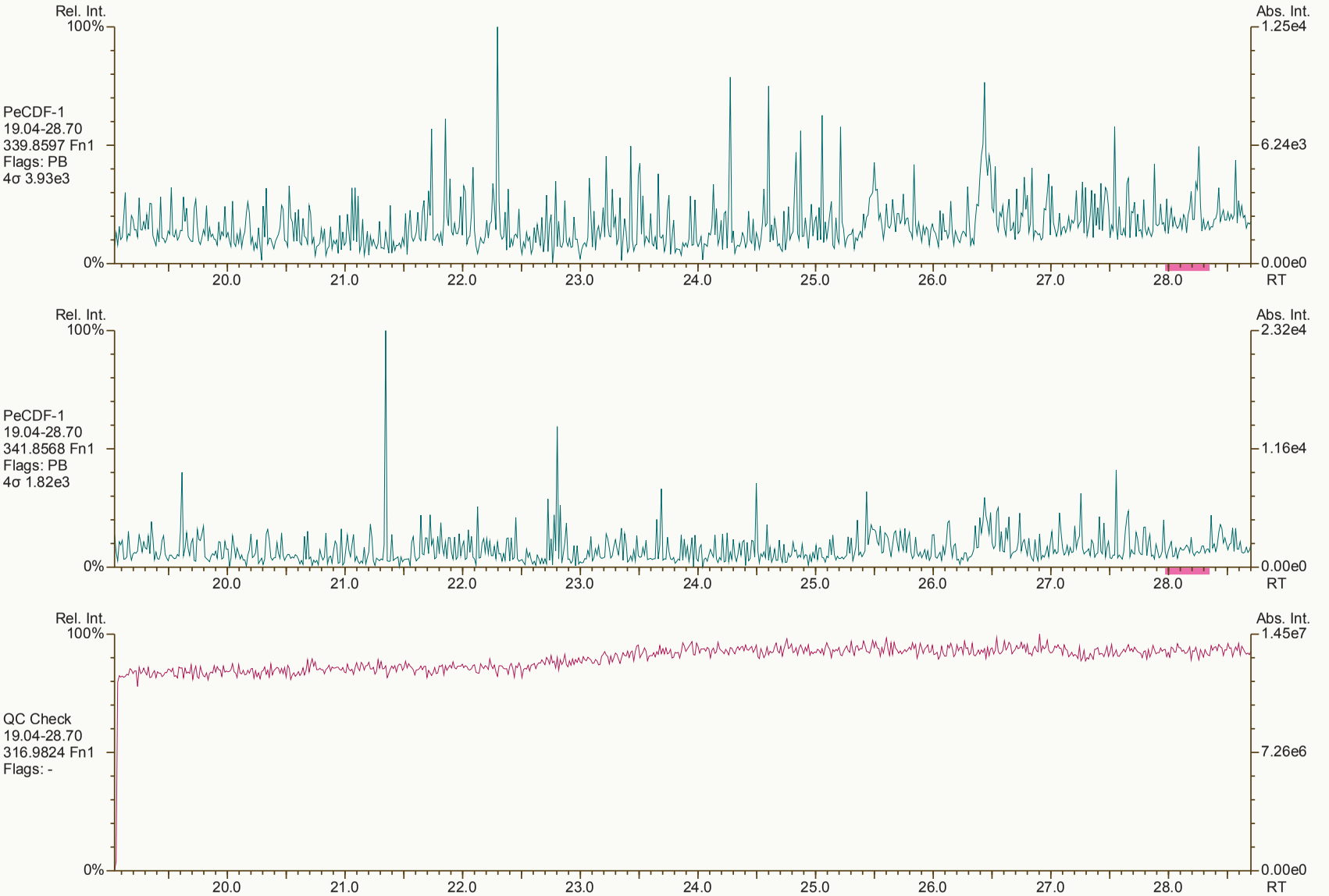
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7359, 5704 scc: 804-666 *Revised: 07-Jan-2016 09:55 (ARL) Printed: 07-Jan-2016 11:31 Page 6 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) — *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5584, 6848, 2304 scc: 804-666 — *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS6_160106_CA **Sample ID: SIL 15-105-3** **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** **User: ARL Datafile: 160106C11**



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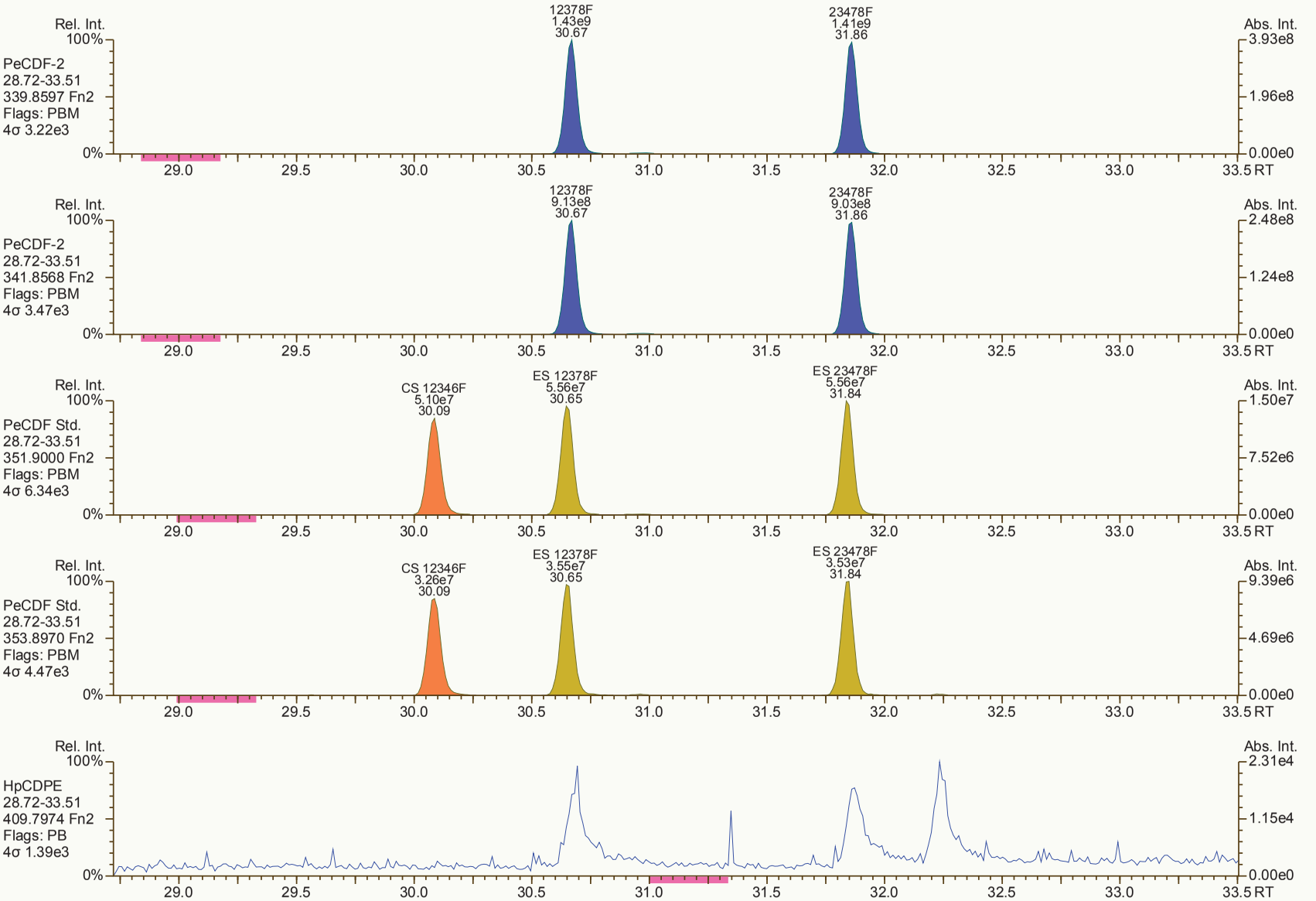
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8676 scc: 804-666 *PKD: 07-Jan-2016 09:49 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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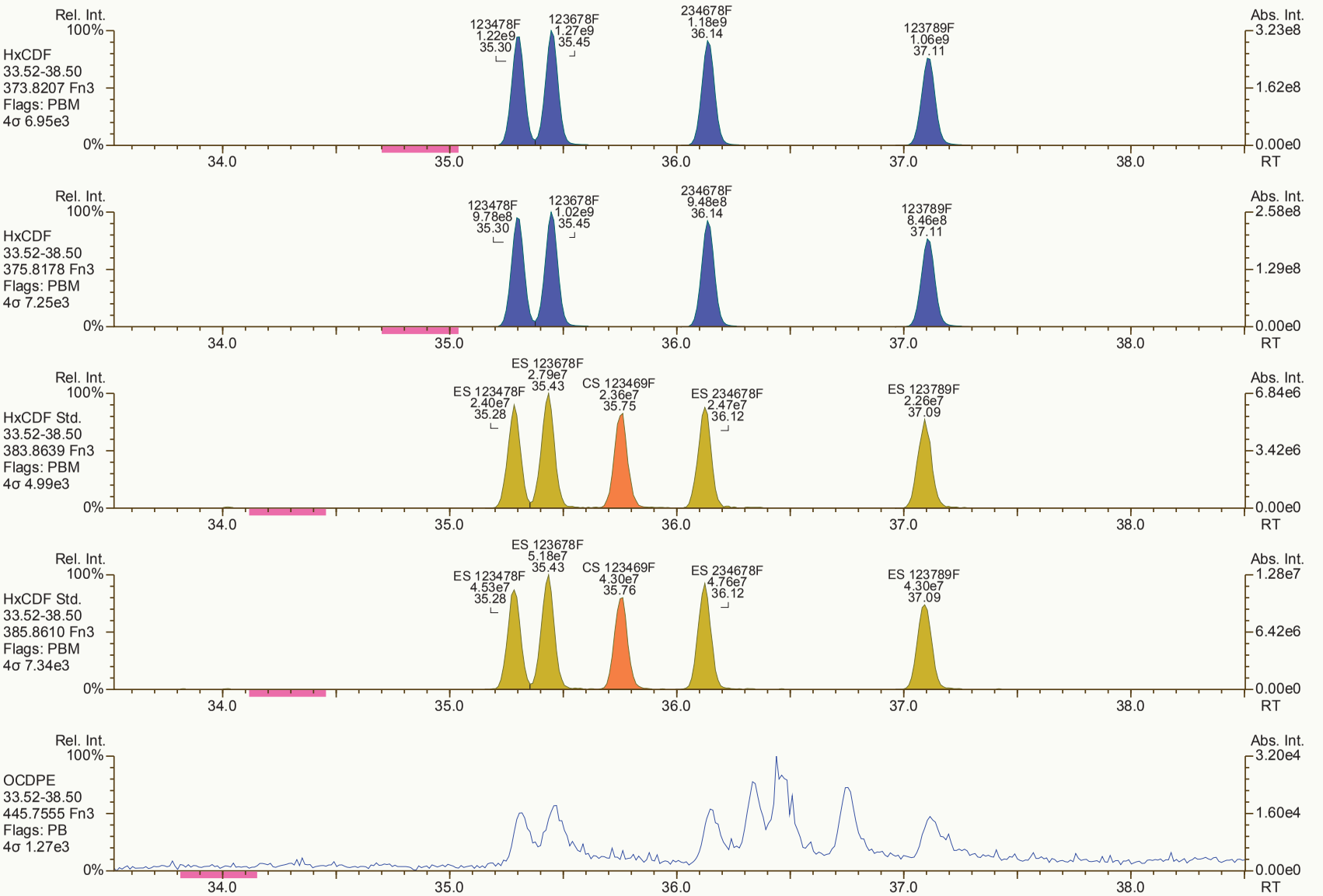
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7759, 6904, 7407 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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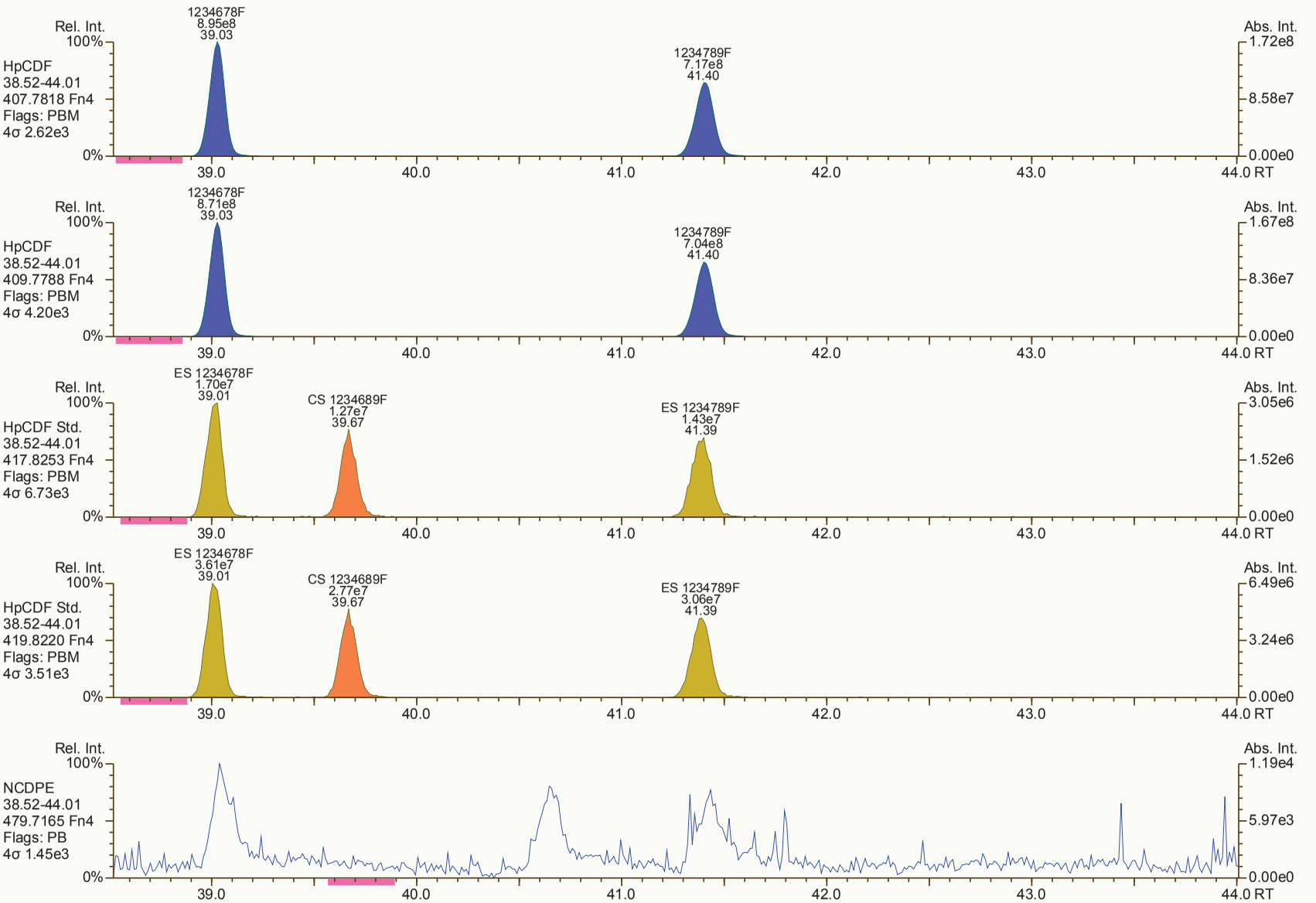
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2541, 5320, 0843 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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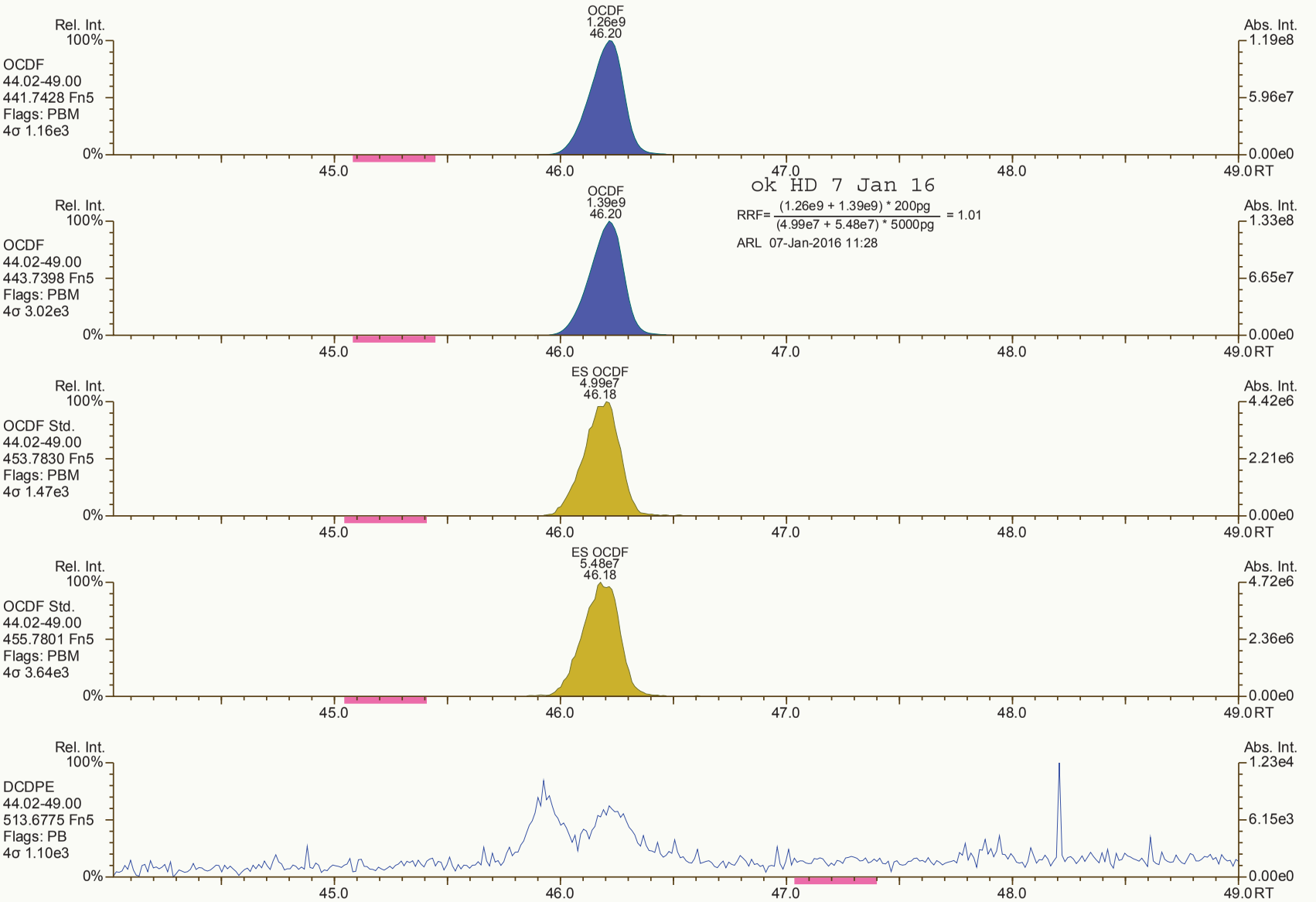
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9766, 2990, 6530 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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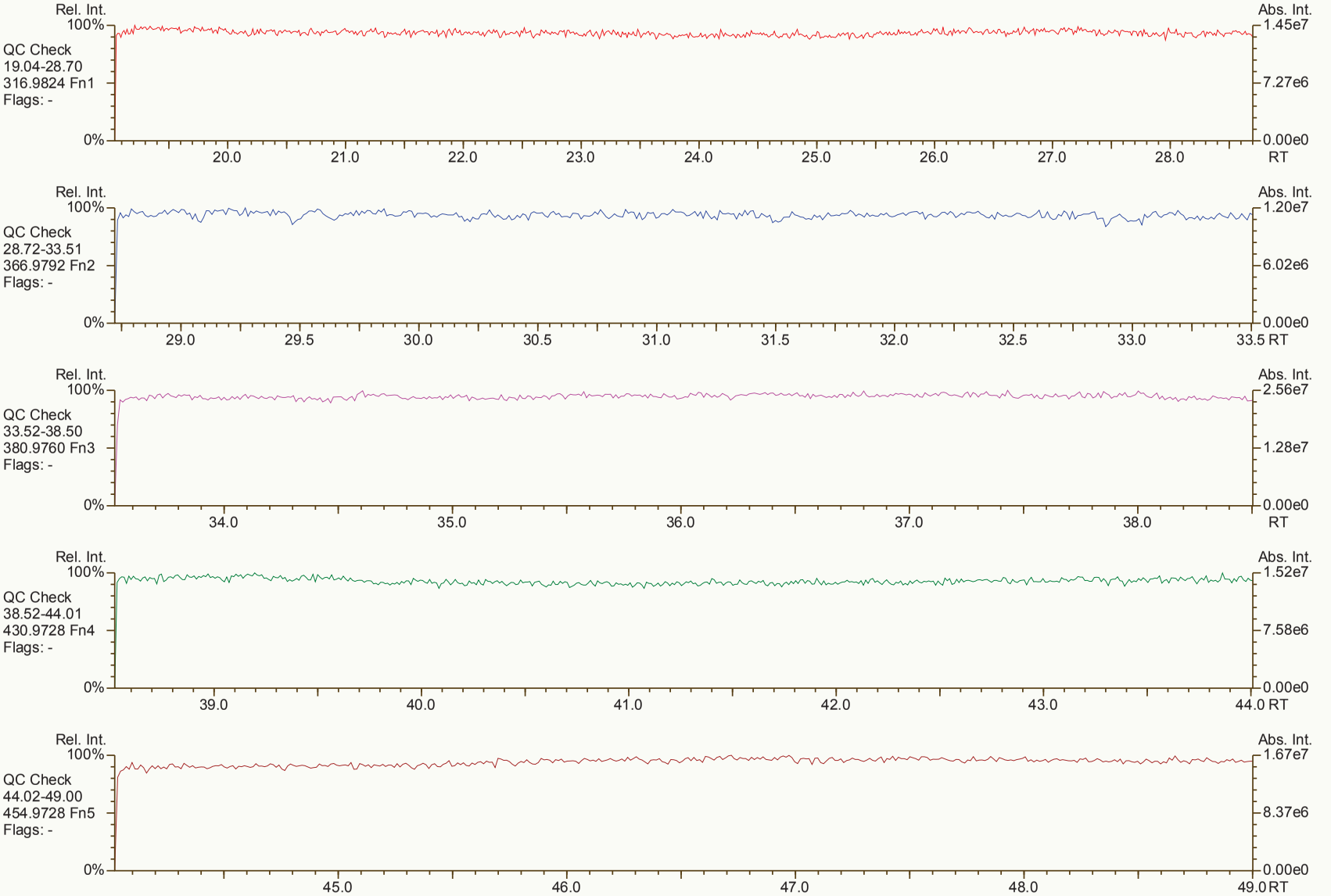
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8429, 3879, 8613 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 12 of 12*

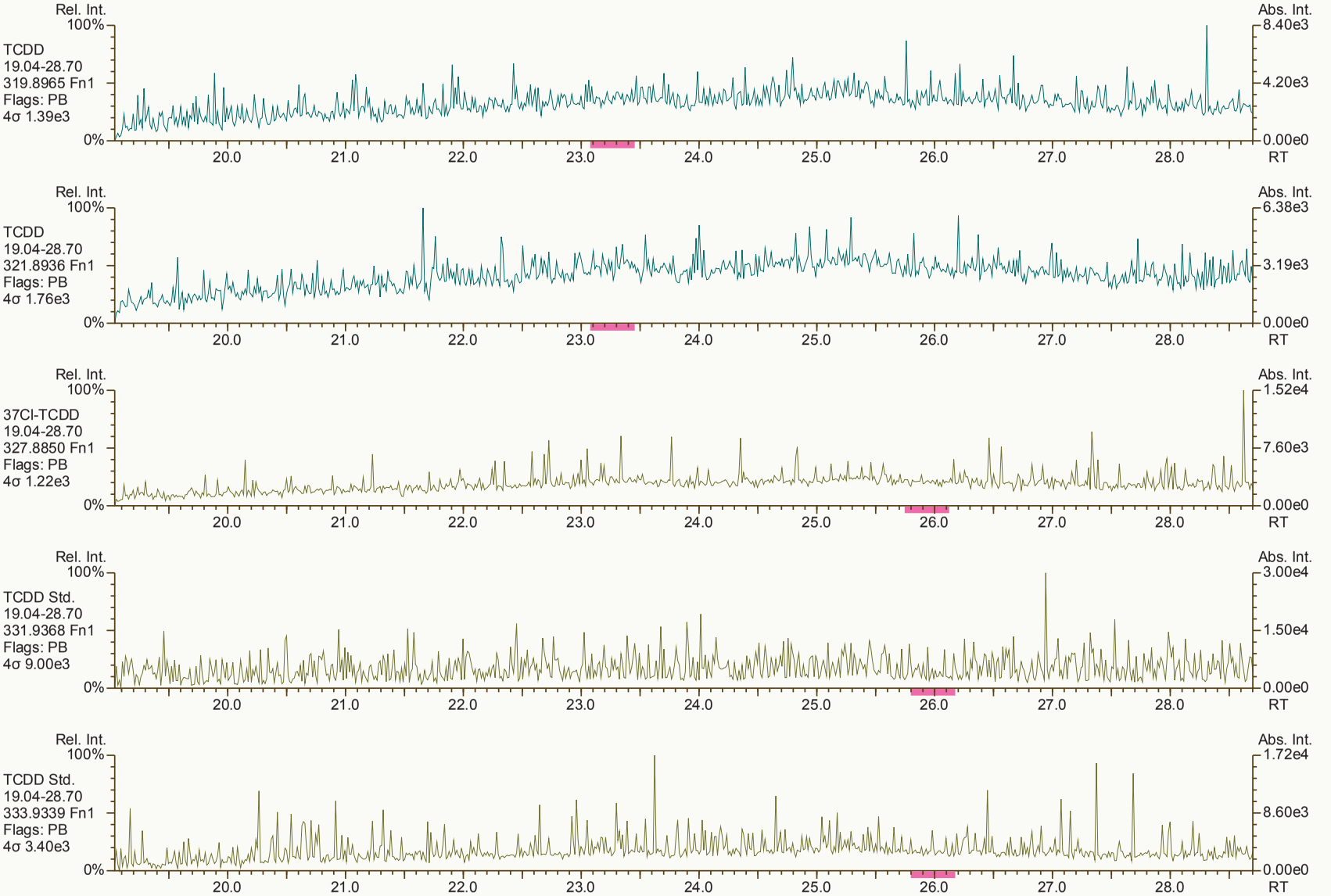
SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 152-729 | *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4005, 8299, 5345 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2860, 2558 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5568, 9339 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 4 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4227, 7341 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6446, 1639 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 6 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1385, 8643, 4959 scc: 152-729 *Revised: 07-Jan-2016 09:10 (ARL) Printed: 07-Jan-2016 11:29 Page 7 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1158 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 8 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7534, 7061, 1597 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 9 of 12*

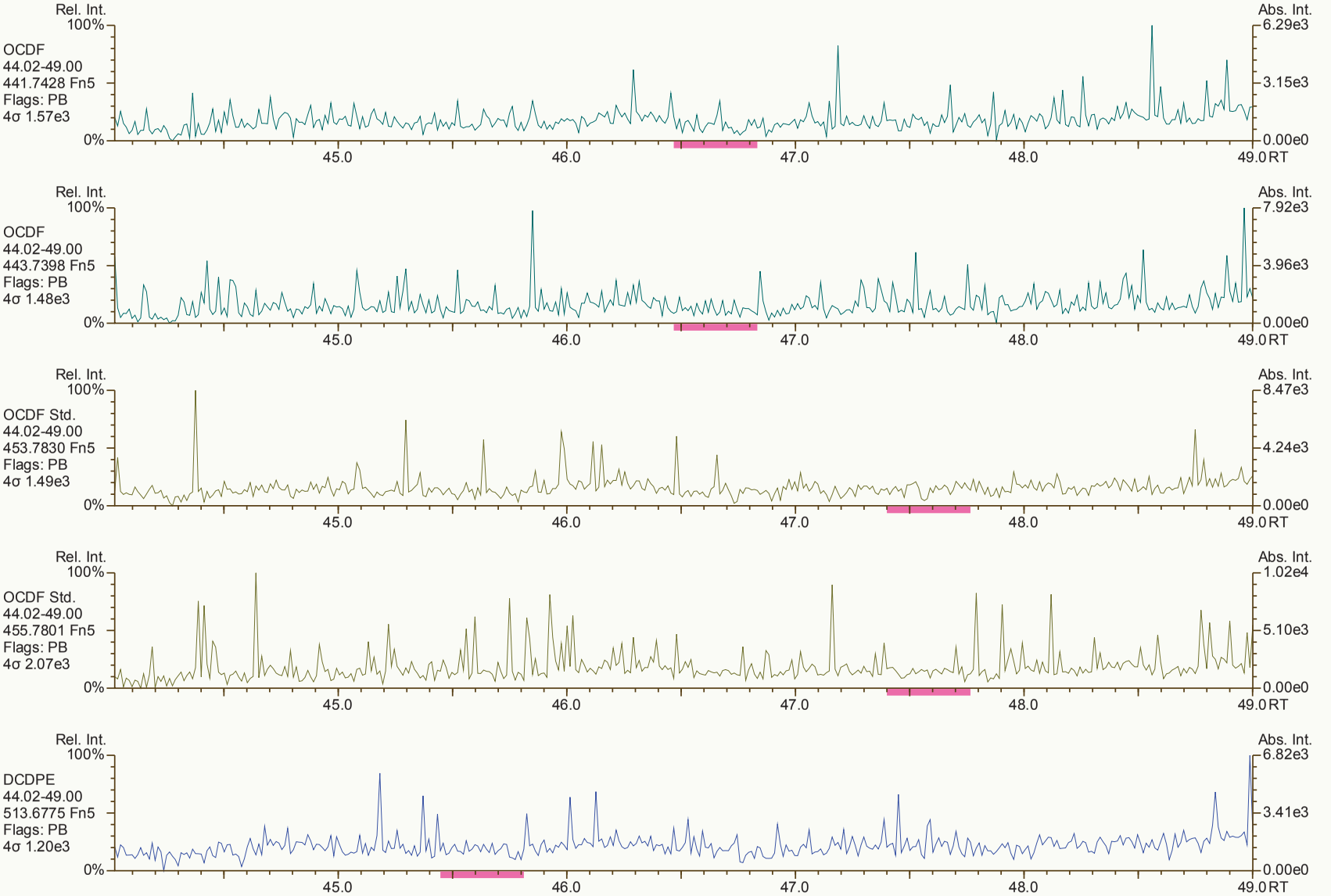
SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0586, 0533, 7908 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 10 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6278, 3765, 1758 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 11 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6907, 6593, 3757 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 12 of 12*

Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, January 06, 2016 18:11:40 Eastern Standard Time

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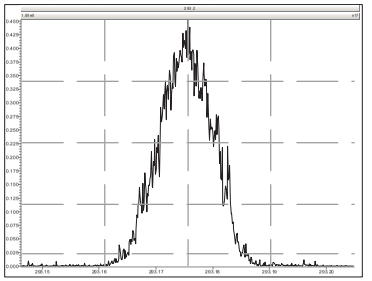
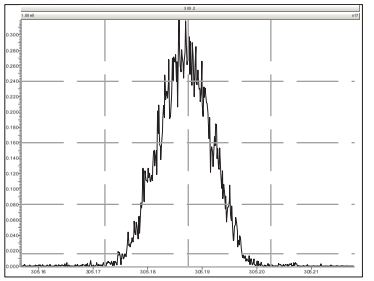


M 304.9824 R 13940



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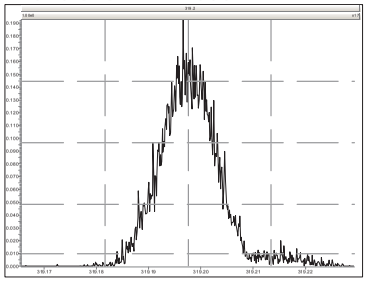

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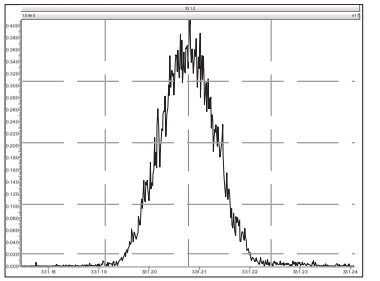

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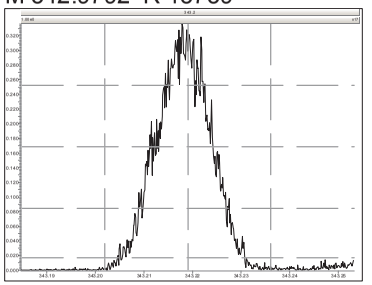

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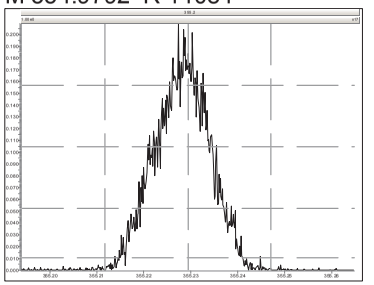
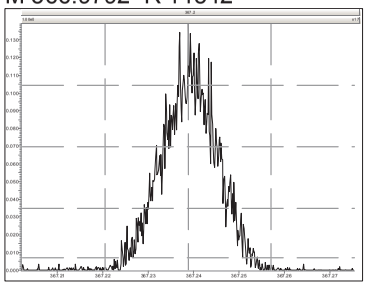
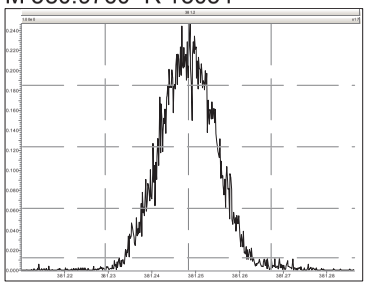


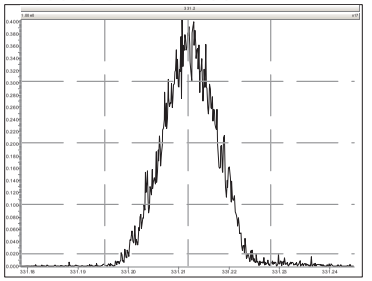
M 366.9792 R 14542



M 380.9760 R 13054



M 330.9792 R 14085



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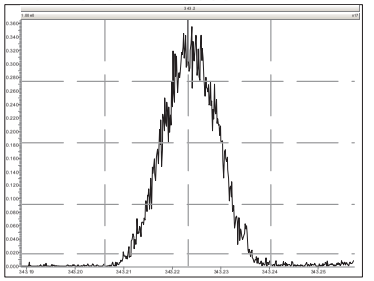

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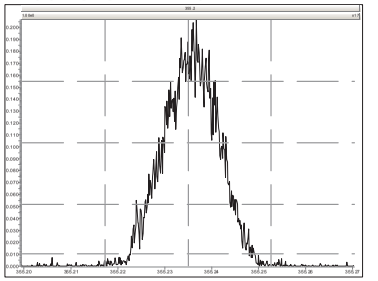
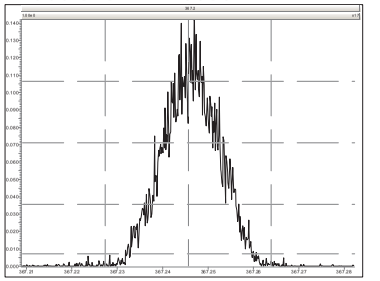


M 366.9792 R 13890



Resolution Check Report **MassLynx 4.1**

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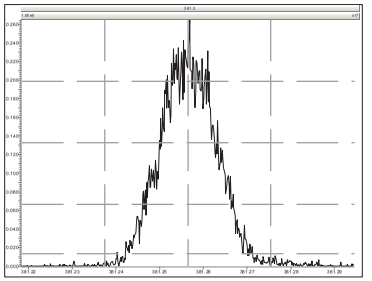

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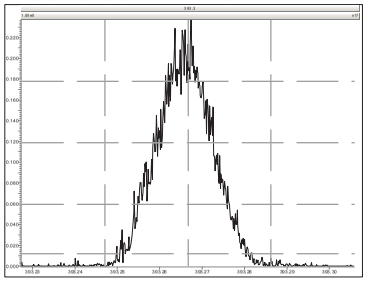

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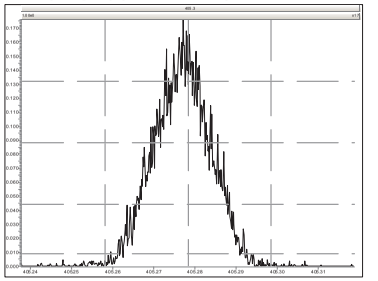

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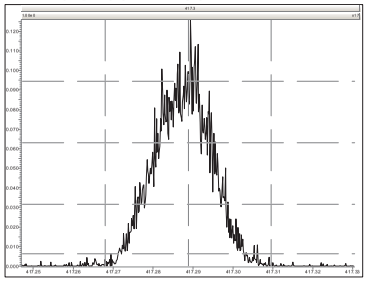

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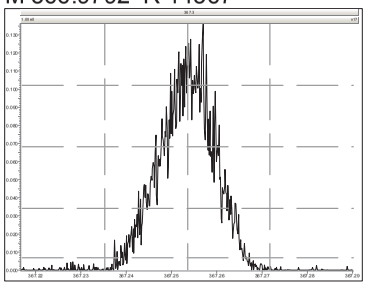

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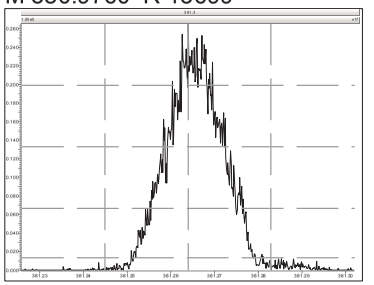

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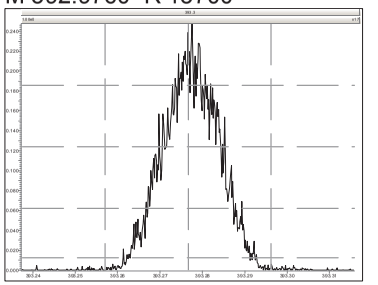

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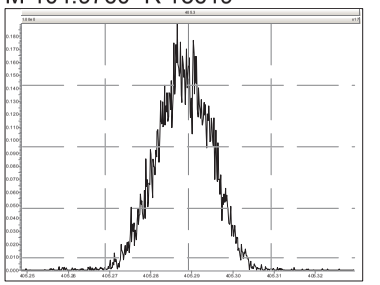

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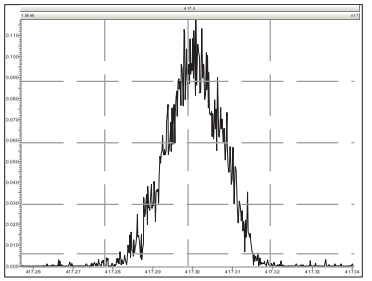
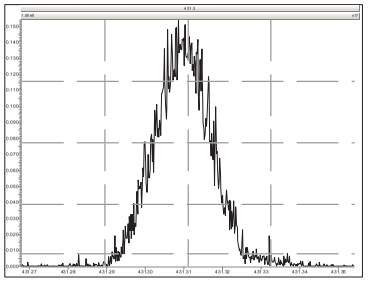


M 430.9728 R 13557



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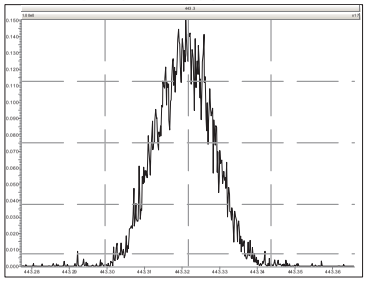
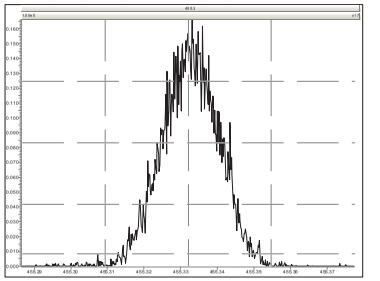


M 454.9728 R 13549



Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, January 06, 2016 18:11:40 Eastern Standard Time

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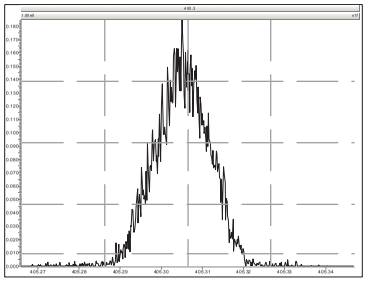

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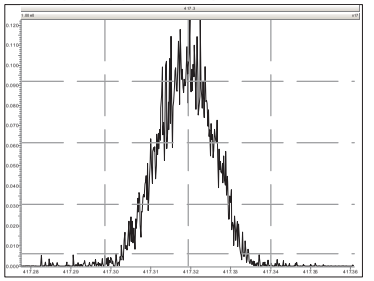
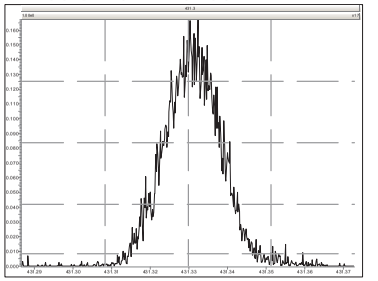
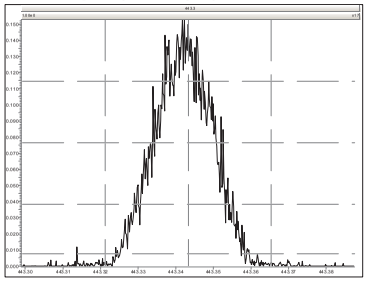


M 430.9728 R 13158



M 442.9728 R 13262



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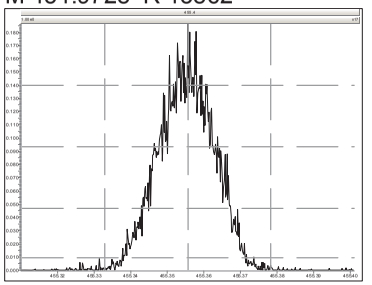

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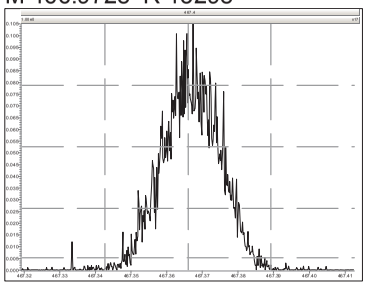

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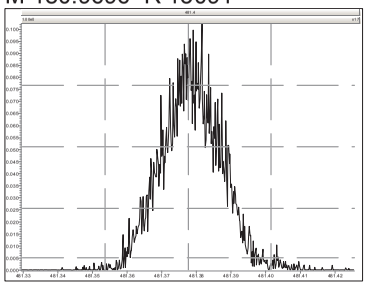
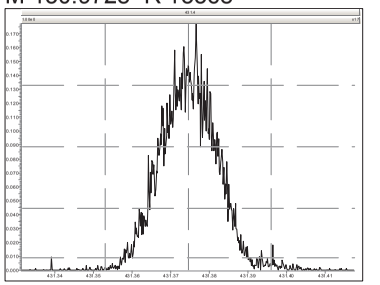


M 430.9728 R 13368



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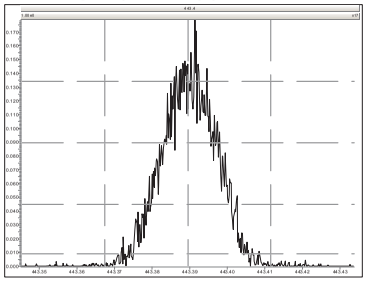

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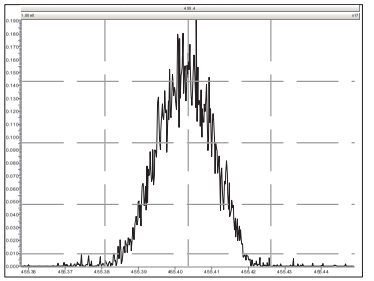

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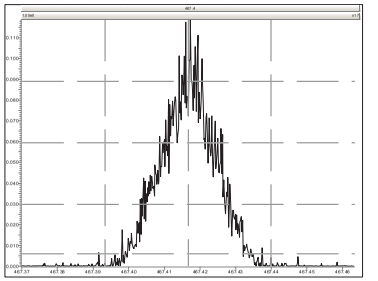

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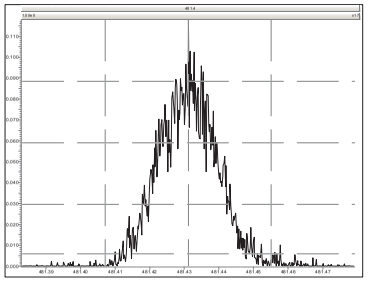

Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, January 06, 2016 18:11:40 Eastern Standard Time

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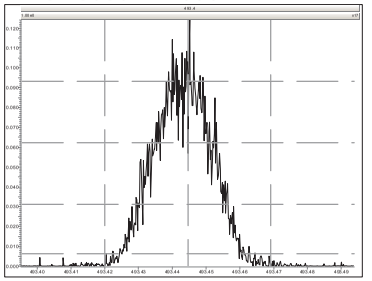

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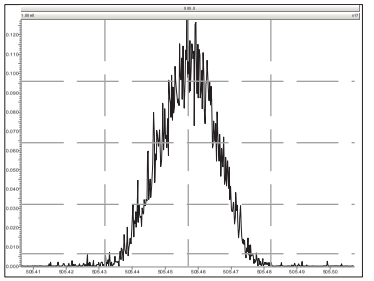

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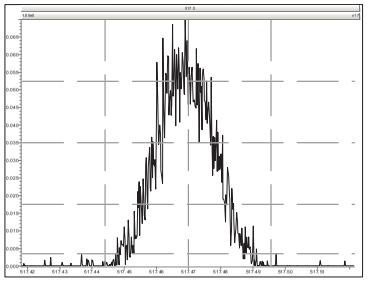

Resolution Check Report **MassLynx 4.1**

Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

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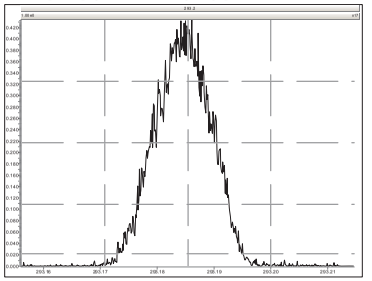

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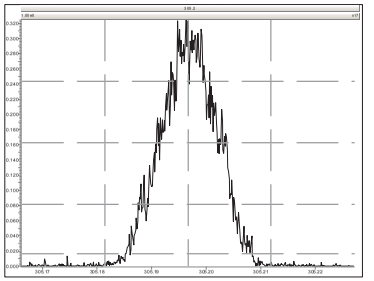

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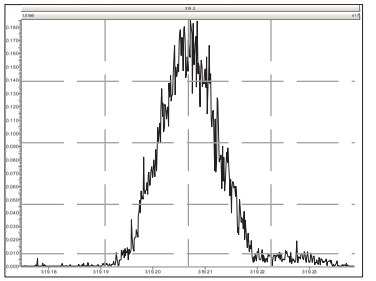
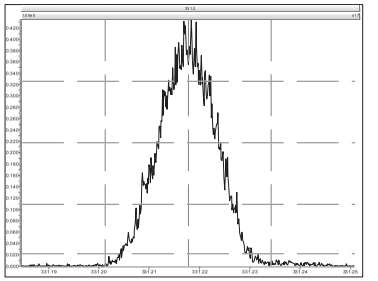
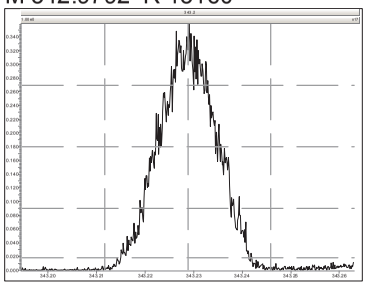


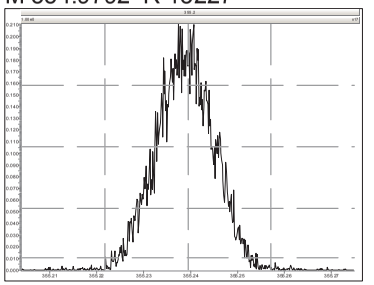
M 330.9792 R 13194



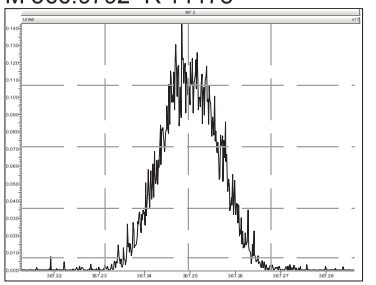
M 342.9792 R 13160



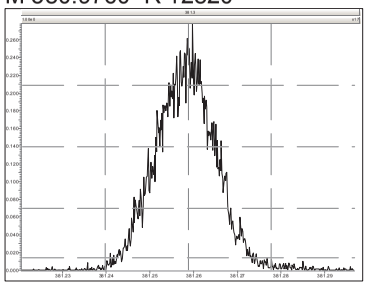
M 354.9792 R 13227



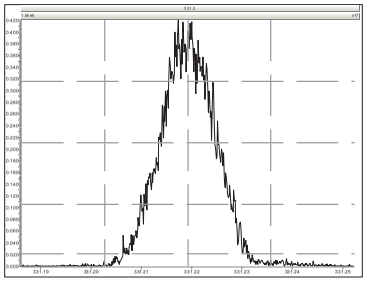
M 366.9792 R 14178



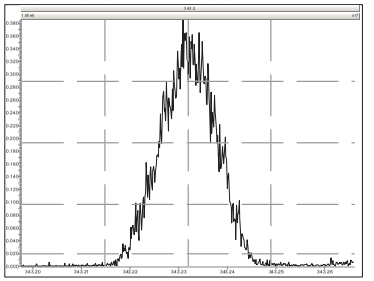
M 380.9760 R 12820



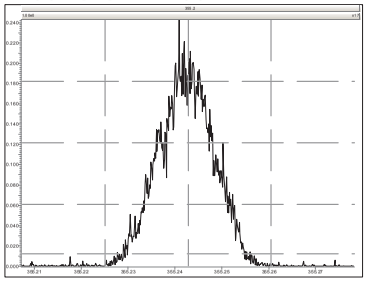
M 330.9792 R 13590



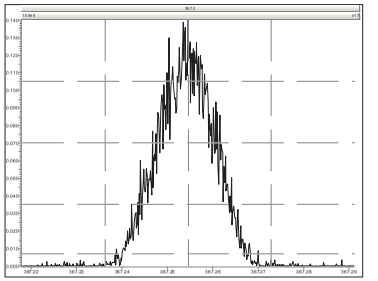
M 342.9792 R 13700



M 354.9792 R 13527



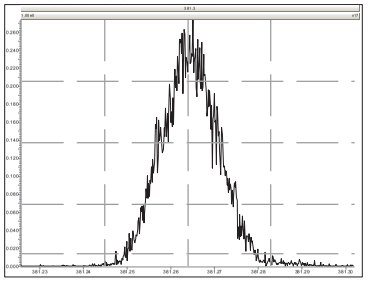
M 366.9792 R 13514



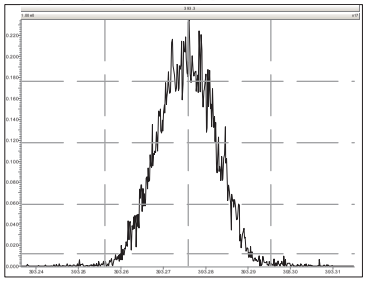
Resolution Check Report **MassLynx 4.1**

Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

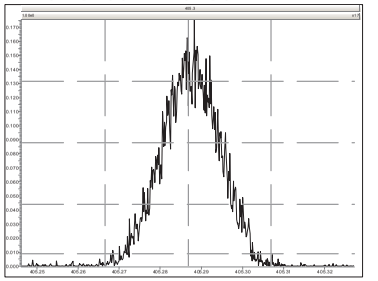
M 380.9760 R 13196



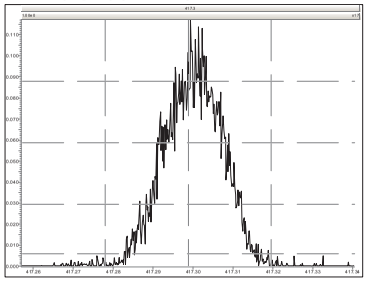
M 392.9760 R 12991



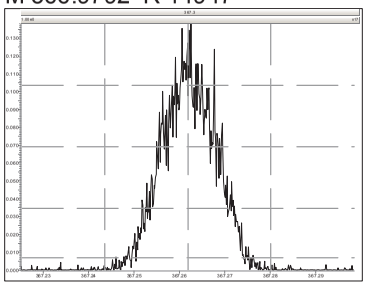
M 404.9760 R 13196



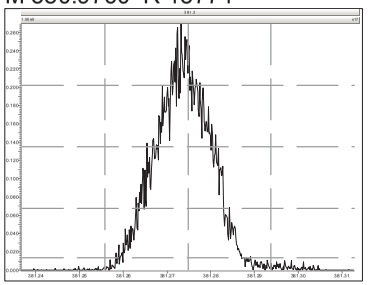
M 416.9760 R 13441



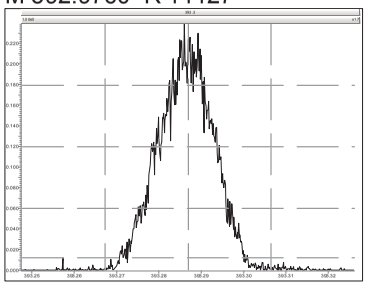
M 366.9792 R 14947



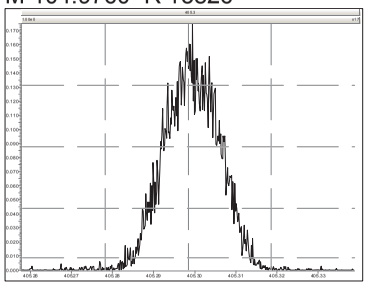
M 380.9760 R 13774



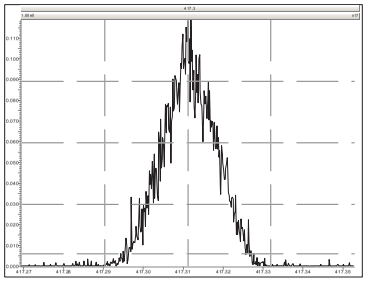
M 392.9760 R 14127



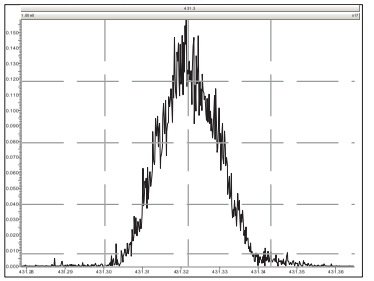
M 404.9760 R 13826



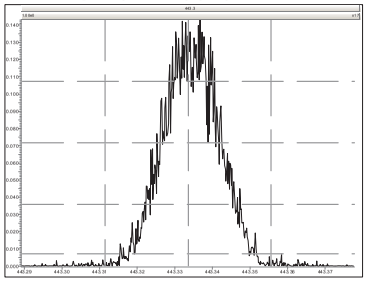
M 416.9760 R 13552



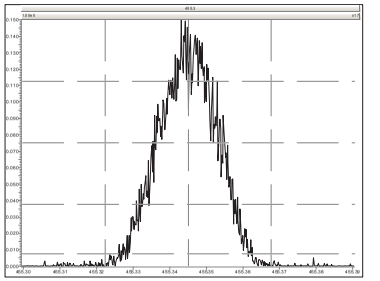
M 430.9728 R 12923



M 442.9728 R 13316



M 454.9728 R 13094



Resolution Check Report **MassLynx 4.1**

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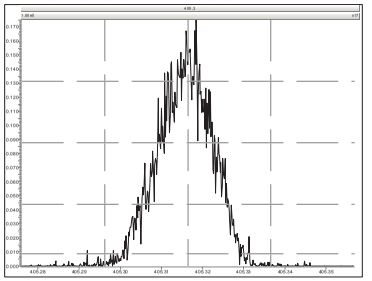
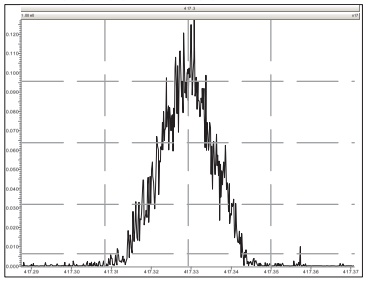
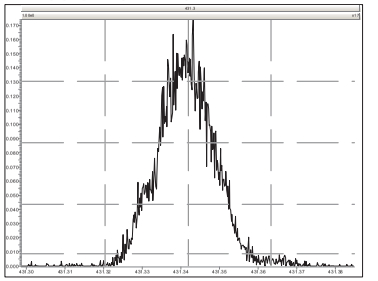


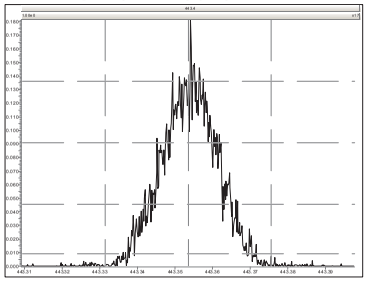
M 416.9760 R 14391



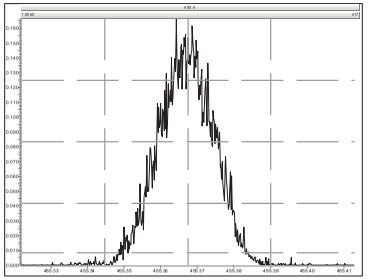
M 430.9728 R 13479



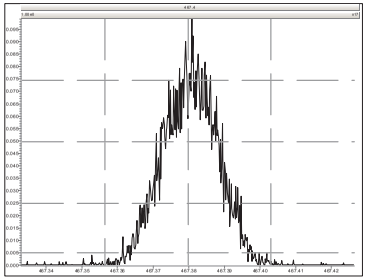
M 442.9728 R 13623



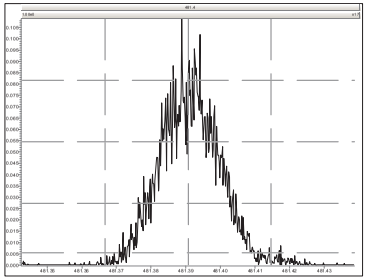
M 454.9728 R 13227



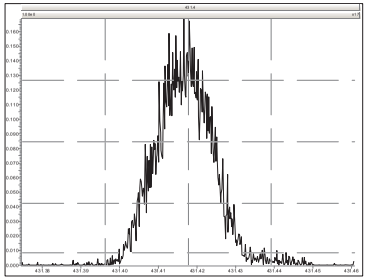
M 466.9728 R 14204



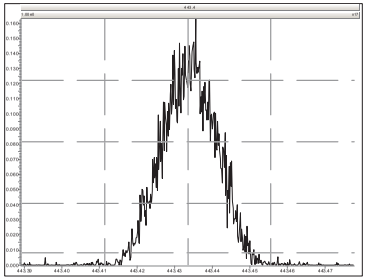
M 480.9696 R 13194



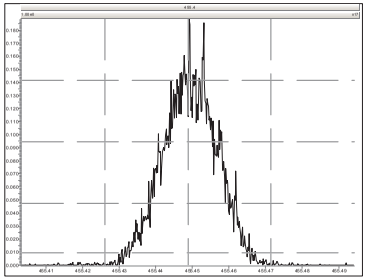
M 430.9728 R 13311



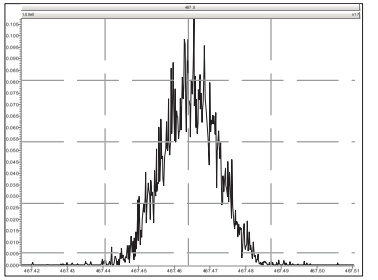
M 442.9728 R 14534



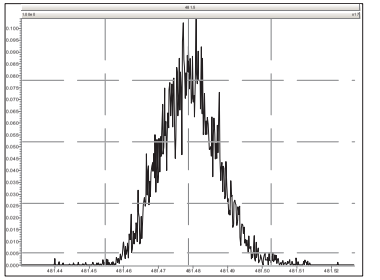
M 454.9728 R 14085



M 466.9728 R 15246



M 480.9696 R 14018



Resolution Check Report **MassLynx 4.1**

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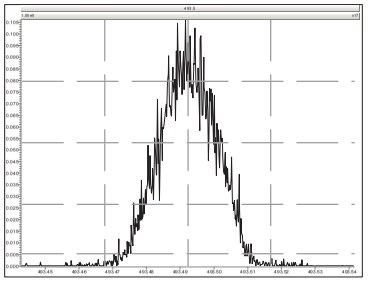
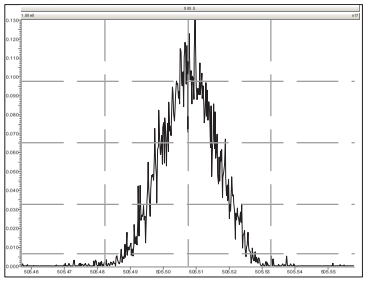
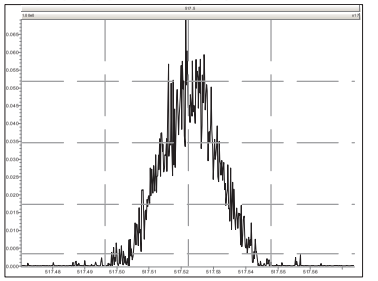
M 492.9696 R 14006



M 504.9696 R 13670



M 516.9697 R 14340



Lab ID: OPR1_14501_DF | Acq'd: 24 Nov 2016 00:38 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14501_OPR001 | UTP: 28-Nov-2016 13:34:56 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 391-017-CYD

Datafile: 161124P02 | Report: 28 Nov 2016 13:51 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.41		1.0009	1.0008	-0.2	4.94E+06	0.78	Y	1.19	8.99	2787	0.0581

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.39	1.0253	1.0255	+0.3	4.63E+07	0.77	Y	1.06	84

REVIEWED
By Amber Kornegay at 1:26 pm, Nov 30, 2016

Lab ID: OPR1_14501_DF | Acq'd: 24 Nov 2016 00:38 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14501_OPR001 | UTP: 28-Nov-2016 13:34:56 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 391-017-CYD

Datafile: 161124P02 | Report: 28 Nov 2016 13:51 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.71		-	-	-	5.18E+07	0.80	Y	-	-
JS 123467-HxCDD	37.28		-	-	-	2.02E+07	1.29	Y	-	-
CS 37Cl-2378-TCDD	27.41		1.0261	1.0263	+0.3	2.06E+07	n/a	-	1.24	80.1

Totals	Conc	EMPC
Total TCDD	41.9	41.9

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.77	0.78
Response	4.95E+06	4.94E+06

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161124P02	Analysis Date:	24-NOV-2016 00:38:17
Lab ID:	OPR1_14501_DF		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	8.99	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 28 Nov 2016 13:51 Analyst: pw

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161124P02	Analysis Date:	24-NOV-2016 00:38:17
Lab ID:	OPR1_14501_DF		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	84	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	32	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 28 Nov 2016 13:51 Analyst: pw

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
CPSM Data Filename:	161124P02	Analysis Date:	24-NOV-2016 00:38:17
Lab ID:	OPR1_14501_DF		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.53	1289-TCDD	28.44

Isomer Specificity Test Standard Results

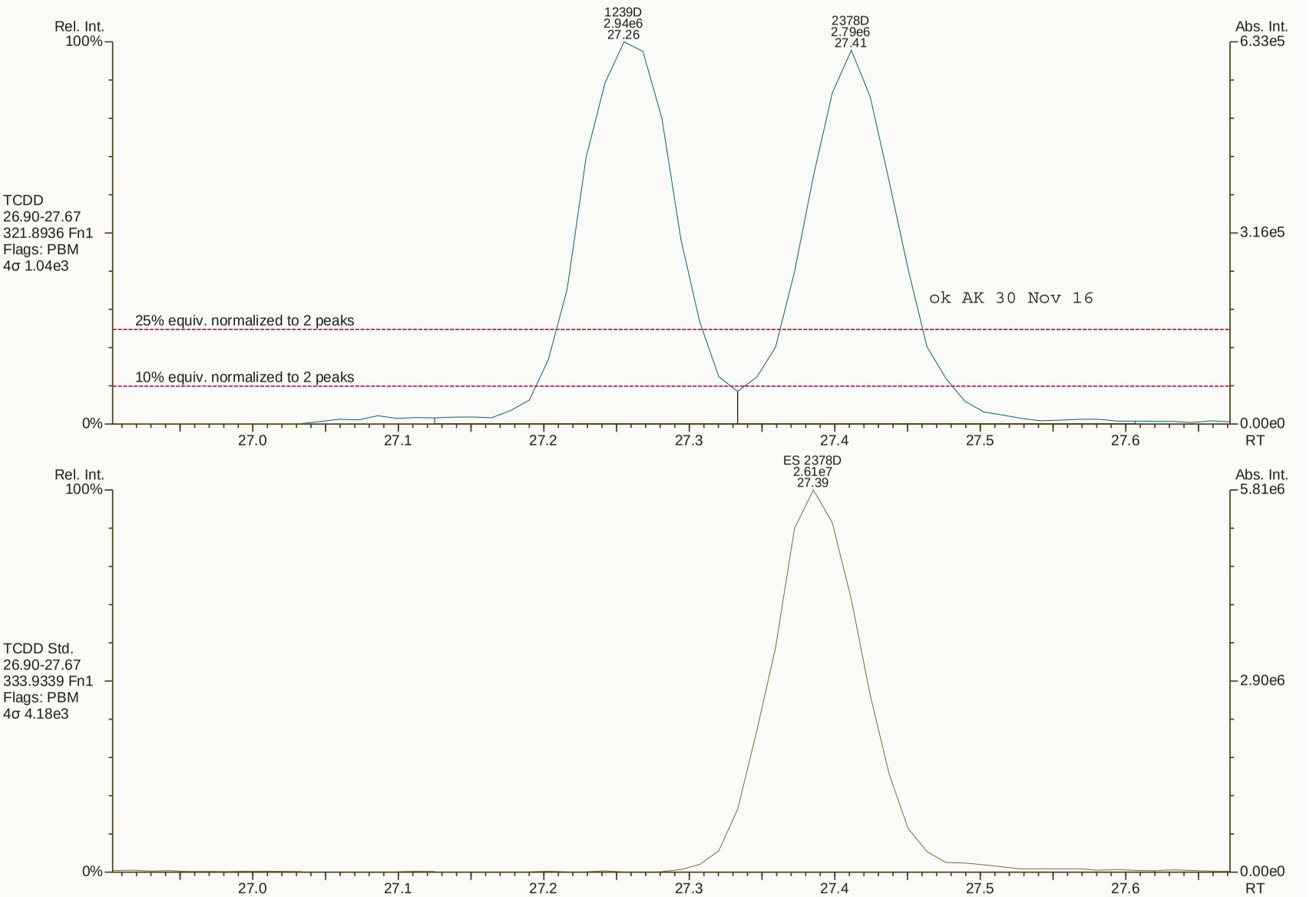
Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	27.26	2378-TCDD	27.41

Processed: 28 Nov 2016 13:51 Analyst: pw

SGS ID: OPR1_14501_DF
Instr: [ILM] AutoSpec-Ultima HRMS3

Sample ID: 0_14501_OPR001
VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 16

Acq: 24-Nov-2016 00:38:17
User: ARL Datafile: 161124P02



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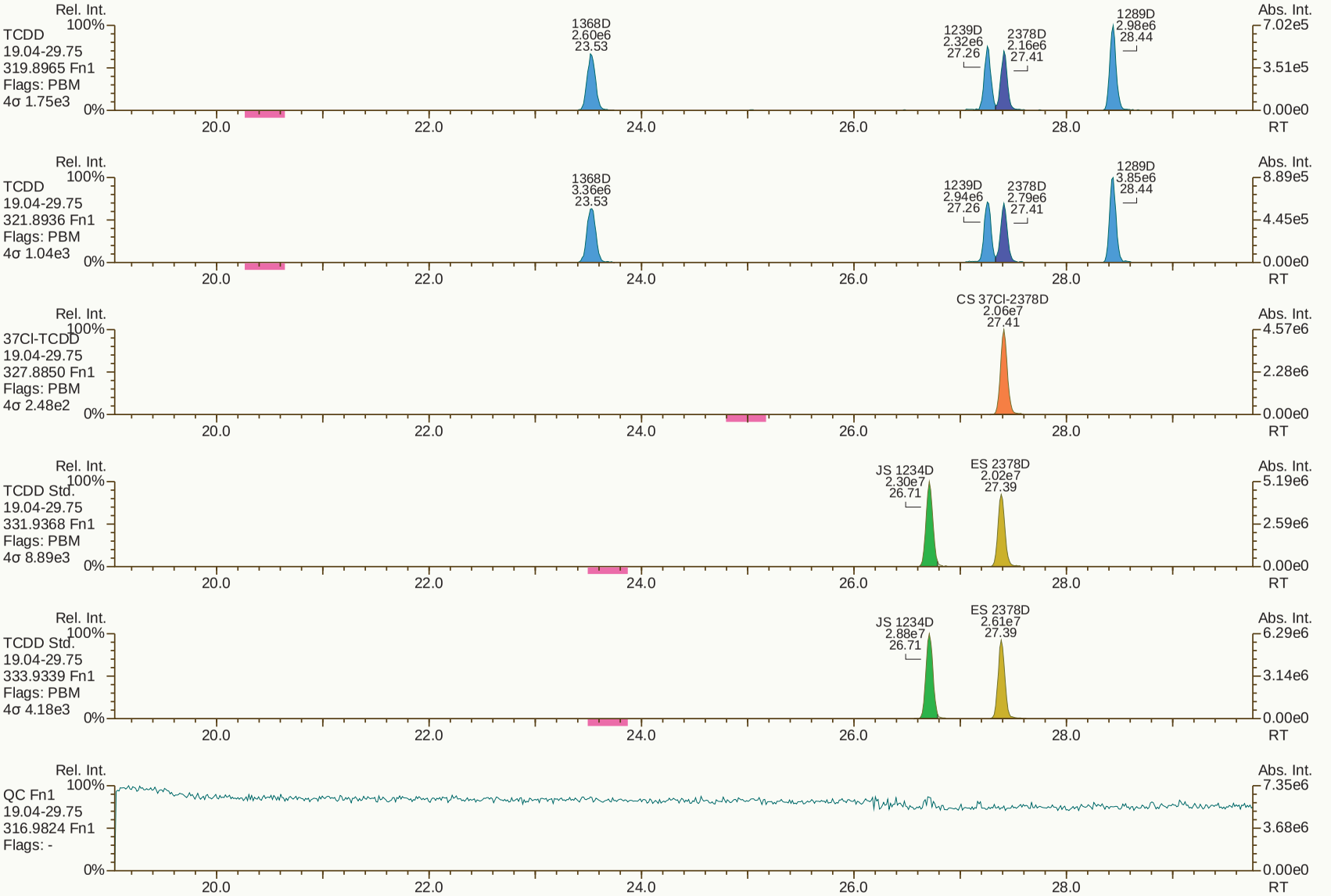
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933

Peak annotation: Areas, Centroids
PKD: 28-Nov-2016 09:46 Printed: 29-Nov-2016 10:26

SGS ID: OPR1_14501_DF | **Sample ID: 0_14501_OPR001** | **Acq: 24-Nov-2016 00:38:17**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 16** | **User: ARL Datafile: 161124P02**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9431, 9374, 8213 scc: 391-017 | *PKD: 28-Nov-2016 09:46 Printed: 29-Nov-2016 10:26 Page 1 of 1*

Lab ID: OPR1_14501_RJ | Acq'd: 24 Nov 2016 08:36 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14501_OPR001 | UTP: 28-Nov-2016 13:35:04 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 401-618-HLM

Datafile: 161124P11 | Report: 28 Nov 2016 13:50 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.43		1.0009	1.0009	0	5.70E+06	0.77	Y	1.19	9.41	2645	0.0481

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.41	1.0253	1.0253	0	5.10E+07	0.78	Y	1.06	85.6

Lab ID: OPR1_14501_RJ | Acq'd: 24 Nov 2016 08:36 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14501_OPR001 | UTP: 28-Nov-2016 13:35:04 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 401-618-HLM

Datafile: 161124P11 | Report: 28 Nov 2016 13:50 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.73		-	-	-	5.61E+07	0.81	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	2.30E+07	1.25	Y	-	-
CS 37Cl-2378-TCDD	27.43		1.0261	1.0262	+0.2	2.40E+07	n/a	-	1.24	86.1

Totals	Conc	EMPC
Total TCDD	44.5	44.5

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.77	0.77
Response	5.71E+06	5.70E+06

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
CPSM Data Filename:	161124P11	Analysis Date:	24-NOV-2016 08:36:12
Lab ID:	OPR1_14501_RJ		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.56	1289-TCDD	28.46

Isomer Specificity Test Standard Results

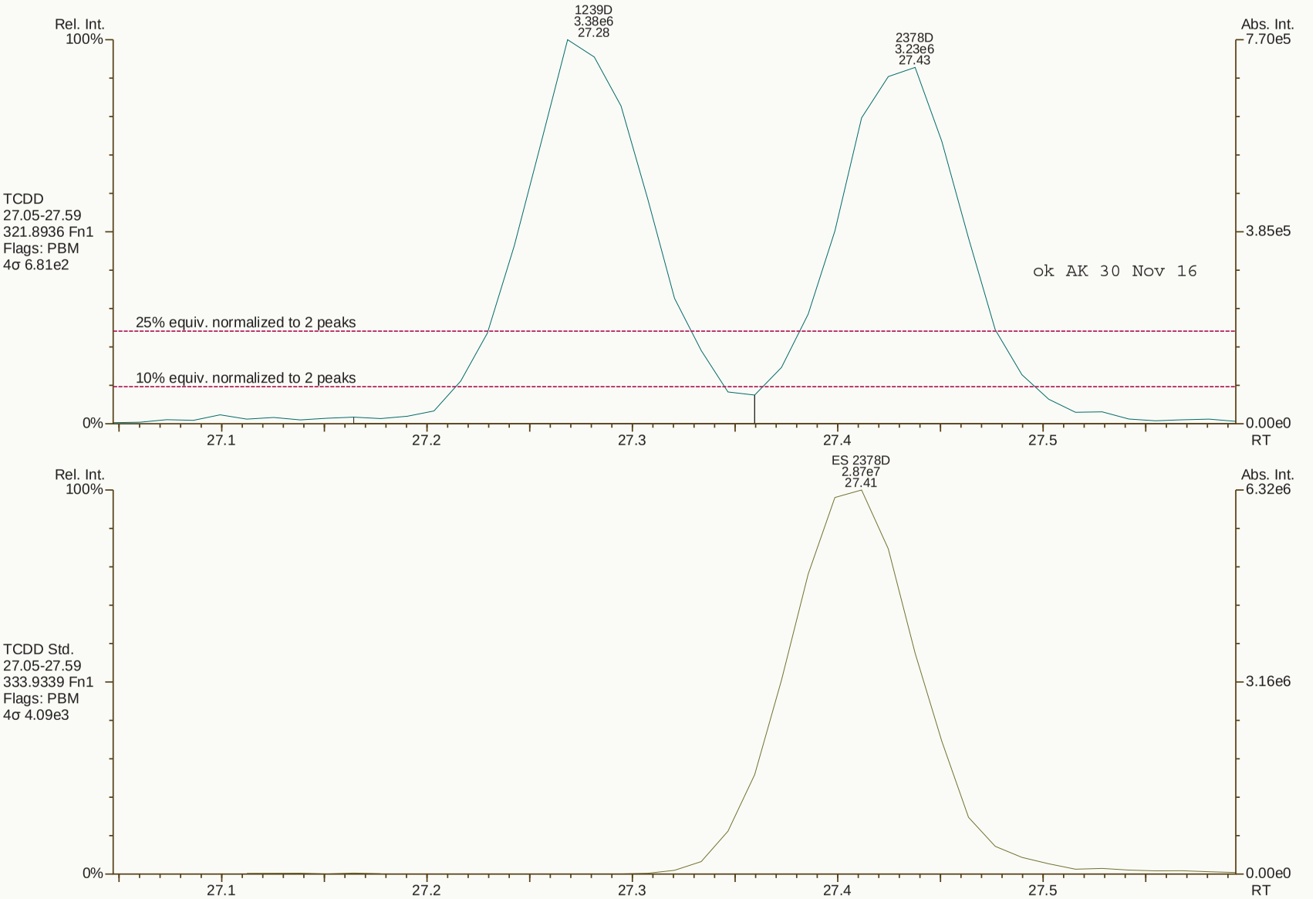
Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	27.28	2378-TCDD	27.43

Processed: 28 Nov 2016 13:50 Analyst: pw

SGS ID: OPR1_14501_RJ
Instr: [ILM] AutoSpec-Ultima HRMS3

Sample ID: 0_14501_OPR001
VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 16

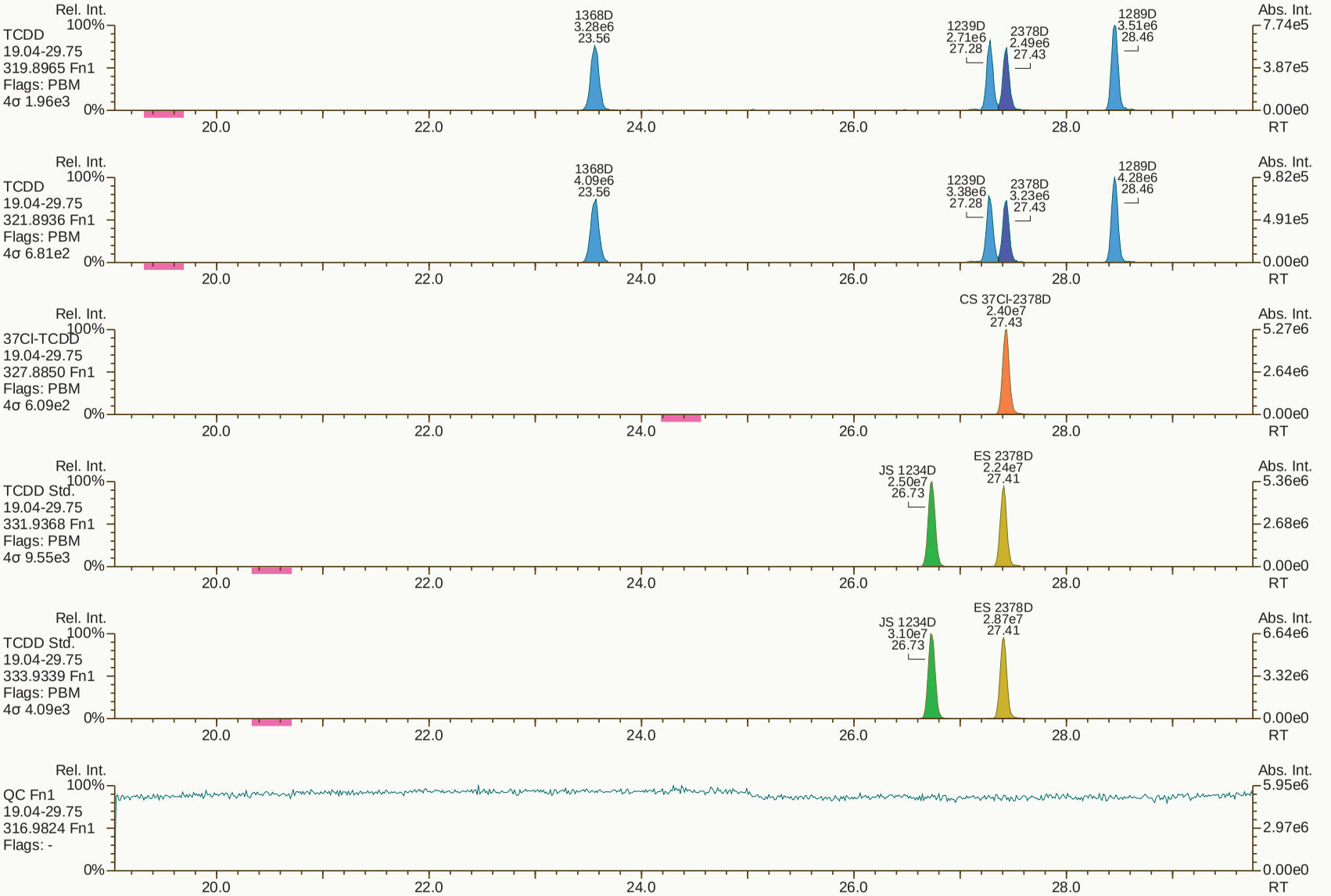
Acq: 24-Nov-2016 08:36:12
User: ARL Datafile: 161124P11



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\OPR1_14501_RJ.utp_res, saved 28-Nov-2016 13:35 (PSW)
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933

Peak annotation: Areas, Centroids
PKD: 28-Nov-2016 09:50 Printed: 29-Nov-2016 10:27

SGS ID: OPR1_14501_RJ | **Sample ID: 0_14501_OPR001** | **Acq: 24-Nov-2016 08:36:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 16** | **User: ARL Datafile: 161124P11**



Results: P:\A9300_A9399\A9395\A9395_14501 DF\Resources\OPR1_14501_RJ.utp_res, saved 28-Nov-2016 13:35 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6718, 5759, 5503 scc: 401-618 | *PKD: 28-Nov-2016 09:50 Printed: 29-Nov-2016 10:26 Page 1 of 1*

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST

SLL

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC30944 X

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City / State / Zip: Florham Park NJ 07932
Project Contact / E-mail: Brian Crespi / Bcrespi@matrixnewworld.com
Phone #: 212 324 4251
Sampler(s) Name(s) / Phone #: M. Clelland

Project Information

Project Name: LIRR Expansion
Street:
City / State: Long Island NY
Project #: 16-144
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCL/TAL (Full), TCLP (Full), Ignita char., Dioxin

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (Full)	TCLP (Full)	Ignita char.	Dioxin	LAB USE ONLY
1	SB08-161101	0	11/1/16	0945	MC	S	7					4			3	X	X	X	X	D16
2	SB10-161101	0	11/1/16	1127	MC	S	7					4			3	X	X	X	X	800
3	SB11-161101	0	11/1/16	1306	MC	S	7					4			3	X	X	X	X	P25
4	SB09-161101	0	11/1/16	1425	MC	S	7					4			3	X	X	X	X	1484
5	SB12-161102	0	11/2/16	0855	MC	S	7					4			3	X	X	X	X	4090
6	SB13-161102	0	11/2/16	0925	MC	S	7					4			3	X	X	X	X	
7	SB14-161102	0	11/2/16	1045	MC	S	7					4			3	X	X	X	X	
8	SB16-161102	0	11/2/16	1236	MC	S	7					4			3	X	X	X	X	

INITIAL ASESSMENT
LABEL VERIFICATION

Turnaround Time (Business days)

- [X] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [X] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

samples on ice.
o 3 encores received 11/2/16

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	11/2/16 1344	1	2	11/2/16 1655	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 328	[X] Intact [ ] Not intact	Preserved where applicable [ ]

On Ice [X] Cooler Temp 4.2°C

JC30944X: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC30944 **Client:** **Project:**

Date / Time Received: 11/2/2016 4:55:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (4.2);

Cooler Temps (Corrected) °C: Cooler 1: (5.1);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31165

Sampling Dates: 11/03/16 - 11/04/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **191**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

SGS Accutest is the sole authority for authorizing edits or modifications to this document.
Unauthorized modification of this report is strictly prohibited.

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31165-1	11/03/16	09:30	MC	11/04/16	SO	Soil	SB17-161103
JC31165-1A	11/03/16	09:30	MC	11/04/16	SO	Soil	SB17-161103
JC31165-2	11/03/16	11:52	MC	11/04/16	SO	Soil	SB15-161103
JC31165-2A	11/03/16	11:52	MC	11/04/16	SO	Soil	SB15-161103
JC31165-3	11/03/16	13:10	MC	11/04/16	SO	Soil	SB27-161103
JC31165-3A	11/03/16	13:10	MC	11/04/16	SO	Soil	SB27-161103
JC31165-4	11/03/16	13:52	MC	11/04/16	SO	Soil	SB26-161103
JC31165-4A	11/03/16	13:52	MC	11/04/16	SO	Soil	SB26-161103
JC31165-5	11/03/16	14:23	MC	11/04/16	SO	Soil	SB25-161103
JC31165-5A	11/03/16	14:23	MC	11/04/16	SO	Soil	SB25-161103
JC31165-6	11/04/16	08:45	MC	11/04/16	SO	Soil	SB28-161104
JC31165-6A	11/04/16	08:45	MC	11/04/16	SO	Soil	SB28-161104
JC31165-7	11/04/16	09:57	MC	11/04/16	SO	Soil	SB29-161104

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS Accutest

Sample Summary
(continued)

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31165-7A	11/04/16	09:57	MC	11/04/16	SO	Soil	SB29-161104
JC31165-8	11/04/16	10:55	MC	11/04/16	SO	Soil	SB33-161104
JC31165-8A	11/04/16	10:55	MC	11/04/16	SO	Soil	SB33-161104
JC31165-9	11/04/16	12:25	MC	11/04/16	SO	Soil	SB31-161104
JC31165-9A	11/04/16	12:25	MC	11/04/16	SO	Soil	SB31-161104

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC31165-1	**SB17-161103**					
Toluene		0.00019 J	0.00097	0.00012	mg/kg	SW846 8260C
Acenaphthene		0.0164 J	0.034	0.012	mg/kg	SW846 8270D
Acenaphthylene		0.0401	0.034	0.017	mg/kg	SW846 8270D
Anthracene		0.106	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.347	0.034	0.0096	mg/kg	SW846 8270D
Benzo(a)pyrene		0.355	0.034	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.450	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.279	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.165	0.034	0.016	mg/kg	SW846 8270D
Benzaldehyde		0.0213 J	0.17	0.0084	mg/kg	SW846 8270D
Carbazole		0.0414 J	0.068	0.0049	mg/kg	SW846 8270D
Chrysene		0.426	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0673	0.034	0.015	mg/kg	SW846 8270D
Dibenzofuran		0.0304 J	0.068	0.014	mg/kg	SW846 8270D
Fluoranthene		0.640	0.034	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.279	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0625 J	0.068	0.0077	mg/kg	SW846 8270D
Naphthalene		0.0495	0.034	0.0096	mg/kg	SW846 8270D
Phenanthrene		0.402	0.034	0.011	mg/kg	SW846 8270D
Pyrene		0.689	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.0012	0.00069	0.00033	mg/kg	SW846 8081B
gamma-Chlordane [a]		0.0010	0.00069	0.00030	mg/kg	SW846 8081B
4,4'-DDT		0.0070	0.00069	0.00041	mg/kg	SW846 8081B
Aluminum		3110	52		mg/kg	SW846 6010C
Arsenic		4.0	2.1		mg/kg	SW846 6010C
Barium		30.9	21		mg/kg	SW846 6010C
Beryllium		0.28	0.21		mg/kg	SW846 6010C
Chromium		22.3	1.0		mg/kg	SW846 6010C
Copper		25.0	2.6		mg/kg	SW846 6010C
Iron		7740	52		mg/kg	SW846 6010C
Lead		75.0	2.1		mg/kg	SW846 6010C
Magnesium		689	520		mg/kg	SW846 6010C
Manganese		138	1.6		mg/kg	SW846 6010C
Mercury		0.062	0.034		mg/kg	SW846 7471B
Nickel		6.9	4.2		mg/kg	SW846 6010C
Vanadium		10.7	5.2		mg/kg	SW846 6010C
Zinc		63.4	5.2		mg/kg	SW846 6010C
JC31165-1A	**SB17-161103**					
Corrosivity as pH		6.63 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC31165-2	**SB15-161103**					
Benzo(a)anthracene		0.0402	0.034	0.0097	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0422	0.034	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0628	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0397	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0253 J	0.034	0.016	mg/kg	SW846 8270D
Chrysene		0.0497	0.034	0.011	mg/kg	SW846 8270D
Fluoranthene		0.0708	0.034	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0381	0.034	0.016	mg/kg	SW846 8270D
Phenanthrene		0.0350	0.034	0.012	mg/kg	SW846 8270D
Pyrene		0.0670	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.00081	0.00062	0.00029	mg/kg	SW846 8081B
gamma-Chlordane		0.00083	0.00062	0.00027	mg/kg	SW846 8081B
4,4'-DDT		0.0018	0.00062	0.00037	mg/kg	SW846 8081B
Aroclor 1260 [b]		0.0186 J	0.031	0.013	mg/kg	SW846 8082A
Aluminum		2110	51		mg/kg	SW846 6010C
Arsenic		2.1	2.1		mg/kg	SW846 6010C
Barium		22.4	21		mg/kg	SW846 6010C
Chromium		7.8	1.0		mg/kg	SW846 6010C
Copper		20.0	2.6		mg/kg	SW846 6010C
Iron		7010	51		mg/kg	SW846 6010C
Lead		70.1	2.1		mg/kg	SW846 6010C
Magnesium		582	510		mg/kg	SW846 6010C
Manganese		256	1.5		mg/kg	SW846 6010C
Nickel		9.6	4.1		mg/kg	SW846 6010C
Vanadium		7.7	5.1		mg/kg	SW846 6010C
Zinc		79.8	5.1		mg/kg	SW846 6010C
JC31165-2A	**SB15-161103**					
Corrosivity as pH		7.45 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31165-3	**SB27-161103**					
Acenaphthylene		0.0336 J	0.035	0.018	mg/kg	SW846 8270D
Anthracene		0.0408	0.035	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0631	0.035	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0700	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.116	0.035	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0757	0.035	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0332 J	0.035	0.017	mg/kg	SW846 8270D
Chrysene		0.0995	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0193 J	0.035	0.016	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Dibenzofuran	0.0219 J	0.071	0.014	mg/kg	SW846 8270D
Fluoranthene	0.0947	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.0520	0.035	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0521 J	0.071	0.0080	mg/kg	SW846 8270D
Naphthalene	0.0327 J	0.035	0.010	mg/kg	SW846 8270D
Phenanthrene	0.0982	0.035	0.012	mg/kg	SW846 8270D
Pyrene	0.112	0.035	0.011	mg/kg	SW846 8270D
4,4'-DDE	0.0013	0.00071	0.00037	mg/kg	SW846 8081B
4,4'-DDT	0.0021	0.00071	0.00043	mg/kg	SW846 8081B
Aluminum	4220	54		mg/kg	SW846 6010C
Arsenic	4.4	2.2		mg/kg	SW846 6010C
Barium	26.4	22		mg/kg	SW846 6010C
Beryllium	0.33	0.22		mg/kg	SW846 6010C
Calcium	856	540		mg/kg	SW846 6010C
Chromium	14.5	1.1		mg/kg	SW846 6010C
Copper	52.7	2.7		mg/kg	SW846 6010C
Iron	9620	54		mg/kg	SW846 6010C
Lead	42.9	2.2		mg/kg	SW846 6010C
Magnesium	856	540		mg/kg	SW846 6010C
Manganese	128	1.6		mg/kg	SW846 6010C
Nickel	10.8	4.3		mg/kg	SW846 6010C
Vanadium	10.3	5.4		mg/kg	SW846 6010C
Zinc	205	5.4		mg/kg	SW846 6010C
JC31165-3A SB27-161103					
Corrosivity as pH	7.07 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31165-4 SB26-161103					
Acenaphthylene	0.0518	0.035	0.018	mg/kg	SW846 8270D
Anthracene	0.0671	0.035	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene	0.0938	0.035	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene	0.101	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.143	0.035	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.0843	0.035	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.0485	0.035	0.016	mg/kg	SW846 8270D
Chrysene	0.109	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0214 J	0.035	0.016	mg/kg	SW846 8270D
Fluoranthene	0.146	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.0762	0.035	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0365 J	0.070	0.0080	mg/kg	SW846 8270D
Naphthalene	0.0400	0.035	0.0099	mg/kg	SW846 8270D
Phenanthrene	0.0905	0.035	0.012	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Pyrene		0.155	0.035	0.011	mg/kg	SW846 8270D
Aluminum		6480	52		mg/kg	SW846 6010C
Arsenic		6.1	2.1		mg/kg	SW846 6010C
Barium		23.2	21		mg/kg	SW846 6010C
Beryllium		0.31	0.21		mg/kg	SW846 6010C
Calcium		881	520		mg/kg	SW846 6010C
Chromium [c]		12.3	2.1		mg/kg	SW846 6010C
Copper [c]		13.3	5.2		mg/kg	SW846 6010C
Iron		39600	100		mg/kg	SW846 6010C
Lead [c]		19.6	4.2		mg/kg	SW846 6010C
Magnesium		1320	520		mg/kg	SW846 6010C
Manganese [c]		248	3.1		mg/kg	SW846 6010C
Nickel		10.9	4.2		mg/kg	SW846 6010C
Silver [c]		1.4	1.0		mg/kg	SW846 6010C
Vanadium		12.8	5.2		mg/kg	SW846 6010C
Zinc		42.1	5.2		mg/kg	SW846 6010C
JC31165-4A	**SB26-161103**					
Corrosivity as pH		7.60 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31165-5	**SB25-161103**					
Acenaphthylene		0.0679	0.033	0.017	mg/kg	SW846 8270D
Anthracene		0.102	0.033	0.020	mg/kg	SW846 8270D
Benzo(a)anthracene		0.102	0.033	0.0093	mg/kg	SW846 8270D
Benzo(a)pyrene		0.130	0.033	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.220	0.033	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.130	0.033	0.016	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0679	0.033	0.015	mg/kg	SW846 8270D
Benzaldehyde		0.0454 J	0.16	0.0082	mg/kg	SW846 8270D
Carbazole		0.0283 J	0.066	0.0048	mg/kg	SW846 8270D
Chrysene		0.136	0.033	0.010	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0401	0.033	0.015	mg/kg	SW846 8270D
Dibenzofuran		0.0184 J	0.066	0.013	mg/kg	SW846 8270D
Fluoranthene		0.177	0.033	0.015	mg/kg	SW846 8270D
Fluorene		0.0153 J	0.033	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.119	0.033	0.015	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0455 J	0.066	0.0075	mg/kg	SW846 8270D
Naphthalene		0.0373	0.033	0.0093	mg/kg	SW846 8270D
Phenanthrene		0.108	0.033	0.011	mg/kg	SW846 8270D
Pyrene		0.189	0.033	0.011	mg/kg	SW846 8270D
Aluminum		5270	52		mg/kg	SW846 6010C
Arsenic		4.5	2.1		mg/kg	SW846 6010C

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Barium	26.2	21		mg/kg	SW846 6010C
Beryllium	0.31	0.21		mg/kg	SW846 6010C
Calcium	1350	520		mg/kg	SW846 6010C
Chromium	12.2	1.0		mg/kg	SW846 6010C
Copper	18.3	2.6		mg/kg	SW846 6010C
Iron	11300	52		mg/kg	SW846 6010C
Lead	27.6	2.1		mg/kg	SW846 6010C
Magnesium	1200	520		mg/kg	SW846 6010C
Manganese	139	1.6		mg/kg	SW846 6010C
Nickel	8.3	4.2		mg/kg	SW846 6010C
Vanadium	12.5	5.2		mg/kg	SW846 6010C
Zinc	29.4	5.2		mg/kg	SW846 6010C
JC31165-5A SB25-161103					
Corrosivity as pH	7.42 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31165-6 SB28-161104					
Acenaphthene	0.0315 J	0.034	0.012	mg/kg	SW846 8270D
Acenaphthylene	0.147	0.034	0.017	mg/kg	SW846 8270D
Acetophenone	0.0180 J	0.17	0.0073	mg/kg	SW846 8270D
Anthracene	0.228	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene	0.657	0.034	0.0096	mg/kg	SW846 8270D
Benzo(a)pyrene	0.693	0.034	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene	1.01	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.457	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.363	0.034	0.016	mg/kg	SW846 8270D
1,1'-Biphenyl	0.0174 J	0.068	0.0046	mg/kg	SW846 8270D
Benzaldehyde	0.0257 J	0.17	0.0084	mg/kg	SW846 8270D
Carbazole	0.0663 J	0.068	0.0049	mg/kg	SW846 8270D
Chrysene	0.742	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.137	0.034	0.015	mg/kg	SW846 8270D
Dibenzofuran	0.0380 J	0.068	0.014	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate	0.281	0.068	0.0079	mg/kg	SW846 8270D
Fluoranthene	1.21	0.034	0.015	mg/kg	SW846 8270D
Fluorene	0.0464	0.034	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.508	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0969	0.068	0.0076	mg/kg	SW846 8270D
Naphthalene	0.0658	0.034	0.0095	mg/kg	SW846 8270D
Phenanthrene	0.541	0.034	0.011	mg/kg	SW846 8270D
Pyrene	1.12	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]	0.0062	0.00065	0.00031	mg/kg	SW846 8081B
gamma-Chlordane [a]	0.0042	0.00065	0.00029	mg/kg	SW846 8081B

2

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
4,4'-DDE [a]		0.0026	0.00065	0.00034	mg/kg	SW846 8081B
4,4'-DDT		0.0133	0.00065	0.00039	mg/kg	SW846 8081B
Aluminum		4970	52		mg/kg	SW846 6010C
Arsenic		5.5	2.1		mg/kg	SW846 6010C
Barium		45.6	21		mg/kg	SW846 6010C
Beryllium		0.25	0.21		mg/kg	SW846 6010C
Cadmium		0.57	0.52		mg/kg	SW846 6010C
Calcium		1510	520		mg/kg	SW846 6010C
Chromium		11.3	1.0		mg/kg	SW846 6010C
Copper		31.1	2.6		mg/kg	SW846 6010C
Iron		9380	52		mg/kg	SW846 6010C
Lead		110	2.1		mg/kg	SW846 6010C
Magnesium		985	520		mg/kg	SW846 6010C
Manganese		142	1.6		mg/kg	SW846 6010C
Mercury		0.099	0.032		mg/kg	SW846 7471B
Nickel		9.1	4.2		mg/kg	SW846 6010C
Vanadium		14.0	5.2		mg/kg	SW846 6010C
Zinc		149	5.2		mg/kg	SW846 6010C
JC31165-6A	**SB28-161104**					
Corrosivity as pH		7.03 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31165-7	**SB29-161104**					
Acenaphthylene		0.0534	0.035	0.018	mg/kg	SW846 8270D
Anthracene		0.0663	0.035	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0879	0.035	0.0099	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0948	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.194	0.035	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0819	0.035	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0595	0.035	0.016	mg/kg	SW846 8270D
Carbazole		0.0164 J	0.070	0.0051	mg/kg	SW846 8270D
Chrysene		0.105	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0222 J	0.035	0.015	mg/kg	SW846 8270D
Dibenzofuran		0.0147 J	0.070	0.014	mg/kg	SW846 8270D
Fluoranthene		0.137	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0922	0.035	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0321 J	0.070	0.0079	mg/kg	SW846 8270D
Naphthalene		0.0216 J	0.035	0.0099	mg/kg	SW846 8270D
Phenanthrene		0.0530	0.035	0.012	mg/kg	SW846 8270D
Pyrene		0.133	0.035	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.0077	0.00071	0.00034	mg/kg	SW846 8081B
gamma-Chlordane		0.0053	0.00071	0.00031	mg/kg	SW846 8081B

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
4,4'-DDE [a]		0.00042 J	0.00071	0.00037	mg/kg	SW846 8081B
4,4'-DDT		0.0032	0.00071	0.00042	mg/kg	SW846 8081B
Aluminum		1560	50		mg/kg	SW846 6010C
Arsenic		2.6	2.0		mg/kg	SW846 6010C
Chromium		7.3	1.0		mg/kg	SW846 6010C
Copper		18.6	2.5		mg/kg	SW846 6010C
Iron		5080	50		mg/kg	SW846 6010C
Lead		21.1	2.0		mg/kg	SW846 6010C
Manganese		50.6	1.5		mg/kg	SW846 6010C
Vanadium		5.1	5.0		mg/kg	SW846 6010C
Zinc		17.0	5.0		mg/kg	SW846 6010C
JC31165-7A	**SB29-161104**					
Corrosivity as pH		6.81 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31165-8	**SB33-161104**					
Acenaphthylene		0.123	0.036	0.018	mg/kg	SW846 8270D
Anthracene		0.175	0.036	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.287	0.036	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.298	0.036	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.603	0.036	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.272	0.036	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.183	0.036	0.017	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0215 J	0.071	0.0049	mg/kg	SW846 8270D
Carbazole		0.0715	0.071	0.0052	mg/kg	SW846 8270D
Chrysene		0.415	0.036	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0859	0.036	0.016	mg/kg	SW846 8270D
Dibenzofuran		0.0521 J	0.071	0.015	mg/kg	SW846 8270D
Fluoranthene		0.436	0.036	0.016	mg/kg	SW846 8270D
Fluorene		0.0190 J	0.036	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.242	0.036	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene		0.125	0.071	0.0081	mg/kg	SW846 8270D
Naphthalene		0.108	0.036	0.010	mg/kg	SW846 8270D
Phenanthrene		0.211	0.036	0.012	mg/kg	SW846 8270D
Pyrene		0.414	0.036	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.0016	0.00069	0.00033	mg/kg	SW846 8081B
gamma-Chlordane [a]		0.0010	0.00069	0.00030	mg/kg	SW846 8081B
4,4'-DDE [a]		0.0011	0.00069	0.00036	mg/kg	SW846 8081B
4,4'-DDT		0.0109	0.00069	0.00041	mg/kg	SW846 8081B
Aluminum		3000	52		mg/kg	SW846 6010C
Arsenic		3.6	2.1		mg/kg	SW846 6010C
Barium		24.9	21		mg/kg	SW846 6010C

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Calcium		771	520		mg/kg	SW846 6010C
Chromium		10.4	1.0		mg/kg	SW846 6010C
Copper		38.5	2.6		mg/kg	SW846 6010C
Iron		8330	52		mg/kg	SW846 6010C
Lead		43.7	2.1		mg/kg	SW846 6010C
Manganese		101	1.6		mg/kg	SW846 6010C
Mercury		0.16	0.033		mg/kg	SW846 7471B
Nickel		6.6	4.2		mg/kg	SW846 6010C
Vanadium		9.4	5.2		mg/kg	SW846 6010C
Zinc		34.3	5.2		mg/kg	SW846 6010C
JC31165-8A	**SB33-161104**					
Corrosivity as pH		6.51 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31165-9	**SB31-161104**					
Carbon disulfide		0.00026 J	0.0023	0.00020	mg/kg	SW846 8260C
Acenaphthylene		0.0264 J	0.034	0.017	mg/kg	SW846 8270D
Anthracene		0.0538	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0870	0.034	0.0097	mg/kg	SW846 8270D
Benzo(a)pyrene		0.100	0.034	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.153	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.111	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0508	0.034	0.016	mg/kg	SW846 8270D
Carbazole		0.0159 J	0.068	0.0049	mg/kg	SW846 8270D
Chrysene		0.106	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0311 J	0.034	0.015	mg/kg	SW846 8270D
Fluoranthene		0.140	0.034	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0926	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0236 J	0.068	0.0077	mg/kg	SW846 8270D
Naphthalene		0.0182 J	0.034	0.0096	mg/kg	SW846 8270D
Phenanthrene		0.0630	0.034	0.011	mg/kg	SW846 8270D
Pyrene		0.119	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.00083	0.00064	0.00030	mg/kg	SW846 8081B
gamma-Chlordane [a]		0.00074	0.00064	0.00028	mg/kg	SW846 8081B
Dieldrin		0.0033	0.00064	0.00032	mg/kg	SW846 8081B
4,4'-DDE [a]		0.00058 J	0.00064	0.00033	mg/kg	SW846 8081B
4,4'-DDT		0.0036	0.00064	0.00038	mg/kg	SW846 8081B
Aluminum		2070	52		mg/kg	SW846 6010C
Calcium		3860	520		mg/kg	SW846 6010C
Chromium		5.9	1.0		mg/kg	SW846 6010C
Copper		16.7	2.6		mg/kg	SW846 6010C
Iron		5150	52		mg/kg	SW846 6010C

Summary of Hits

Job Number: JC31165
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/03/16 thru 11/04/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Lead		27.3	2.1		mg/kg	SW846 6010C
Magnesium		2070	520		mg/kg	SW846 6010C
Manganese		67.4	1.6		mg/kg	SW846 6010C
Nickel		4.7	4.2		mg/kg	SW846 6010C
Vanadium		10	5.2		mg/kg	SW846 6010C
Zinc		29.5	5.2		mg/kg	SW846 6010C
JC31165-9A	**SB31-161104**					
Corrosivity as pH		8.36 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93

(a) More than 40 % RPD for detected concentrations between the two GC columns.
(b) Reported from 2nd signal. %D of end check (ECC) on 1st signal excess method criteria (20 %) so using for confirmation only.
(c) Elevated detection limit due to dilution required for high interfering element.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214396.D	1	11/09/16	SY	11/04/16 21:00	n/a	VC7887
Run #2							

	Initial Weight
Run #1	5.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0097	0.0049	mg/kg	
71-43-2	Benzene	ND	0.00049	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0049	0.00031	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0019	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0049	0.00026	mg/kg	
74-83-9	Bromomethane	ND	0.0049	0.00047	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0097	0.0017	mg/kg	
75-15-0	Carbon disulfide	ND	0.0019	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0019	0.00016	mg/kg	
108-90-7	Chlorobenzene	ND	0.0019	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0049	0.00042	mg/kg	
67-66-3	Chloroform	ND	0.0019	0.00023	mg/kg	
74-87-3	Chloromethane	ND	0.0049	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0019	0.00053	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropan [a]	ND	0.0019	0.00047	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0019	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00097	0.00024	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00097	0.00017	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00097	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00097	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0049	0.00053	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00097	0.00018	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00097	0.00017	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00097	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00097	0.00043	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00097	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0019	0.00030	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0019	0.00019	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0019	0.00021	mg/kg	
100-41-4	Ethylbenzene	ND	0.00097	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0049	0.00047	mg/kg	
591-78-6	2-Hexanone	ND	0.0049	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0019	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0049	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0019	0.00049	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00097	0.00026	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0049	0.00083	mg/kg	
75-09-2	Methylene chloride	ND	0.0049	0.00097	mg/kg	
100-42-5	Styrene	ND	0.0019	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.024	0.0030	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0019	0.00023	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0019	0.00027	mg/kg	
108-88-3	Toluene	0.00019	0.00097	0.00012	mg/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	0.0049	0.00022	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0049	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0019	0.00016	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0019	0.00031	mg/kg	
79-01-6	Trichloroethene	ND	0.00097	0.00018	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0049	0.00061	mg/kg	
75-01-4	Vinyl chloride	ND	0.0019	0.00020	mg/kg	
	m,p-Xylene	ND	0.00097	0.00021	mg/kg	
95-47-6	o-Xylene	ND	0.00097	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.00097	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-122%
17060-07-0	1,2-Dichloroethane-D4	109%		68-124%
2037-26-5	Toluene-D8	109%		77-125%
460-00-4	4-Bromofluorobenzene	102%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z116037.D	1	11/09/16	SB	11/07/16	OP98365	EZ5779
Run #2							

	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.068	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.060	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.022	mg/kg	
	3&4-Methylphenol	ND	0.068	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.090	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.068	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	0.0164	0.034	0.012	mg/kg	J
208-96-8	Acenaphthylene	0.0401	0.034	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0073	mg/kg	
120-12-7	Anthracene	0.106	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.068	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.347	0.034	0.0096	mg/kg	
50-32-8	Benzo(a)pyrene	0.355	0.034	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.450	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.279	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.165	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.068	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.068	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.068	0.0046	mg/kg	
100-52-7	Benzaldehyde	0.0213	0.17	0.0084	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.068	0.0081	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0414	0.068	0.0049	mg/kg	J

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.068	0.013	mg/kg	
218-01-9	Chrysene	0.426	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.068	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.068	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.068	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.068	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.068	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0673	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	0.0304	0.068	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0055	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.068	0.0084	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0072	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.068	0.0060	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.068	0.0079	mg/kg	
206-44-0	Fluoranthene	0.640	0.034	0.015	mg/kg	
86-73-7	Fluorene	ND	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.068	0.0086	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.279	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.068	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	0.0625	0.068	0.0077	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0080	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0085	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0088	mg/kg	
91-20-3	Naphthalene	0.0495	0.034	0.0096	mg/kg	
98-95-3	Nitrobenzene	ND	0.068	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.068	0.0098	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.402	0.034	0.011	mg/kg	
129-00-0	Pyrene	0.689	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0086	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%		30-106%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	65%		30-106%
118-79-6	2,4,6-Tribromophenol	95%		24-140%
4165-60-0	Nitrobenzene-d5	65%		26-122%
321-60-8	2-Fluorobiphenyl	73%		36-112%
84-15-1	o-Terphenyl	0%		13-131%
3386-33-2	1-Chlorooctadecane	0%		-%
1718-51-0	Terphenyl-d14	79%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41319.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00069	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00069	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00069	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00069	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00069	0.00030	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0012	0.00069	0.00033	mg/kg	
5103-74-2	gamma-Chlordane [a]	0.0010	0.00069	0.00030	mg/kg	
60-57-1	Dieldrin	ND	0.00069	0.00034	mg/kg	
72-54-8	4,4'-DDD	ND	0.00069	0.00044	mg/kg	
72-55-9	4,4'-DDE	ND	0.00069	0.00036	mg/kg	
50-29-3	4,4'-DDT	0.0070	0.00069	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00069	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00069	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00069	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00069	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00069	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00069	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00069	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00034	mg/kg	
53494-70-5	Endrin ketone	ND	0.00069	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0071	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	93%		24-136%
877-09-8	Tetrachloro-m-xylene	90%		24-136%
2051-24-3	Decachlorobiphenyl	82%		10-153%
2051-24-3	Decachlorobiphenyl	96%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64639.D	1	11/09/16	KM	11/08/16	OP98382	G5G1500
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	107%		20-152%
877-09-8	Tetrachloro-m-xylene	99%		20-152%
2051-24-3	Decachlorobiphenyl	87%		12-157%
2051-24-3	Decachlorobiphenyl	108%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3110	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	4.0	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	30.9	21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	0.28	0.21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	< 520	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	22.3	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	25.0	2.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	7740	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	75.0	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	689	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	138	1.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	0.062	0.034	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	6.9	4.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	10.7	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	63.4	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/10/16 12:37	BM	SW846 9012B/LACHAT
Solids, Percent	95.2		%	1	11/06/16 17:30	KP	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131972.D	5	11/07/16	HA	11/06/16	GP1272	V3B5878
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		76-120%
17060-07-0	1,2-Dichloroethane-D4	112%		64-135%
2037-26-5	Toluene-D8	96%		76-117%
460-00-4	4-Bromofluorobenzene	94%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31822.D	1	11/11/16	SB	11/10/16	OP98403	E6P1476
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		14-88%
4165-62-2	Phenol-d5	25%		10-110%
118-79-6	2,4,6-Tribromophenol	79%		39-149%
4165-60-0	Nitrobenzene-d5	72%		32-128%
321-60-8	2-Fluorobiphenyl	74%		35-119%
1718-51-0	Terphenyl-d14	108%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104223.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	89%		50-142%
19719-28-9	2,4-DCAA	115%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74845.D	1	11/14/16	KD	11/09/16	OP98405	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		30-137%
877-09-8	Tetrachloro-m-xylene	84%		30-137%
2051-24-3	Decachlorobiphenyl	77%		10-137%
2051-24-3	Decachlorobiphenyl	75%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB17-161103		
Lab Sample ID:	JC31165-1A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.63 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 12:54	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214403.D	1	11/09/16	SY	11/04/16 21:00	n/a	VC7887
Run #2							

	Initial Weight
Run #1	5.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0051	mg/kg	
71-43-2	Benzene	ND	0.00051	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0051	0.00033	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0051	0.00027	mg/kg	
74-83-9	Bromomethane	ND	0.0051	0.00050	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0051	0.00044	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00024	mg/kg	
74-87-3	Chloromethane	ND	0.0051	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00056	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropan [a]	ND	0.0021	0.00050	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00025	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0051	0.00056	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00045	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00032	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0051	0.00050	mg/kg	
591-78-6	2-Hexanone	ND	0.0051	0.0014	mg/kg	

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0051	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00052	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00027	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0051	0.00087	mg/kg	
75-09-2	Methylene chloride	ND	0.0051	0.0010	mg/kg	
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.026	0.0031	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00029	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0051	0.00023	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0051	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00033	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0051	0.00065	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0010	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	106%		77-125%
460-00-4	4-Bromofluorobenzene	106%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z116036.D	1	11/09/16	SB	11/07/16	OP98365	EZ5779
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.069	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.069	0.022	mg/kg	
	3&4-Methylphenol	ND	0.069	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.092	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.069	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	ND	0.034	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0074	mg/kg	
120-12-7	Anthracene	ND	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.069	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0402	0.034	0.0097	mg/kg	
50-32-8	Benzo(a)pyrene	0.0422	0.034	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0628	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0397	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0253	0.034	0.016	mg/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	0.069	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.069	0.0084	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.069	0.0047	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0085	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.069	0.0082	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	ND	0.069	0.0050	mg/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.069	0.014	mg/kg	
218-01-9	Chrysene	0.0497	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.069	0.0074	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.069	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.069	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.069	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.069	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	ND	0.069	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.069	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.069	0.0086	mg/kg	
84-66-2	Diethyl phthalate	ND	0.069	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.069	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.069	0.0081	mg/kg	
206-44-0	Fluoranthene	0.0708	0.034	0.015	mg/kg	
86-73-7	Fluorene	ND	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.069	0.0087	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0381	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.069	0.0074	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.069	0.0078	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0081	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0086	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0089	mg/kg	
91-20-3	Naphthalene	ND	0.034	0.0097	mg/kg	
98-95-3	Nitrobenzene	ND	0.069	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.069	0.0099	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.0350	0.034	0.012	mg/kg	
129-00-0	Pyrene	0.0670	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0087	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	58%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%		30-106%
118-79-6	2,4,6-Tribromophenol	88%		24-140%
4165-60-0	Nitrobenzene-d5	59%		26-122%
321-60-8	2-Fluorobiphenyl	68%		36-112%
84-15-1	o-Terphenyl	0%		13-131%
3386-33-2	1-Chlorooctadecane	0%		-%
1718-51-0	Terphenyl-d14	82%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41059.D	1	11/09/16	KD	11/08/16	OP98384	G6G1175
Run #2 [a]	6G41062.D	5	11/09/16	KD	11/08/16	OP98384	G6G1175

	Initial Weight	Final Volume
Run #1	17.0 g	10.0 ml
Run #2	17.0 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00062	0.00030	mg/kg	
319-84-6	alpha-BHC	ND	0.00062	0.00033	mg/kg	
319-85-7	beta-BHC	ND	0.00062	0.00039	mg/kg	
319-86-8	delta-BHC	ND	0.00062	0.00028	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00062	0.00027	mg/kg	
5103-71-9	alpha-Chlordane [b]	0.00081	0.00062	0.00029	mg/kg	
5103-74-2	gamma-Chlordane	0.00083	0.00062	0.00027	mg/kg	
60-57-1	Dieldrin	ND	0.00062	0.00031	mg/kg	
72-54-8	4,4'-DDD	ND	0.00062	0.00040	mg/kg	
72-55-9	4,4'-DDE	ND	0.00062	0.00032	mg/kg	
50-29-3	4,4'-DDT	0.0018	0.00062	0.00037	mg/kg	
72-20-8	Endrin	ND	0.00062	0.00029	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00062	0.00025	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00062	0.00037	mg/kg	
959-98-8	Endosulfan-I	ND	0.00062	0.00032	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00062	0.00032	mg/kg	
76-44-8	Heptachlor	ND	0.00062	0.00030	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00062	0.00033	mg/kg	
72-43-5	Methoxychlor	ND	0.0012	0.00031	mg/kg	
53494-70-5	Endrin ketone	ND	0.00062	0.00048	mg/kg	
8001-35-2	Toxaphene	ND	0.015	0.0064	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	82%	88%	24-136%
877-09-8	Tetrachloro-m-xylene	87%	95%	24-136%
2051-24-3	Decachlorobiphenyl	71%	96%	10-153%
2051-24-3	Decachlorobiphenyl	86%	90%	10-153%

(a) Confirmation run.
(b) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64661.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	17.0 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.031	0.015	mg/kg	
11104-28-2	Aroclor 1221	ND	0.031	0.015	mg/kg	
11141-16-5	Aroclor 1232	ND	0.031	0.012	mg/kg	
53469-21-9	Aroclor 1242	ND	0.031	0.011	mg/kg	
12672-29-6	Aroclor 1248	ND	0.031	0.020	mg/kg	
11097-69-1	Aroclor 1254	ND	0.031	0.015	mg/kg	
11096-82-5	Aroclor 1260 [a]	0.0186	0.031	0.013	mg/kg	J
11100-14-4	Aroclor 1268	ND	0.031	0.011	mg/kg	
37324-23-5	Aroclor 1262	ND	0.031	0.021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	98%		20-152%
877-09-8	Tetrachloro-m-xylene	99%		20-152%
2051-24-3	Decachlorobiphenyl	96%		12-157%
2051-24-3	Decachlorobiphenyl	101%		12-157%

(a) Reported from 2nd signal. %D of end check (ECC) on 1st signal excess method criteria (20 %) so using for confirmation only.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2110	51	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	22.4	21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.21	0.21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.51	0.51	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	< 510	510	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	7.8	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.1	5.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	20.0	2.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	7010	51	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	70.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	582	510	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	256	1.5	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.032	0.032	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	9.6	4.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.51	0.51	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	7.7	5.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	79.8	5.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.24	0.24	mg/kg	1	11/10/16 12:38	BM	SW846 9012B/LACHAT
Solids, Percent	95.3		%	1	11/06/16 17:30	KP	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131981.D	5	11/07/16	HA	11/06/16	GP1272	V3B5878
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		76-120%
17060-07-0	1,2-Dichloroethane-D4	110%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	92%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31823.D	1	11/11/16	SB	11/10/16	OP98403	E6P1476
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	45%		14-88%
4165-62-2	Phenol-d5	29%		10-110%
118-79-6	2,4,6-Tribromophenol	74%		39-149%
4165-60-0	Nitrobenzene-d5	72%		32-128%
321-60-8	2-Fluorobiphenyl	73%		35-119%
1718-51-0	Terphenyl-d14	102%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104224.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	90%		50-142%
19719-28-9	2,4-DCAA	111%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74846.D	1	11/14/16	KD	11/09/16	OP98405	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	114%		30-137%
877-09-8	Tetrachloro-m-xylene	111%		30-137%
2051-24-3	Decachlorobiphenyl	96%		10-137%
2051-24-3	Decachlorobiphenyl	91%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB15-161103		
Lab Sample ID:	JC31165-2A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.45 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/08/16 12:58	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214388.D	1	11/09/16	SY	11/05/16 10:00	n/a	VC7887
Run #2							

	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0052	mg/kg	
71-43-2	Benzene	ND	0.00052	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0052	0.00033	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0052	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0052	0.00051	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0052	0.00045	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0052	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00057	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropan [a]	ND	0.0021	0.00051	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00025	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0052	0.00057	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00020	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00046	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00032	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0052	0.00051	mg/kg	
591-78-6	2-Hexanone	ND	0.0052	0.0015	mg/kg	

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0052	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00053	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00028	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0052	0.00089	mg/kg	
75-09-2	Methylene chloride	ND	0.0052	0.0010	mg/kg	
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.026	0.0032	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00029	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0052	0.00024	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0052	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00034	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0052	0.00066	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0010	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-122%
17060-07-0	1,2-Dichloroethane-D4	107%		68-124%
2037-26-5	Toluene-D8	107%		77-125%
460-00-4	4-Bromofluorobenzene	104%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162422.D	1	11/09/16	JJ	11/08/16	OP98380	EF6835
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.071	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.023	mg/kg	
	3&4-Methylphenol	ND	0.071	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.071	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0336	0.035	0.018	mg/kg	J
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	0.0408	0.035	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.071	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0631	0.035	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.0700	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.116	0.035	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0757	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0332	0.035	0.017	mg/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	0.071	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.071	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.071	0.0048	mg/kg	
100-52-7	Benzaldehyde	ND	0.18	0.0088	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.071	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	ND	0.071	0.0051	mg/kg	

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.071	0.014	mg/kg	
218-01-9	Chrysene	0.0995	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.071	0.0076	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.071	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.071	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.071	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.071	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0193	0.035	0.016	mg/kg	J
132-64-9	Dibenzofuran	0.0219	0.071	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0058	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.071	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.071	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.071	0.0083	mg/kg	
206-44-0	Fluoranthene	0.0947	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.071	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0520	0.035	0.017	mg/kg	
78-59-1	Isophorone	ND	0.071	0.0076	mg/kg	
91-57-6	2-Methylnaphthalene	0.0521	0.071	0.0080	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0092	mg/kg	
91-20-3	Naphthalene	0.0327	0.035	0.010	mg/kg	J
98-95-3	Nitrobenzene	ND	0.071	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.071	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.0982	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.112	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0090	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%		30-106%
118-79-6	2,4,6-Tribromophenol	96%		24-140%
4165-60-0	Nitrobenzene-d5	58%		26-122%
321-60-8	2-Fluorobiphenyl	71%		36-112%
1718-51-0	Terphenyl-d14	79%		36-132%

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Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41320.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00071	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00071	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00071	0.00045	mg/kg	
319-86-8	delta-BHC	ND	0.00071	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00071	0.00032	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00071	0.00034	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00071	0.00032	mg/kg	
60-57-1	Dieldrin	ND	0.00071	0.00036	mg/kg	
72-54-8	4,4'-DDD	ND	0.00071	0.00046	mg/kg	
72-55-9	4,4'-DDE	0.0013	0.00071	0.00037	mg/kg	
50-29-3	4,4'-DDT	0.0021	0.00071	0.00043	mg/kg	
72-20-8	Endrin	ND	0.00071	0.00034	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00071	0.00029	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00071	0.00042	mg/kg	
959-98-8	Endosulfan-I	ND	0.00071	0.00037	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00071	0.00037	mg/kg	
76-44-8	Heptachlor	ND	0.00071	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00071	0.00038	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00036	mg/kg	
53494-70-5	Endrin ketone	ND	0.00071	0.00055	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0074	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	95%		24-136%
877-09-8	Tetrachloro-m-xylene	89%		24-136%
2051-24-3	Decachlorobiphenyl	83%		10-153%
2051-24-3	Decachlorobiphenyl	90%		10-153%

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Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64662.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.036	0.018	mg/kg	
11104-28-2	Aroclor 1221	ND	0.036	0.018	mg/kg	
11141-16-5	Aroclor 1232	ND	0.036	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.036	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.036	0.023	mg/kg	
11097-69-1	Aroclor 1254	ND	0.036	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.036	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.036	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.036	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	100%		20-152%
877-09-8	Tetrachloro-m-xylene	99%		20-152%
2051-24-3	Decachlorobiphenyl	87%		12-157%
2051-24-3	Decachlorobiphenyl	110%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.1
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4220	54	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	4.4	2.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	26.4	22	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	0.33	0.22	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.54	0.54	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	856	540	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	14.5	1.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.4	5.4	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	52.7	2.7	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	9620	54	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	42.9	2.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	856	540	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	128	1.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.034	0.034	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	10.8	4.3	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.54	0.54	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	10.3	5.4	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	205	5.4	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.1
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/10/16 12:39	BM	SW846 9012B/LACHAT
Solids, Percent	92.1		%	1	11/06/16 17:30	KP	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131982.D	5	11/07/16	HA	11/06/16	GP1272	V3B5878
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		76-120%
17060-07-0	1,2-Dichloroethane-D4	114%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	92%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31824.D	1	11/11/16	SB	11/10/16	OP98403	E6P1476
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	40%		14-88%
4165-62-2	Phenol-d5	26%		10-110%
118-79-6	2,4,6-Tribromophenol	78%		39-149%
4165-60-0	Nitrobenzene-d5	71%		32-128%
321-60-8	2-Fluorobiphenyl	78%		35-119%
1718-51-0	Terphenyl-d14	103%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104225.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	85%		50-142%
19719-28-9	2,4-DCAA	108%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G75029.D	1	11/17/16	RK	11/09/16	OP98405	G4G1952
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	119%		30-137%
877-09-8	Tetrachloro-m-xylene	120%		30-137%
2051-24-3	Decachlorobiphenyl	97%		10-137%
2051-24-3	Decachlorobiphenyl	95%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.1
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB27-161103		
Lab Sample ID:	JC31165-3A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.1
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.07 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 13:00	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214401.D	1	11/09/16	SY	11/05/16 10:00	n/a	VC7887
Run #2							

	Initial Weight
Run #1	5.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0096	0.0048	mg/kg	
71-43-2	Benzene	ND	0.00048	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0048	0.00031	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0019	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0048	0.00026	mg/kg	
74-83-9	Bromomethane	ND	0.0048	0.00047	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0096	0.0017	mg/kg	
75-15-0	Carbon disulfide	ND	0.0019	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0019	0.00016	mg/kg	
108-90-7	Chlorobenzene	ND	0.0019	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0048	0.00041	mg/kg	
67-66-3	Chloroform	ND	0.0019	0.00023	mg/kg	
74-87-3	Chloromethane	ND	0.0048	0.00020	mg/kg	
110-82-7	Cyclohexane	ND	0.0019	0.00052	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropan [a]	ND	0.0019	0.00047	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0019	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00096	0.00023	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00096	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00096	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00096	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0048	0.00052	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00096	0.00018	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00096	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00096	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00096	0.00042	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00096	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0019	0.00030	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0019	0.00019	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0019	0.00021	mg/kg	
100-41-4	Ethylbenzene	ND	0.00096	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0048	0.00047	mg/kg	
591-78-6	2-Hexanone	ND	0.0048	0.0013	mg/kg	

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0019	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0048	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0019	0.00049	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00096	0.00025	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0048	0.00082	mg/kg	
75-09-2	Methylene chloride	ND	0.0048	0.00096	mg/kg	
100-42-5	Styrene	ND	0.0019	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.024	0.0029	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0019	0.00023	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0019	0.00027	mg/kg	
108-88-3	Toluene	ND	0.00096	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0048	0.00022	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0048	0.00017	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0019	0.00016	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0019	0.00031	mg/kg	
79-01-6	Trichloroethene	ND	0.00096	0.00018	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0048	0.00060	mg/kg	
75-01-4	Vinyl chloride	ND	0.0019	0.00019	mg/kg	
	m,p-Xylene	ND	0.00096	0.00021	mg/kg	
95-47-6	o-Xylene	ND	0.00096	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.00096	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-122%
17060-07-0	1,2-Dichloroethane-D4	109%		68-124%
2037-26-5	Toluene-D8	106%		77-125%
460-00-4	4-Bromofluorobenzene	104%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162423.D	1	11/09/16	JJ	11/08/16	OP98380	EF6835
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.070	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.070	0.022	mg/kg	
	3&4-Methylphenol	ND	0.070	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.070	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0518	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	0.0671	0.035	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.070	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0938	0.035	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.101	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.143	0.035	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0843	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0485	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.070	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.070	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.070	0.0048	mg/kg	
100-52-7	Benzaldehyde	ND	0.18	0.0087	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.070	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	ND	0.070	0.0051	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.070	0.014	mg/kg	
218-01-9	Chrysene	0.109	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.070	0.0075	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.070	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.070	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.070	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.070	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0214	0.035	0.016	mg/kg	J
132-64-9	Dibenzofuran	ND	0.070	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.070	0.0057	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.070	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.070	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.070	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.070	0.0082	mg/kg	
206-44-0	Fluoranthene	0.146	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.070	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0762	0.035	0.016	mg/kg	
78-59-1	Isophorone	ND	0.070	0.0075	mg/kg	
91-57-6	2-Methylnaphthalene	0.0365	0.070	0.0080	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0091	mg/kg	
91-20-3	Naphthalene	0.0400	0.035	0.0099	mg/kg	
98-95-3	Nitrobenzene	ND	0.070	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.070	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.0905	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.155	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0089	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%		30-106%
118-79-6	2,4,6-Tribromophenol	84%		24-140%
4165-60-0	Nitrobenzene-d5	58%		26-122%
321-60-8	2-Fluorobiphenyl	67%		36-112%
1718-51-0	Terphenyl-d14	71%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41321.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00071	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00071	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00071	0.00045	mg/kg	
319-86-8	delta-BHC	ND	0.00071	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00071	0.00032	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00071	0.00034	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00071	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00071	0.00036	mg/kg	
72-54-8	4,4'-DDD	ND	0.00071	0.00046	mg/kg	
72-55-9	4,4'-DDE	ND	0.00071	0.00037	mg/kg	
50-29-3	4,4'-DDT	ND	0.00071	0.00042	mg/kg	
72-20-8	Endrin	ND	0.00071	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00071	0.00029	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00071	0.00042	mg/kg	
959-98-8	Endosulfan-I	ND	0.00071	0.00037	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00071	0.00037	mg/kg	
76-44-8	Heptachlor	ND	0.00071	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00071	0.00038	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00036	mg/kg	
53494-70-5	Endrin ketone	ND	0.00071	0.00055	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0074	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	27%		24-136%
877-09-8	Tetrachloro-m-xylene	28%		24-136%
2051-24-3	Decachlorobiphenyl	30%		10-153%
2051-24-3	Decachlorobiphenyl	28%		10-153%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64663.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	15.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.036	0.018	mg/kg	
11104-28-2	Aroclor 1221	ND	0.036	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.036	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.036	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.036	0.023	mg/kg	
11097-69-1	Aroclor 1254	ND	0.036	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.036	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.036	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.036	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		20-152%
877-09-8	Tetrachloro-m-xylene	93%		20-152%
2051-24-3	Decachlorobiphenyl	80%		12-157%
2051-24-3	Decachlorobiphenyl	106%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6480	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Arsenic	6.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Barium	23.2	21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.31	0.21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Cadmium [a]	< 1.0	1.0	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Calcium	881	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Chromium [a]	12.3	2.1	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Cobalt	< 5.2	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Copper [a]	13.3	5.2	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Iron	39600	100	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Lead [a]	19.6	4.2	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Magnesium	1320	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Manganese [a]	248	3.1	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Mercury	< 0.033	0.033	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [5]
Nickel	10.9	4.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Selenium [a]	< 4.2	4.2	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Silver [a]	1.4	1.0	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Thallium [a]	< 2.1	2.1	mg/kg	2	11/09/16	11/11/16	DE	SW846 6010C [3]	SW846 3050B [4]
Vanadium	12.8	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Zinc	42.1	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Instrument QC Batch: MA40750
(4) Prep QC Batch: MP97063
(5) Prep QC Batch: MP97069

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/10/16 12:41	BM	SW846 9012B/LACHAT
Solids, Percent	92.9		%	1	11/06/16 17:30	KP	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131983.D	5	11/07/16	HA	11/06/16	GP1272	V3B5878
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		76-120%
17060-07-0	1,2-Dichloroethane-D4	111%		64-135%
2037-26-5	Toluene-D8	95%		76-117%
460-00-4	4-Bromofluorobenzene	93%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31825.D	1	11/11/16	SB	11/10/16	OP98403	E6P1476
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%		14-88%
4165-62-2	Phenol-d5	26%		10-110%
118-79-6	2,4,6-Tribromophenol	88%		39-149%
4165-60-0	Nitrobenzene-d5	85%		32-128%
321-60-8	2-Fluorobiphenyl	87%		35-119%
1718-51-0	Terphenyl-d14	97%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104226.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	90%		50-142%
19719-28-9	2,4-DCAA	98%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G75030.D	1	11/17/16	RK	11/09/16	OP98405	G4G1952
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	111%		30-137%
877-09-8	Tetrachloro-m-xylene	109%		30-137%
2051-24-3	Decachlorobiphenyl	90%		10-137%
2051-24-3	Decachlorobiphenyl	86%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB26-161103		
Lab Sample ID:	JC31165-4A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.60 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 13:01	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214389.D	1	11/09/16	SY	11/05/16 10:00	n/a	VC7887
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0092	0.0046	mg/kg	
71-43-2	Benzene	ND	0.00046	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0046	0.00029	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0018	0.00014	mg/kg	
75-25-2	Bromoform	ND	0.0046	0.00024	mg/kg	
74-83-9	Bromomethane	ND	0.0046	0.00045	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0092	0.0016	mg/kg	
75-15-0	Carbon disulfide	ND	0.0018	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0018	0.00015	mg/kg	
108-90-7	Chlorobenzene	ND	0.0018	0.00015	mg/kg	
75-00-3	Chloroethane	ND	0.0046	0.00039	mg/kg	
67-66-3	Chloroform	ND	0.0018	0.00022	mg/kg	
74-87-3	Chloromethane	ND	0.0046	0.00019	mg/kg	
110-82-7	Cyclohexane	ND	0.0018	0.00050	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropan [a]	ND	0.0018	0.00045	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0018	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00092	0.00022	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00092	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00092	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00092	0.00014	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0046	0.00050	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00092	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00092	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00092	0.00014	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00092	0.00040	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00092	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0018	0.00028	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0018	0.00018	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0018	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00092	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0046	0.00045	mg/kg	
591-78-6	2-Hexanone	ND	0.0046	0.0013	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0018	0.00014	mg/kg	
79-20-9	Methyl Acetate	ND	0.0046	0.0019	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0018	0.00046	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00092	0.00024	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0046	0.00078	mg/kg	
75-09-2	Methylene chloride	ND	0.0046	0.00092	mg/kg	
100-42-5	Styrene	ND	0.0018	0.00013	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.023	0.0028	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0018	0.00022	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0018	0.00026	mg/kg	
108-88-3	Toluene	ND	0.00092	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0046	0.00021	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0046	0.00017	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0018	0.00015	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0018	0.00030	mg/kg	
79-01-6	Trichloroethene	ND	0.00092	0.00017	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0046	0.00058	mg/kg	
75-01-4	Vinyl chloride	ND	0.0018	0.00019	mg/kg	
	m,p-Xylene	ND	0.00092	0.00020	mg/kg	
95-47-6	o-Xylene	ND	0.00092	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.00092	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	107%		77-125%
460-00-4	4-Bromofluorobenzene	105%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162424.D	1	11/09/16	JJ	11/08/16	OP98380	EF6835
Run #2							

	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.066	0.016	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.16	0.020	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.16	0.028	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.16	0.059	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.16	0.12	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.16	0.035	mg/kg	
95-48-7	2-Methylphenol	ND	0.066	0.021	mg/kg	
	3&4-Methylphenol	ND	0.066	0.027	mg/kg	
88-75-5	2-Nitrophenol	ND	0.16	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.33	0.088	mg/kg	
87-86-5	Pentachlorophenol	ND	0.13	0.031	mg/kg	
108-95-2	Phenol	ND	0.066	0.017	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.16	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.16	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.16	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.033	0.011	mg/kg	
208-96-8	Acenaphthylene	0.0679	0.033	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.16	0.0071	mg/kg	
120-12-7	Anthracene	0.102	0.033	0.020	mg/kg	
1912-24-9	Atrazine	ND	0.066	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.102	0.033	0.0093	mg/kg	
50-32-8	Benzo(a)pyrene	0.130	0.033	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.220	0.033	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.130	0.033	0.016	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0679	0.033	0.015	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.066	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.066	0.0081	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.066	0.0045	mg/kg	
100-52-7	Benzaldehyde	0.0454	0.16	0.0082	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.066	0.0079	mg/kg	
106-47-8	4-Chloroaniline	ND	0.16	0.012	mg/kg	
86-74-8	Carbazole	0.0283	0.066	0.0048	mg/kg	J

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.066	0.013	mg/kg	
218-01-9	Chrysene	0.136	0.033	0.010	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.066	0.0071	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.066	0.014	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.066	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.066	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.033	0.010	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.033	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.066	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.033	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0401	0.033	0.015	mg/kg	
132-64-9	Dibenzofuran	0.0184	0.066	0.013	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.066	0.0054	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.066	0.0082	mg/kg	
84-66-2	Diethyl phthalate	ND	0.066	0.0070	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.066	0.0059	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.066	0.0077	mg/kg	
206-44-0	Fluoranthene	0.177	0.033	0.015	mg/kg	
86-73-7	Fluorene	0.0153	0.033	0.015	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.066	0.0083	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.033	0.013	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.33	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.16	0.016	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.119	0.033	0.015	mg/kg	
78-59-1	Isophorone	ND	0.066	0.0071	mg/kg	
91-57-6	2-Methylnaphthalene	0.0455	0.066	0.0075	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.16	0.0078	mg/kg	
99-09-2	3-Nitroaniline	ND	0.16	0.0082	mg/kg	
100-01-6	4-Nitroaniline	ND	0.16	0.0085	mg/kg	
91-20-3	Naphthalene	0.0373	0.033	0.0093	mg/kg	
98-95-3	Nitrobenzene	ND	0.066	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.066	0.0095	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.16	0.012	mg/kg	
85-01-8	Phenanthrene	0.108	0.033	0.011	mg/kg	
129-00-0	Pyrene	0.189	0.033	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.16	0.0084	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	66%		30-106%

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B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		30-106%
118-79-6	2,4,6-Tribromophenol	94%		24-140%
4165-60-0	Nitrobenzene-d5	59%		26-122%
321-60-8	2-Fluorobiphenyl	73%		36-112%
1718-51-0	Terphenyl-d14	79%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41322.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2							

	Initial Weight	Final Volume
Run #1	16.5 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00064	0.00030	mg/kg	
319-84-6	alpha-BHC	ND	0.00064	0.00034	mg/kg	
319-85-7	beta-BHC	ND	0.00064	0.00040	mg/kg	
319-86-8	delta-BHC	ND	0.00064	0.00029	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00064	0.00028	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00064	0.00030	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00064	0.00028	mg/kg	
60-57-1	Dieldrin	ND	0.00064	0.00032	mg/kg	
72-54-8	4,4'-DDD	ND	0.00064	0.00041	mg/kg	
72-55-9	4,4'-DDE	ND	0.00064	0.00033	mg/kg	
50-29-3	4,4'-DDT	ND	0.00064	0.00038	mg/kg	
72-20-8	Endrin	ND	0.00064	0.00030	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00064	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00064	0.00038	mg/kg	
959-98-8	Endosulfan-I	ND	0.00064	0.00033	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00064	0.00033	mg/kg	
76-44-8	Heptachlor	ND	0.00064	0.00031	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00064	0.00034	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00032	mg/kg	
53494-70-5	Endrin ketone	ND	0.00064	0.00049	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0066	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		24-136%
877-09-8	Tetrachloro-m-xylene	75%		24-136%
2051-24-3	Decachlorobiphenyl	60%		10-153%
2051-24-3	Decachlorobiphenyl	106%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64664.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	16.5 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.032	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.032	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.032	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.032	0.011	mg/kg	
12672-29-6	Aroclor 1248	ND	0.032	0.020	mg/kg	
11097-69-1	Aroclor 1254	ND	0.032	0.016	mg/kg	
11096-82-5	Aroclor 1260	ND	0.032	0.013	mg/kg	
11100-14-4	Aroclor 1268	ND	0.032	0.011	mg/kg	
37324-23-5	Aroclor 1262	ND	0.032	0.021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		20-152%
877-09-8	Tetrachloro-m-xylene	86%		20-152%
2051-24-3	Decachlorobiphenyl	87%		12-157%
2051-24-3	Decachlorobiphenyl	130%		12-157%

ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5270	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	4.5	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	26.2	21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	0.31	0.21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	1350	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	12.2	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	18.3	2.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	11300	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	27.6	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	1200	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	139	1.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.034	0.034	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	8.3	4.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	12.5	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	29.4	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.24	0.24	mg/kg	1	11/10/16 12:42	BM	SW846 9012B/LACHAT
Solids, Percent	95.3		%	1	11/06/16 17:30	KP	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B131984.D	5	11/07/16	HA	11/06/16	GP1272	V3B5878
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		76-120%
17060-07-0	1,2-Dichloroethane-D4	114%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	93%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31927.D	1	11/14/16	AC	11/10/16	OP98403	E6P1479
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		14-88%
4165-62-2	Phenol-d5	30%		10-110%
118-79-6	2,4,6-Tribromophenol	81%		39-149%
4165-60-0	Nitrobenzene-d5	74%		32-128%
321-60-8	2-Fluorobiphenyl	75%		35-119%
1718-51-0	Terphenyl-d14	107%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104227.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	83%		50-142%
19719-28-9	2,4-DCAA	112%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G75031.D	1	11/17/16	RK	11/09/16	OP98405	G4G1952
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	104%		30-137%
877-09-8	Tetrachloro-m-xylene	104%		30-137%
2051-24-3	Decachlorobiphenyl	93%		10-137%
2051-24-3	Decachlorobiphenyl	91%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB25-161103		
Lab Sample ID:	JC31165-5A	**Date Sampled:**	11/03/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	95.3
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.42 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/08/16 13:02	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214387.D	1	11/09/16	SY	11/05/16 10:00	n/a	VC7887
Run #2							

	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0099	0.0049	mg/kg	
71-43-2	Benzene	ND	0.00049	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0049	0.00031	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0020	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0049	0.00026	mg/kg	
74-83-9	Bromomethane	ND	0.0049	0.00048	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0099	0.0017	mg/kg	
75-15-0	Carbon disulfide	ND	0.0020	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0020	0.00016	mg/kg	
108-90-7	Chlorobenzene	ND	0.0020	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0049	0.00042	mg/kg	
67-66-3	Chloroform	ND	0.0020	0.00023	mg/kg	
74-87-3	Chloromethane	ND	0.0049	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00054	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropan [a]	ND	0.0020	0.00048	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0020	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00099	0.00024	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00099	0.00017	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00099	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00099	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0049	0.00054	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00099	0.00018	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00099	0.00017	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00099	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00099	0.00043	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00099	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0020	0.00030	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0020	0.00019	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0020	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.00099	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0049	0.00048	mg/kg	
591-78-6	2-Hexanone	ND	0.0049	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0020	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0049	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0020	0.00050	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00099	0.00026	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0049	0.00084	mg/kg	
75-09-2	Methylene chloride	ND	0.0049	0.00099	mg/kg	
100-42-5	Styrene	ND	0.0020	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.025	0.0030	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0020	0.00024	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0020	0.00028	mg/kg	
108-88-3	Toluene	ND	0.00099	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0049	0.00022	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0049	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0020	0.00016	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0020	0.00032	mg/kg	
79-01-6	Trichloroethene	ND	0.00099	0.00019	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0049	0.00062	mg/kg	
75-01-4	Vinyl chloride	ND	0.0020	0.00020	mg/kg	
	m,p-Xylene	ND	0.00099	0.00022	mg/kg	
95-47-6	o-Xylene	ND	0.00099	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.00099	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-122%
17060-07-0	1,2-Dichloroethane-D4	108%		68-124%
2037-26-5	Toluene-D8	107%		77-125%
460-00-4	4-Bromofluorobenzene	105%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162449.D	1	11/09/16	AD	11/08/16	OP98380	EF6836
Run #2							

	Initial Weight	Final Volume
Run #1	32.1 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.068	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.060	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.022	mg/kg	
	3&4-Methylphenol	ND	0.068	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.090	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.068	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	0.0315	0.034	0.012	mg/kg	J
208-96-8	Acenaphthylene	0.147	0.034	0.017	mg/kg	
98-86-2	Acetophenone	0.0180	0.17	0.0073	mg/kg	J
120-12-7	Anthracene	0.228	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.068	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.657	0.034	0.0096	mg/kg	
50-32-8	Benzo(a)pyrene	0.693	0.034	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	1.01	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.457	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.363	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.068	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.068	0.0082	mg/kg	
92-52-4	1,1'-Biphenyl	0.0174	0.068	0.0046	mg/kg	J
100-52-7	Benzaldehyde	0.0257	0.17	0.0084	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.068	0.0080	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0663	0.068	0.0049	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.068	0.013	mg/kg	
218-01-9	Chrysene	0.742	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.068	0.0072	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.068	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.068	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.068	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.010	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.068	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.137	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	0.0380	0.068	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0055	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.068	0.0084	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0072	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.068	0.0060	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.281	0.068	0.0079	mg/kg	
206-44-0	Fluoranthene	1.21	0.034	0.015	mg/kg	
86-73-7	Fluorene	0.0464	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.068	0.0085	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.508	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.068	0.0072	mg/kg	
91-57-6	2-Methylnaphthalene	0.0969	0.068	0.0076	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0080	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0084	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0088	mg/kg	
91-20-3	Naphthalene	0.0658	0.034	0.0095	mg/kg	
98-95-3	Nitrobenzene	ND	0.068	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.068	0.0098	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.541	0.034	0.011	mg/kg	
129-00-0	Pyrene	1.12	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0086	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	67%		30-106%
118-79-6	2,4,6-Tribromophenol	91%		24-140%
4165-60-0	Nitrobenzene-d5	68%		26-122%
321-60-8	2-Fluorobiphenyl	71%		36-112%
1718-51-0	Terphenyl-d14	75%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41323.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2 [a]	6G41398.D	5	11/17/16	RK	11/08/16	OP98384	G6G1185

	Initial Weight	Final Volume
Run #1	16.7 g	10.0 ml
Run #2	16.7 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00065	0.00031	mg/kg	
319-84-6	alpha-BHC	ND	0.00065	0.00035	mg/kg	
319-85-7	beta-BHC	ND	0.00065	0.00041	mg/kg	
319-86-8	delta-BHC	ND	0.00065	0.00029	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00065	0.00029	mg/kg	
5103-71-9	alpha-Chlordane [b]	0.0062	0.00065	0.00031	mg/kg	
5103-74-2	gamma-Chlordane [b]	0.0042	0.00065	0.00029	mg/kg	
60-57-1	Dieldrin	ND	0.00065	0.00032	mg/kg	
72-54-8	4,4'-DDD	ND	0.00065	0.00042	mg/kg	
72-55-9	4,4'-DDE [b]	0.0026	0.00065	0.00034	mg/kg	
50-29-3	4,4'-DDT	0.0133	0.00065	0.00039	mg/kg	
72-20-8	Endrin	ND	0.00065	0.00030	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00065	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00065	0.00039	mg/kg	
959-98-8	Endosulfan-I	ND	0.00065	0.00034	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00065	0.00034	mg/kg	
76-44-8	Heptachlor	ND	0.00065	0.00032	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00065	0.00035	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00032	mg/kg	
53494-70-5	Endrin ketone	ND	0.00065	0.00050	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0068	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	93%	81%	24-136%
877-09-8	Tetrachloro-m-xylene	88%	92%	24-136%
2051-24-3	Decachlorobiphenyl	82%	70%	10-153%
2051-24-3	Decachlorobiphenyl	132%	154% [c]	10-153%

(a) Confirmation run.
(b) More than 40 % RPD for detected concentrations between the two GC columns.
(c) Outside of in house control limits.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64665.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	16.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.032	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.032	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.032	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.032	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.032	0.021	mg/kg	
11097-69-1	Aroclor 1254	ND	0.032	0.016	mg/kg	
11096-82-5	Aroclor 1260	ND	0.032	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.032	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.032	0.022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	110%		20-152%
877-09-8	Tetrachloro-m-xylene	98%		20-152%
2051-24-3	Decachlorobiphenyl	103%		12-157%
2051-24-3	Decachlorobiphenyl	162% [a]		12-157%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4970	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	5.5	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	45.6	21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	0.25	0.21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	0.57	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	1510	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	11.3	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	31.1	2.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	9380	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	110	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	985	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	142	1.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	0.099	0.032	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	9.1	4.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	14.0	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	149	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	11/10/16 12:44	BM	SW846 9012B/LACHAT
Solids, Percent	92.2		%	1	11/06/16 17:30	KP	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36425.D	5	11/08/16	EH	11/06/16	GP1272	V2V1425
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		76-120%
17060-07-0	1,2-Dichloroethane-D4	101%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	105%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31977.D	1	11/15/16	AC	11/10/16	OP98403	E6P1481
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		14-88%
4165-62-2	Phenol-d5	40%		10-110%
118-79-6	2,4,6-Tribromophenol	113%		39-149%
4165-60-0	Nitrobenzene-d5	97%		32-128%
321-60-8	2-Fluorobiphenyl	96%		35-119%
1718-51-0	Terphenyl-d14	132% [a]		10-126%

(a) High percent recoveries and no associated positive found in the sample.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104228.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	90%		50-142%
19719-28-9	2,4-DCAA	77%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G75032.D	1	11/17/16	RK	11/09/16	OP98405	G4G1952
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	99%		30-137%
877-09-8	Tetrachloro-m-xylene	100%		30-137%
2051-24-3	Decachlorobiphenyl	87%		10-137%
2051-24-3	Decachlorobiphenyl	84%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB28-161104		
Lab Sample ID:	JC31165-6A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.03 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 13:04	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214402.D	1	11/09/16	SY	11/05/16 10:00	n/a	VC7887
Run #2							

	Initial Weight
Run #1	5.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0050	mg/kg	
71-43-2	Benzene	ND	0.00050	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0050	0.00032	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0020	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0050	0.00027	mg/kg	
74-83-9	Bromomethane	ND	0.0050	0.00048	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0020	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0020	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0020	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0050	0.00043	mg/kg	
67-66-3	Chloroform	ND	0.0020	0.00024	mg/kg	
74-87-3	Chloromethane	ND	0.0050	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00055	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropan [a]	ND	0.0020	0.00048	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0020	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00024	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00017	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0050	0.00054	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00017	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00044	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0020	0.00031	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0020	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0020	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0050	0.00048	mg/kg	
591-78-6	2-Hexanone	ND	0.0050	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0020	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0050	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0020	0.00050	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00026	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0050	0.00085	mg/kg	
75-09-2	Methylene chloride	ND	0.0050	0.0010	mg/kg	
100-42-5	Styrene	ND	0.0020	0.00014	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.025	0.0030	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0020	0.00024	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0020	0.00028	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0050	0.00023	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0050	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0020	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0020	0.00032	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00019	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0050	0.00063	mg/kg	
75-01-4	Vinyl chloride	ND	0.0020	0.00020	mg/kg	
	m,p-Xylene	ND	0.0010	0.00022	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-122%
17060-07-0	1,2-Dichloroethane-D4	113%		68-124%
2037-26-5	Toluene-D8	112%		77-125%
460-00-4	4-Bromofluorobenzene	101%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162450.D	1	11/09/16	AD	11/08/16	OP98380	EF6836
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.070	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.062	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.070	0.022	mg/kg	
	3&4-Methylphenol	ND	0.070	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.070	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0534	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0075	mg/kg	
120-12-7	Anthracene	0.0663	0.035	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.070	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0879	0.035	0.0099	mg/kg	
50-32-8	Benzo(a)pyrene	0.0948	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.194	0.035	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0819	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0595	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.070	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.070	0.0085	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.070	0.0048	mg/kg	
100-52-7	Benzaldehyde	ND	0.18	0.0087	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.070	0.0083	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0164	0.070	0.0051	mg/kg	J

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.070	0.014	mg/kg	
218-01-9	Chrysene	0.105	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.070	0.0075	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.070	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.070	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.070	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.070	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0222	0.035	0.015	mg/kg	J
132-64-9	Dibenzofuran	0.0147	0.070	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.070	0.0057	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.070	0.0087	mg/kg	
84-66-2	Diethyl phthalate	ND	0.070	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.070	0.0062	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.070	0.0082	mg/kg	
206-44-0	Fluoranthene	0.137	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.070	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0922	0.035	0.016	mg/kg	
78-59-1	Isophorone	ND	0.070	0.0075	mg/kg	
91-57-6	2-Methylnaphthalene	0.0321	0.070	0.0079	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0091	mg/kg	
91-20-3	Naphthalene	0.0216	0.035	0.0099	mg/kg	J
98-95-3	Nitrobenzene	ND	0.070	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.070	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.0530	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.133	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0089	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%		30-106%
118-79-6	2,4,6-Tribromophenol	97%		24-140%
4165-60-0	Nitrobenzene-d5	62%		26-122%
321-60-8	2-Fluorobiphenyl	70%		36-112%
1718-51-0	Terphenyl-d14	81%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41324.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00071	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00071	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00071	0.00044	mg/kg	
319-86-8	delta-BHC	ND	0.00071	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00071	0.00031	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0077	0.00071	0.00034	mg/kg	
5103-74-2	gamma-Chlordane	0.0053	0.00071	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00071	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00071	0.00045	mg/kg	
72-55-9	4,4'-DDE [a]	0.00042	0.00071	0.00037	mg/kg	J
50-29-3	4,4'-DDT	0.0032	0.00071	0.00042	mg/kg	
72-20-8	Endrin	ND	0.00071	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00071	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00071	0.00042	mg/kg	
959-98-8	Endosulfan-I	ND	0.00071	0.00037	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00071	0.00037	mg/kg	
76-44-8	Heptachlor	ND	0.00071	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00071	0.00038	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00071	0.00054	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	82%		24-136%
877-09-8	Tetrachloro-m-xylene	81%		24-136%
2051-24-3	Decachlorobiphenyl	72%		10-153%
2051-24-3	Decachlorobiphenyl	102%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64666.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%		20-152%
877-09-8	Tetrachloro-m-xylene	86%		20-152%
2051-24-3	Decachlorobiphenyl	75%		12-157%
2051-24-3	Decachlorobiphenyl	133%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.5
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1560	50	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.0	2.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	2.6	2.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	< 20	20	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.20	0.20	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.50	0.50	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	< 500	500	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	7.3	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.0	5.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	18.6	2.5	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	5080	50	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	21.1	2.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	< 500	500	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	50.6	1.5	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.032	0.032	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	< 4.0	4.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.0	2.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.50	0.50	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	5.1	5.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	17.0	5.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.5
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/10/16 12:45	BM	SW846 9012B/LACHAT
Solids, Percent	94.5		%	1	11/06/16 17:30	KP	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36426.D	5	11/08/16	EH	11/06/16	GP1272	V2V1425
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		76-120%
17060-07-0	1,2-Dichloroethane-D4	101%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	103%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31929.D	1	11/14/16	AC	11/10/16	OP98403	E6P1479
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	40%		14-88%
4165-62-2	Phenol-d5	31%		10-110%
118-79-6	2,4,6-Tribromophenol	78%		39-149%
4165-60-0	Nitrobenzene-d5	70%		32-128%
321-60-8	2-Fluorobiphenyl	74%		35-119%
1718-51-0	Terphenyl-d14	103%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104231.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	84%		50-142%
19719-28-9	2,4-DCAA	103%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	94.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G75033.D	1	11/17/16	RK	11/09/16	OP98405	G4G1952
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	104%		30-137%
877-09-8	Tetrachloro-m-xylene	104%		30-137%
2051-24-3	Decachlorobiphenyl	94%		10-137%
2051-24-3	Decachlorobiphenyl	92%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.5
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB29-161104		
Lab Sample ID:	JC31165-7A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.5
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.81 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 13:05	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167795.D	1	11/11/16	PS	11/05/16 10:00	n/a	VY7288
Run #2							

	Initial Weight
Run #1	5.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0050	mg/kg	
71-43-2	Benzene	ND	0.00050	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0050	0.00032	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0020	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0050	0.00027	mg/kg	
74-83-9	Bromomethane	ND	0.0050	0.00049	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0020	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0020	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0020	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0050	0.00043	mg/kg	
67-66-3	Chloroform	ND	0.0020	0.00024	mg/kg	
74-87-3	Chloromethane	ND	0.0050	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00055	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0020	0.00049	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0020	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00024	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00017	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0050	0.00055	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00017	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00044	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0020	0.00031	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0020	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0020	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0050	0.00049	mg/kg	
591-78-6	2-Hexanone	ND	0.0050	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0020	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0050	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0020	0.00051	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00027	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0050	0.00085	mg/kg	
75-09-2	Methylene chloride	ND	0.0050	0.0010	mg/kg	
100-42-5	Styrene	ND	0.0020	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.025	0.0031	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0020	0.00024	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0020	0.00028	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0050	0.00023	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0050	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0020	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0020	0.00032	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00019	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0050	0.00063	mg/kg	
75-01-4	Vinyl chloride	ND	0.0020	0.00020	mg/kg	
	m,p-Xylene	ND	0.0010	0.00022	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-122%
17060-07-0	1,2-Dichloroethane-D4	114%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	110%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M88832.D	1	11/09/16	AN	11/08/16	OP98410	E2M3944
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.071	0.018	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.064	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.023	mg/kg	
	3&4-Methylphenol	ND	0.071	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.024	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.095	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.034	mg/kg	
108-95-2	Phenol	ND	0.071	0.019	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.024	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.036	0.012	mg/kg	
208-96-8	Acenaphthylene	0.123	0.036	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0077	mg/kg	
120-12-7	Anthracene	0.175	0.036	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.071	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.287	0.036	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.298	0.036	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.603	0.036	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.272	0.036	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.183	0.036	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.071	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.071	0.0087	mg/kg	
92-52-4	1,1'-Biphenyl	0.0215	0.071	0.0049	mg/kg	J
100-52-7	Benzaldehyde	ND	0.18	0.0088	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.071	0.0085	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0715	0.071	0.0052	mg/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.071	0.014	mg/kg	
218-01-9	Chrysene	0.415	0.036	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.071	0.0076	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.071	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.071	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.071	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.036	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.036	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.071	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.036	0.024	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0859	0.036	0.016	mg/kg	
132-64-9	Dibenzofuran	0.0521	0.071	0.015	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0058	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.071	0.0089	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0076	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.071	0.0064	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.071	0.0083	mg/kg	
206-44-0	Fluoranthene	0.436	0.036	0.016	mg/kg	
86-73-7	Fluorene	0.0190	0.036	0.016	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.071	0.0090	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.036	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.36	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.242	0.036	0.017	mg/kg	
78-59-1	Isophorone	ND	0.071	0.0076	mg/kg	
91-57-6	2-Methylnaphthalene	0.125	0.071	0.0081	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0084	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0089	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0092	mg/kg	
91-20-3	Naphthalene	0.108	0.036	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.071	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.071	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.211	0.036	0.012	mg/kg	
129-00-0	Pyrene	0.414	0.036	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0091	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	76%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	70%		30-106%
118-79-6	2,4,6-Tribromophenol	84%		24-140%
4165-60-0	Nitrobenzene-d5	80%		26-122%
321-60-8	2-Fluorobiphenyl	75%		36-112%
1718-51-0	Terphenyl-d14	74%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41325.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2 [a]	6G41399.D	5	11/17/16	RK	11/08/16	OP98384	G6G1185

	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2	15.7 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00069	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00069	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00069	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00069	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00069	0.00031	mg/kg	
5103-71-9	alpha-Chlordane [b]	0.0016	0.00069	0.00033	mg/kg	
5103-74-2	gamma-Chlordane [b]	0.0010	0.00069	0.00030	mg/kg	
60-57-1	Dieldrin	ND	0.00069	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00069	0.00044	mg/kg	
72-55-9	4,4'-DDE [b]	0.0011	0.00069	0.00036	mg/kg	
50-29-3	4,4'-DDT	0.0109	0.00069	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00069	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00069	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00069	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00069	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00069	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00069	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00069	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00034	mg/kg	
53494-70-5	Endrin ketone	ND	0.00069	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%	97%	24-136%
877-09-8	Tetrachloro-m-xylene	94%	107%	24-136%
2051-24-3	Decachlorobiphenyl	79%	80%	10-153%
2051-24-3	Decachlorobiphenyl	136%	138%	10-153%

(a) Confirmation run.
(b) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64667.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	110%		20-152%
877-09-8	Tetrachloro-m-xylene	97%		20-152%
2051-24-3	Decachlorobiphenyl	95%		12-157%
2051-24-3	Decachlorobiphenyl	164% [a]		12-157%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3000	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	3.6	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	24.9	21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.21	0.21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	771	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	10.4	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	38.5	2.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	8330	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	43.7	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	< 520	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	101	1.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	0.16	0.033	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	6.6	4.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	9.4	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	34.3	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.21	0.21	mg/kg	1	11/10/16 12:57	BM	SW846 9012B/LACHAT
Solids, Percent	92.2		%	1	11/07/16 14:50	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36427.D	5	11/08/16	EH	11/06/16	GP1272	V2V1425
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		76-120%
17060-07-0	1,2-Dichloroethane-D4	102%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	104%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31930.D	1	11/14/16	AC	11/10/16	OP98403	E6P1479
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	42%		14-88%
4165-62-2	Phenol-d5	29%		10-110%
118-79-6	2,4,6-Tribromophenol	80%		39-149%
4165-60-0	Nitrobenzene-d5	70%		32-128%
321-60-8	2-Fluorobiphenyl	73%		35-119%
1718-51-0	Terphenyl-d14	113%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104232.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	82%		50-142%
19719-28-9	2,4-DCAA	95%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G75034.D	1	11/17/16	RK	11/09/16	OP98405	G4G1952
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	93%		30-137%
877-09-8	Tetrachloro-m-xylene	92%		30-137%
2051-24-3	Decachlorobiphenyl	86%		10-137%
2051-24-3	Decachlorobiphenyl	81%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB33-161104		
Lab Sample ID:	JC31165-8A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	92.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.51 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 13:06	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C214435.D	1	11/10/16	SY	11/05/16 10:00	n/a	VC7888
Run #2							

	Initial Weight
Run #1	4.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.012	0.0059	mg/kg	
71-43-2	Benzene	ND	0.00059	0.00014	mg/kg	
74-97-5	Bromochloromethane	ND	0.0059	0.00037	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0023	0.00018	mg/kg	
75-25-2	Bromoform	ND	0.0059	0.00031	mg/kg	
74-83-9	Bromomethane	ND	0.0059	0.00057	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.012	0.0021	mg/kg	
75-15-0	Carbon disulfide	0.00026	0.0023	0.00020	mg/kg	J
56-23-5	Carbon tetrachloride	ND	0.0023	0.00019	mg/kg	
108-90-7	Chlorobenzene	ND	0.0023	0.00019	mg/kg	
75-00-3	Chloroethane	ND	0.0059	0.00050	mg/kg	
67-66-3	Chloroform	ND	0.0023	0.00028	mg/kg	
74-87-3	Chloromethane	ND	0.0059	0.00025	mg/kg	
110-82-7	Cyclohexane	ND	0.0023	0.00064	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0023	0.00057	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0023	0.00018	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0012	0.00028	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0012	0.00020	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0012	0.00016	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0012	0.00018	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0059	0.00064	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0012	0.00022	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0012	0.00020	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0012	0.00018	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0012	0.00051	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0012	0.00018	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0023	0.00036	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0023	0.00023	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0023	0.00026	mg/kg	
100-41-4	Ethylbenzene	ND	0.0012	0.00017	mg/kg	
76-13-1	Freon 113	ND	0.0059	0.00057	mg/kg	
591-78-6	2-Hexanone	ND	0.0059	0.0016	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0023	0.00018	mg/kg	
79-20-9	Methyl Acetate	ND	0.0059	0.0024	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0023	0.00059	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0012	0.00031	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0059	0.00099	mg/kg	
75-09-2	Methylene chloride	ND	0.0059	0.0012	mg/kg	
100-42-5	Styrene	ND	0.0023	0.00017	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.029	0.0036	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0023	0.00028	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0023	0.00033	mg/kg	
108-88-3	Toluene	ND	0.0012	0.00015	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0059	0.00026	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0059	0.00021	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0023	0.00020	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0023	0.00038	mg/kg	
79-01-6	Trichloroethene	ND	0.0012	0.00022	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0059	0.00074	mg/kg	
75-01-4	Vinyl chloride	ND	0.0023	0.00024	mg/kg	
	m,p-Xylene	ND	0.0012	0.00026	mg/kg	
95-47-6	o-Xylene	ND	0.0012	0.00024	mg/kg	
1330-20-7	Xylene (total)	ND	0.0012	0.00024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-122%
17060-07-0	1,2-Dichloroethane-D4	111%		68-124%
2037-26-5	Toluene-D8	104%		77-125%
460-00-4	4-Bromofluorobenzene	109%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M88882.D	1	11/10/16	AN	11/08/16	OP98410	E2M3946
Run #2							

	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.068	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.022	mg/kg	
	3&4-Methylphenol	ND	0.068	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.091	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.068	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0264	0.034	0.017	mg/kg	J
98-86-2	Acetophenone	ND	0.17	0.0073	mg/kg	
120-12-7	Anthracene	0.0538	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.068	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0870	0.034	0.0097	mg/kg	
50-32-8	Benzo(a)pyrene	0.100	0.034	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.153	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.111	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0508	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.068	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.068	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.068	0.0047	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0085	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.068	0.0081	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0159	0.068	0.0049	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.068	0.013	mg/kg	
218-01-9	Chrysene	0.106	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.068	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.068	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.068	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.068	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.068	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0311	0.034	0.015	mg/kg	J
132-64-9	Dibenzofuran	ND	0.068	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.068	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.068	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.068	0.0080	mg/kg	
206-44-0	Fluoranthene	0.140	0.034	0.015	mg/kg	
86-73-7	Fluorene	ND	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.068	0.0086	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0926	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.068	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	0.0236	0.068	0.0077	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0080	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0085	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0088	mg/kg	
91-20-3	Naphthalene	0.0182	0.034	0.0096	mg/kg	J
98-95-3	Nitrobenzene	ND	0.068	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.068	0.0099	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.0630	0.034	0.011	mg/kg	
129-00-0	Pyrene	0.119	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0087	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	71%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		30-106%
118-79-6	2,4,6-Tribromophenol	73%		24-140%
4165-60-0	Nitrobenzene-d5	74%		26-122%
321-60-8	2-Fluorobiphenyl	71%		36-112%
1718-51-0	Terphenyl-d14	67%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41326.D	1	11/16/16	RK	11/08/16	OP98384	G6G1184
Run #2							

	Initial Weight	Final Volume
Run #1	16.9 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00064	0.00031	mg/kg	
319-84-6	alpha-BHC	ND	0.00064	0.00034	mg/kg	
319-85-7	beta-BHC	ND	0.00064	0.00040	mg/kg	
319-86-8	delta-BHC	ND	0.00064	0.00029	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00064	0.00028	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.00083	0.00064	0.00030	mg/kg	
5103-74-2	gamma-Chlordane [a]	0.00074	0.00064	0.00028	mg/kg	
60-57-1	Dieldrin	0.0033	0.00064	0.00032	mg/kg	
72-54-8	4,4'-DDD	ND	0.00064	0.00041	mg/kg	
72-55-9	4,4'-DDE [a]	0.00058	0.00064	0.00033	mg/kg	J
50-29-3	4,4'-DDT	0.0036	0.00064	0.00038	mg/kg	
72-20-8	Endrin	ND	0.00064	0.00030	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00064	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00064	0.00038	mg/kg	
959-98-8	Endosulfan-I	ND	0.00064	0.00033	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00064	0.00033	mg/kg	
76-44-8	Heptachlor	ND	0.00064	0.00031	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00064	0.00034	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00032	mg/kg	
53494-70-5	Endrin ketone	ND	0.00064	0.00049	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0066	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		24-136%
877-09-8	Tetrachloro-m-xylene	83%		24-136%
2051-24-3	Decachlorobiphenyl	64%		10-153%
2051-24-3	Decachlorobiphenyl	98%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64668.D	1	11/09/16	KM	11/08/16	OP98382	G5G1501
Run #2							

	Initial Weight	Final Volume
Run #1	16.9 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.031	0.015	mg/kg	
11104-28-2	Aroclor 1221	ND	0.031	0.015	mg/kg	
11141-16-5	Aroclor 1232	ND	0.031	0.012	mg/kg	
53469-21-9	Aroclor 1242	ND	0.031	0.011	mg/kg	
12672-29-6	Aroclor 1248	ND	0.031	0.020	mg/kg	
11097-69-1	Aroclor 1254	ND	0.031	0.016	mg/kg	
11096-82-5	Aroclor 1260	ND	0.031	0.013	mg/kg	
11100-14-4	Aroclor 1268	ND	0.031	0.011	mg/kg	
37324-23-5	Aroclor 1262	ND	0.031	0.021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		20-152%
877-09-8	Tetrachloro-m-xylene	83%		20-152%
2051-24-3	Decachlorobiphenyl	62%		12-157%
2051-24-3	Decachlorobiphenyl	101%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2070	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Arsenic	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Barium	< 21	21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Beryllium	< 0.21	0.21	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Calcium	3860	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Chromium	5.9	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Copper	16.7	2.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Iron	5150	52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Lead	27.3	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Magnesium	2070	520	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Manganese	67.4	1.6	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Mercury	< 0.034	0.034	mg/kg	1	11/10/16	11/10/16	JA	SW846 7471B [1]	SW846 7471B [4]
Nickel	4.7	4.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Vanadium	10	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]
Zinc	29.5	5.2	mg/kg	1	11/09/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [3]

(1) Instrument QC Batch: MA40738
(2) Instrument QC Batch: MA40740
(3) Prep QC Batch: MP97063
(4) Prep QC Batch: MP97069

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.21	0.21	mg/kg	1	11/10/16 12:59	BM	SW846 9012B/LACHAT
Solids, Percent	94.9		%	1	11/07/16 14:50	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36428.D	5	11/08/16	EH	11/06/16	GP1272	V2V1425
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		76-120%
17060-07-0	1,2-Dichloroethane-D4	102%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	104%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31931.D	1	11/14/16	AC	11/10/16	OP98403	E6P1479
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		14-88%
4165-62-2	Phenol-d5	31%		10-110%
118-79-6	2,4,6-Tribromophenol	83%		39-149%
4165-60-0	Nitrobenzene-d5	73%		32-128%
321-60-8	2-Fluorobiphenyl	75%		35-119%
1718-51-0	Terphenyl-d14	100%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104233.D	1	11/14/16	VDT	11/11/16	OP98407	G3G3643
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	88%		50-142%
19719-28-9	2,4-DCAA	106%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	94.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G75035.D	1	11/17/16	RK	11/09/16	OP98405	G4G1952
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	102%		30-137%
877-09-8	Tetrachloro-m-xylene	102%		30-137%
2051-24-3	Decachlorobiphenyl	77%		10-137%
2051-24-3	Decachlorobiphenyl	73%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/07/16	11/07/16	MS	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/07/16	11/09/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40706
(2) Instrument QC Batch: MA40733
(3) Prep QC Batch: MP97024
(4) Prep QC Batch: MP97027

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB31-161104		
Lab Sample ID:	JC31165-9A	**Date Sampled:**	11/04/16
Matrix:	SO - Soil	**Date Received:**	11/04/16
		Percent Solids:	94.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	8.36 NC		su	1	11/11/16 17:00	PO	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/08/16 13:08	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 15:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/09/16 10:18	MP	SW846 CHAP7/9034

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Parameter Certification Exceptions

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Cyanide Reactivity		**SW846 CHAP7/9012 B**	SO	Accutest is not certified for this parameter.[a]
Sulfide Reactivity		**SW846 CHAP7/9034**	SO	Accutest is not certified for this parameter.[a]

(a) Reactivity analyzed following SW846 Chapter 7 is no longer recognized by regulatory agencies. Use of results should be verified through the program to which the data is being submitted.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

SGS ACCUTEST

SLC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC31165

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City State Zip: Florham Park NJ 07932
Project Contact: Brian Crespi bcrespi@matrix-neworld.com
E-mail:
Phone #: 212-324-4251
Sampler(s) Name(s): M. Cleland
Phone #:

Project Information

Project Name: LIRR expansion
Street:
City State: Long Island, NY
Project #: 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)

Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCL/TAL (FULL), TCLP (Full), Reg. chem., Dioxin

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (FULL)	TCLP (Full)	Reg. chem.	Dioxin	LAB USE ONLY
1	SB17-161103	0	11/3/16	0930	MC	S	7					4			3	X	X	X	X	023
2	SB15-161103	0	11/3/16	1152	MC	S	7					4			3	X	X	X	X	801
3	SB27-161103	0	11/3/16	1310	MC	S	7					4			3	X	X	X	X	P31
4	SB26-161103	0	11/3/16	1352	MC	S	7					4			3	X	X	X	X	1403
5	SB25-161103	0	11/3/16	1423	MC	S	7					4			3	X	X	X	X	4097
6	SB28-161104	0	11/4/16	0845	MC	S	7					4			3	X	X	X	X	
7	SB29-161104	0	11/4/16	0957	MC	S	7					4			3	X	X	X	X	
8	SB33-161104	0	11/4/16	1055	MC	S	7					4			3	X	X	X	X	
9	SB31-161104	0	11/4/16	1225	MC	S	7					4			3	X	X	X	X	

INITIAL ASESSMENT 28 JK
LABEL VERIFICATION JK

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] *NJ Data of Known Quality Protocol Reporting*
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

samples on ice
o 3 encores received 11/4/16 JK

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	11/4/16 1330	Chris Lam	Chris Lam	11/4/16 17:00	[signature]
2						
3						
4						
5						

Custody Seal # 326,332 — [x] Intact [ ] Not intact — Preserved where applicable [ ] — On Ice [x] — Cooler Temp 2.8, 3.4°C RG

JC31165: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31165 **Client:** **Project:**

Date / Time Received: 11/4/2016 5:00:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.8); Cooler 2: (3.4);

Cooler Temps (Corrected) °C: Cooler 1: (0.7); Cooler 2: (1.3);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	2		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

JC31165: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31165-1 Collected: 03-NOV-16 09:30 By: MC Received: 04-NOV-16 By: AS SB17-161103						
JC31165-1	SM2540 G-97	06-NOV-16 17:30	KP			SOL104
JC31165-1	SW846 8270D	09-NOV-16 03:14	SB	07-NOV-16	TM	AB8270TCL20
JC31165-1	SW846 8082A	09-NOV-16 07:30	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-1	SW846 8260C	09-NOV-16 18:20	SY			V8260TCL20
JC31165-1	SW846 7471B	10-NOV-16 09:13	JA	10-NOV-16	JA	HG
JC31165-1	SW846 9012B/LACHAT	10-NOV-16 12:37	BM	08-NOV-16	AT	CN
JC31165-1	SW846 6010C	10-NOV-16 16:40	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31165-1	SW846 8081B	16-NOV-16 19:55	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-2 Collected: 03-NOV-16 11:52 By: MC Received: 04-NOV-16 By: AS SB15-161103						
JC31165-2	SM2540 G-97	06-NOV-16 17:30	KP			SOL104
JC31165-2	SW846 8270D	09-NOV-16 02:47	SB	07-NOV-16	TM	AB8270TCL20
JC31165-2	SW846 8081B	09-NOV-16 12:18	KD	08-NOV-16	MS	P8081PESTTCL
JC31165-2	SW846 8081B	09-NOV-16 13:18	KD	08-NOV-16	MS	P8081PESTTCL
JC31165-2	SW846 8082A	09-NOV-16 16:25	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-2	SW846 8260C	09-NOV-16 21:38	SY			V8260TCL20
JC31165-2	SW846 7471B	10-NOV-16 09:15	JA	10-NOV-16	JA	HG
JC31165-2	SW846 9012B/LACHAT	10-NOV-16 12:38	BM	08-NOV-16	AT	CN
JC31165-2	SW846 6010C	10-NOV-16 16:49	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31165-3 Collected: 03-NOV-16 13:10 By: MC Received: 04-NOV-16 By: AS SB27-161103						
JC31165-3	SM2540 G-97	06-NOV-16 17:30	KP			SOL104
JC31165-3	SW846 8270D	09-NOV-16 04:04	JJ	08-NOV-16	AQ	AB8270TCL20
JC31165-3	SW846 8260C	09-NOV-16 14:30	SY			V8260TCL20
JC31165-3	SW846 8082A	09-NOV-16 16:43	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-3	SW846 7471B	10-NOV-16 09:16	JA	10-NOV-16	JA	HG
JC31165-3	SW846 9012B/LACHAT	10-NOV-16 12:39	BM	08-NOV-16	AT	CN

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31165-3	SW846 6010C	10-NOV-16 16:53	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31165-3	SW846 8081B	16-NOV-16 20:12	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-4 Collected: 03-NOV-16 13:52 By: MC Received: 04-NOV-16 By: AS SB26-161103						
JC31165-4	SM2540 G-97	06-NOV-16 17:30	KP			SOL104
JC31165-4	SW846 8270D	09-NOV-16 04:33	JJ	08-NOV-16	AQ	AB8270TCL20
JC31165-4	SW846 8082A	09-NOV-16 17:02	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-4	SW846 8260C	09-NOV-16 20:42	SY			V8260TCL20
JC31165-4	SW846 7471B	10-NOV-16 09:17	JA	10-NOV-16	JA	HG
JC31165-4	SW846 9012B/LACHAT	10-NOV-16 12:41	BM	08-NOV-16	AT	CN
JC31165-4	SW846 6010C	10-NOV-16 16:57	DE	09-NOV-16	RM	AL,AS,BA,BE,CA,CO,K,MG,NA,NI,SB,V,ZN
JC31165-4	SW846 6010C	11-NOV-16 12:24	DE	09-NOV-16	RM	AG,CD,CR,CU,FE,MN,PB,SE,TL
JC31165-4	SW846 8081B	16-NOV-16 20:28	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-5 Collected: 03-NOV-16 14:23 By: MC Received: 04-NOV-16 By: AS SB25-161103						
JC31165-5	SM2540 G-97	06-NOV-16 17:30	KP			SOL104
JC31165-5	SW846 8270D	09-NOV-16 05:01	JJ	08-NOV-16	AQ	AB8270TCL20
JC31165-5	SW846 8260C	09-NOV-16 14:58	SY			V8260TCL20
JC31165-5	SW846 8082A	09-NOV-16 17:20	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-5	SW846 7471B	10-NOV-16 09:21	JA	10-NOV-16	JA	HG
JC31165-5	SW846 9012B/LACHAT	10-NOV-16 12:42	BM	08-NOV-16	AT	CN
JC31165-5	SW846 6010C	10-NOV-16 17:01	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31165-5	SW846 8081B	16-NOV-16 20:45	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-6 Collected: 04-NOV-16 08:45 By: MC Received: 04-NOV-16 By: AS SB28-161104						
JC31165-6	SM2540 G-97	06-NOV-16 17:30	KP			SOL104
JC31165-6	SW846 8260C	09-NOV-16 14:02	SY			V8260TCL20
JC31165-6	SW846 8082A	09-NOV-16 17:38	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-6	SW846 8270D	09-NOV-16 20:17	AD	08-NOV-16	AQ	AB8270TCL20

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31165-6	SW846 7471B	10-NOV-16 09:23	JA	10-NOV-16	JA	HG
JC31165-6	SW846 9012B/LACHAT	10-NOV-16 12:44	BM	08-NOV-16	AT	CN
JC31165-6	SW846 6010C	10-NOV-16 17:14	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31165-6	SW846 8081B	16-NOV-16 21:01	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-6	SW846 8081B	17-NOV-16 23:35	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-7 Collected: 04-NOV-16 09:57 By: MC Received: 04-NOV-16 By: AS SB29-161104						
JC31165-7	SM2540 G-97	06-NOV-16 17:30	KP			SOL104
JC31165-7	SW846 8082A	09-NOV-16 17:57	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-7	SW846 8270D	09-NOV-16 20:46	AD	08-NOV-16	AQ	AB8270TCL20
JC31165-7	SW846 8260C	09-NOV-16 21:09	SY			V8260TCL20
JC31165-7	SW846 7471B	10-NOV-16 09:24	JA	10-NOV-16	JA	HG
JC31165-7	SW846 9012B/LACHAT	10-NOV-16 12:45	BM	08-NOV-16	AT	CN
JC31165-7	SW846 6010C	10-NOV-16 17:18	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31165-7	SW846 8081B	16-NOV-16 21:18	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-8 Collected: 04-NOV-16 10:55 By: MC Received: 04-NOV-16 By: AS SB33-161104						
JC31165-8	SM2540 G-97	07-NOV-16 14:50	MH			SOL104
JC31165-8	SW846 8082A	09-NOV-16 18:15	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-8	SW846 8270D	09-NOV-16 21:18	AN	08-NOV-16	RG	AB8270TCL20
JC31165-8	SW846 7471B	10-NOV-16 09:25	JA	10-NOV-16	JA	HG
JC31165-8	SW846 9012B/LACHAT	10-NOV-16 12:57	BM	09-NOV-16	HS	CN
JC31165-8	SW846 6010C	10-NOV-16 17:22	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31165-8	SW846 8260C	11-NOV-16 17:21	PS			V8260TCL20
JC31165-8	SW846 8081B	16-NOV-16 21:34	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-8	SW846 8081B	17-NOV-16 23:52	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-9 Collected: 04-NOV-16 12:25 By: MC Received: 04-NOV-16 By: AS SB31-161104						

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31165-9	SM2540 G-97	07-NOV-16 14:50	MH			SOL104
JC31165-9	SW846 8082A	09-NOV-16 18:33	KM	08-NOV-16	MS	P8082PCB11AO
JC31165-9	SW846 7471B	10-NOV-16 09:27	JA	10-NOV-16	JA	HG
JC31165-9	SW846 9012B/LACHAT	10-NOV-16 12:59	BM	09-NOV-16	HS	CN
JC31165-9	SW846 8260C	10-NOV-16 17:01	SY			V8260TCL20
JC31165-9	SW846 6010C	10-NOV-16 17:27	DE	09-NOV-16	RM	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31165-9	SW846 8270D	10-NOV-16 20:12	AN	08-NOV-16	RG	AB8270TCL20
JC31165-9	SW846 8081B	16-NOV-16 21:51	RK	08-NOV-16	MS	P8081PESTTCL
JC31165-1A	Collected: 03-NOV-16 09:30 By: MC		Received: 04-NOV-16 By: AS			
SB17-161103						
JC31165-1A	SW846 7470A	07-NOV-16 13:57	MS	07-NOV-16	MS	EHG
JC31165-1A	SW846 8260C	07-NOV-16 14:25	HA	06-NOV-16	MH	V8260TCLP
JC31165-1A	SW846 CHAP7/9012 B	08-NOV-16 12:54	BM	08-NOV-16	CB	CREAC
JC31165-1A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-1A	SW846 6010C	09-NOV-16 21:51	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-1A	SW846 8270D	11-NOV-16 01:56	SB	10-NOV-16	MP	AB8270TCLP
JC31165-1A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-1A	SW846 8151	14-NOV-16 18:03	VDT	11-NOV-16	AD	H8151TCLP
JC31165-1A	SW846 8081B	14-NOV-16 19:36	KD	09-NOV-16	AD	P8081TCLP
JC31165-1A	SW846 1010A/ASTM D93	15-NOV-16 15:00	PO			IGN
JC31165-2A	Collected: 03-NOV-16 11:52 By: MC		Received: 04-NOV-16 By: AS			
SB15-161103						
JC31165-2A	SW846 7470A	07-NOV-16 13:59	MS	07-NOV-16	MS	EHG
JC31165-2A	SW846 8260C	07-NOV-16 19:05	HA	06-NOV-16	MH	V8260TCLP
JC31165-2A	SW846 CHAP7/9012 B	08-NOV-16 12:58	BM	08-NOV-16	CB	CREAC
JC31165-2A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-2A	SW846 6010C	09-NOV-16 22:00	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-2A	SW846 8270D	11-NOV-16 02:20	SB	10-NOV-16	MP	AB8270TCLP
JC31165-2A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-2A	SW846 8151	14-NOV-16 18:34	VDT	11-NOV-16	AD	H8151TCLP
JC31165-2A	SW846 8081B	14-NOV-16 19:50	KD	09-NOV-16	AD	P8081TCLP
JC31165-2A	SW846 1010A/ASTM D93	15-NOV-16 15:00	PO			IGN

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31165-3A	Collected: 03-NOV-16 13:10 By: MC		Received: 04-NOV-16 By: AS			
SB27-161103						
JC31165-3A	SW846 7470A	07-NOV-16 14:03	MS	07-NOV-16	MS	EHG
JC31165-3A	SW846 8260C	07-NOV-16 19:35	HA	06-NOV-16	MH	V8260TCLP
JC31165-3A	SW846 CHAP7/9012 B	08-NOV-16 13:00	BM	08-NOV-16	CB	CREAC
JC31165-3A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-3A	SW846 6010C	09-NOV-16 22:05	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-3A	SW846 8270D	11-NOV-16 02:44	SB	10-NOV-16	MP	AB8270TCLP
JC31165-3A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-3A	SW846 8151	14-NOV-16 19:05	VDT	11-NOV-16	AD	H8151TCLP
JC31165-3A	SW846 1010A/ASTM D93	15-NOV-16 15:00	PO			IGN
JC31165-3A	SW846 8081B	17-NOV-16 19:02	RK	09-NOV-16	AD	P8081TCLP
JC31165-4A	Collected: 03-NOV-16 13:52 By: MC		Received: 04-NOV-16 By: AS			
SB26-161103						
JC31165-4A	SW846 7470A	07-NOV-16 14:04	MS	07-NOV-16	MS	EHG
JC31165-4A	SW846 8260C	07-NOV-16 20:05	HA	06-NOV-16	MH	V8260TCLP
JC31165-4A	SW846 CHAP7/9012 B	08-NOV-16 13:01	BM	08-NOV-16	CB	CREAC
JC31165-4A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-4A	SW846 6010C	09-NOV-16 22:09	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-4A	SW846 8270D	11-NOV-16 03:08	SB	10-NOV-16	MP	AB8270TCLP
JC31165-4A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-4A	SW846 8151	14-NOV-16 19:35	VDT	11-NOV-16	AD	H8151TCLP
JC31165-4A	SW846 1010A/ASTM D93	15-NOV-16 15:00	PO			IGN
JC31165-4A	SW846 8081B	17-NOV-16 19:16	RK	09-NOV-16	AD	P8081TCLP
JC31165-5A	Collected: 03-NOV-16 14:23 By: MC		Received: 04-NOV-16 By: AS			
SB25-161103						
JC31165-5A	SW846 7470A	07-NOV-16 14:06	MS	07-NOV-16	MS	EHG
JC31165-5A	SW846 8260C	07-NOV-16 20:36	HA	06-NOV-16	MH	V8260TCLP
JC31165-5A	SW846 CHAP7/9012 B	08-NOV-16 13:02	BM	08-NOV-16	CB	CREAC
JC31165-5A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-5A	SW846 6010C	09-NOV-16 22:13	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-5A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-5A	SW846 8270D	14-NOV-16 12:21	AC	10-NOV-16	MP	AB8270TCLP
JC31165-5A	SW846 8151	14-NOV-16 20:06	VDT	11-NOV-16	AD	H8151TCLP

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31165-5A	SW846 1010A/ASTM D93	03-NOV-16 15:00	PO			IGN
JC31165-5A	SW846 8081B	17-NOV-16 19:30	RK	09-NOV-16	AD	P8081TCLP
JC31165-6A	Collected: 04-NOV-16 08:45 By: MC		Received: 04-NOV-16 By: AS			
SB28-161104						
JC31165-6A	SW846 7470A	07-NOV-16 14:07	MS	07-NOV-16	MS	EHG
JC31165-6A	SW846 8260C	08-NOV-16 02:15	EH	06-NOV-16	MH	V8260TCLP
JC31165-6A	SW846 CHAP7/9012 B	08-NOV-16 13:04	BM	08-NOV-16	CB	CREAC
JC31165-6A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-6A	SW846 6010C	09-NOV-16 22:18	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-6A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-6A	SW846 8151	14-NOV-16 20:37	VDT	11-NOV-16	AD	H8151TCLP
JC31165-6A	SW846 8270D	15-NOV-16 10:06	AC	10-NOV-16	MP	AB8270TCLP
JC31165-6A	SW846 1010A/ASTM D93	03-NOV-16 15:00	PO			IGN
JC31165-6A	SW846 8081B	17-NOV-16 19:45	RK	09-NOV-16	AD	P8081TCLP
JC31165-7A	Collected: 04-NOV-16 09:57 By: MC		Received: 04-NOV-16 By: AS			
SB29-161104						
JC31165-7A	SW846 7470A	07-NOV-16 14:08	MS	07-NOV-16	MS	EHG
JC31165-7A	SW846 8260C	08-NOV-16 02:42	EH	06-NOV-16	MH	V8260TCLP
JC31165-7A	SW846 CHAP7/9012 B	08-NOV-16 13:05	BM	08-NOV-16	CB	CREAC
JC31165-7A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-7A	SW846 6010C	09-NOV-16 22:22	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-7A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-7A	SW846 8270D	14-NOV-16 13:09	AC	10-NOV-16	MP	AB8270TCLP
JC31165-7A	SW846 8151	14-NOV-16 22:10	VDT	11-NOV-16	AD	H8151TCLP
JC31165-7A	SW846 1010A/ASTM D93	03-NOV-16 15:00	PO			IGN
JC31165-7A	SW846 8081B	17-NOV-16 19:59	RK	09-NOV-16	AD	P8081TCLP
JC31165-8A	Collected: 04-NOV-16 10:55 By: MC		Received: 04-NOV-16 By: AS			
SB33-161104						
JC31165-8A	SW846 7470A	07-NOV-16 14:10	MS	07-NOV-16	MS	EHG
JC31165-8A	SW846 8260C	08-NOV-16 03:08	EH	06-NOV-16	MH	V8260TCLP
JC31165-8A	SW846 CHAP7/9012 B	08-NOV-16 13:06	BM	08-NOV-16	CB	CREAC
JC31165-8A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-8A	SW846 6010C	09-NOV-16 22:35	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-8A	SW846 9045D	11-NOV-16 17:00	PO			CORR

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31165

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31165-8A	SW846 8270D	14-NOV-16 13:33	AC	10-NOV-16	MP	AB8270TCLP
JC31165-8A	SW846 8151	14-NOV-16 22:41	VDT	11-NOV-16	AD	H8151TCLP
JC31165-8A	SW846 1010A/ASTM D93	13-NOV-16 15:00	PO			IGN
JC31165-8A	SW846 8081B	17-NOV-16 20:14	RK	09-NOV-16	AD	P8081TCLP
JC31165-9A	Collected: 04-NOV-16 12:25 By: MC		Received: 04-NOV-16 By: AS			
SB31-161104						
JC31165-9A	SW846 7470A	07-NOV-16 14:11	MS	07-NOV-16	MS	EHG
JC31165-9A	SW846 8260C	08-NOV-16 03:35	EH	06-NOV-16	MH	V8260TCLP
JC31165-9A	SW846 CHAP7/9012 B	08-NOV-16 13:08	BM	08-NOV-16	CB	CREAC
JC31165-9A	SW846 CHAP7/9034	09-NOV-16 10:18	MP	08-NOV-16	CB	SREAC
JC31165-9A	SW846 6010C	09-NOV-16 22:40	DE	07-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31165-9A	SW846 9045D	11-NOV-16 17:00	PO			CORR
JC31165-9A	SW846 8270D	14-NOV-16 13:57	AC	10-NOV-16	MP	AB8270TCLP
JC31165-9A	SW846 8151	14-NOV-16 23:11	VDT	11-NOV-16	AD	H8151TCLP
JC31165-9A	SW846 1010A/ASTM D93	13-NOV-16 15:00	PO			IGN
JC31165-9A	SW846 8081B	17-NOV-16 20:28	RK	09-NOV-16	AD	P8081TCLP

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-1.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-1.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-1.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-1.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-1.1	Secured Storage	Tin Marlar	11/07/16 10:20	Retrieve from Storage
JC31165-1.1	Tin Marlar	Secured Storage	11/07/16 12:44	Return to Storage
JC31165-1.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-1.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-1.1	Secured Storage	Todd Shoemaker	11/08/16 15:12	Retrieve from Storage
JC31165-1.1	Todd Shoemaker	Secured Staging Area	11/08/16 15:12	Return to Storage
JC31165-1.1	Secured Staging Area	Amir Takla	11/08/16 18:37	Retrieve from Storage
JC31165-1.1	Amir Takla	Secured Storage	11/08/16 21:59	Return to Storage
JC31165-1.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-1.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-1.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-1.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-1.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-1.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-1.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-1.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-1.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-1.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-1.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-1.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-1.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-1.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-1.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-1.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-1.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-1.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-1.1
JC31165-1.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-1.1
JC31165-1.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-1.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-1.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-1.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-1.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-1.1
JC31165-1.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-1.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-1.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-1.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-1.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-1.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage

SGS Accutest Internal Chain of Custody

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Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-1.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-1.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-1.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-1.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-1.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-1.1.3	Tin Marlar	Organics Prep	11/07/16 10:20	Extract from JC31165-1.1
JC31165-1.1.3	Organics Prep	Tin Marlar	11/07/16 15:08	Extract from JC31165-1.1
JC31165-1.1.3	Tin Marlar	Extract Storage	11/07/16 15:08	Return to Storage
JC31165-1.1.3	Extract Storage	Arielle Cocozza	11/08/16 13:54	Retrieve from Storage
JC31165-1.1.3	Arielle Cocozza	GCMS6P	11/08/16 13:54	Load on Instrument
JC31165-1.1.3	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC31165-1.1.3	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC31165-1.1.4	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-1.1.1
JC31165-1.1.4	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-1.1.1
JC31165-1.1.4	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-1.1.5	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-1.1
JC31165-1.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-1.1
JC31165-1.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-1.1.5	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-1.1.5	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument
JC31165-1.1.6	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-1.1
JC31165-1.1.6	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-1.1
JC31165-1.1.6	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-1.1.6	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-1.1.6	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-1.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-1.1.2
JC31165-1.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-1.1.2
JC31165-1.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-1.1.7	Extract Storage	Arielle Cocozza	11/09/16 10:04	Retrieve from Storage
JC31165-1.1.7	Arielle Cocozza	GCMS6P	11/09/16 10:04	Load on Instrument
JC31165-1.1.7	GCMS6P	Arielle Cocozza	11/10/16 11:28	Unload from Instrument
JC31165-1.1.7	Arielle Cocozza	Extract Freezer	11/10/16 11:28	Return to Storage
JC31165-1.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-1.1.2
JC31165-1.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-1.1.2
JC31165-1.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-1.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-1.1.2

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-1.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-1.1.2
JC31165-1.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-1.1.2
JC31165-1.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-1.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-1.1.2
JC31165-1.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-1.1.2
JC31165-1.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-1.1.11	Extract Storage	Christine Phillips	11/14/16 15:54	Retrieve from Storage
JC31165-1.1.11	Christine Phillips	GC4G	11/14/16 15:54	Load on Instrument
JC31165-1.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-1.1.2
JC31165-1.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-1.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-1.1.2
JC31165-1.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-1.1.2
JC31165-1.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-1.1.2
JC31165-1.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-1.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-1.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-1.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-1.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-1.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-1.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-1.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-1.3
JC31165-1.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-1.3
JC31165-1.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-1.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-1.3
JC31165-1.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-1.3.2	Secured Storage	HeeEun Ahn	11/07/16 11:48	Retrieve from Storage
JC31165-1.3.2	HeeEun Ahn	Secured Storage	11/07/16 16:49	Return to Storage
JC31165-1.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
JC31165-1.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31165-1.4	Sahara Feliciano	Secured Staging Area	11/06/16 08:00	Return to Storage
JC31165-1.4	Secured Staging Area	Kruti Patel	11/06/16 11:12	Retrieve from Storage
JC31165-1.4	Kruti Patel	Secured Storage	11/06/16 12:52	Return to Storage
JC31165-1.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-1.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-1.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-1.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-1.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-1.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-1.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-1.4
JC31165-1.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-1.4
JC31165-1.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-1.6	Secured Storage	Joshua Reitan	11/04/16 21:05	Retrieve from Storage
JC31165-1.6	Joshua Reitan	Secured Storage	11/04/16 21:05	Return to Storage
JC31165-1.7	Secured Storage	Joshua Reitan	11/04/16 21:05	Retrieve from Storage
JC31165-1.7	Joshua Reitan	Secured Storage	11/04/16 21:05	Return to Storage
JC31165-1.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-1.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-1.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-1.7	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-1.8	Secured Storage	Joshua Reitan	11/04/16 21:05	Retrieve from Storage
JC31165-1.8	Joshua Reitan	Secured Storage	11/04/16 21:05	Return to Storage
JC31165-2.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-2.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-2.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-2.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-2.1	Secured Storage	Tin Marlar	11/07/16 10:20	Retrieve from Storage
JC31165-2.1	Tin Marlar	Secured Storage	11/07/16 12:44	Return to Storage
JC31165-2.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-2.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-2.1	Secured Storage	Todd Shoemaker	11/08/16 15:12	Retrieve from Storage
JC31165-2.1	Todd Shoemaker	Secured Staging Area	11/08/16 15:12	Return to Storage
JC31165-2.1	Secured Staging Area	Amir Takla	11/08/16 18:37	Retrieve from Storage
JC31165-2.1	Amir Takla	Secured Storage	11/08/16 21:59	Return to Storage
JC31165-2.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-2.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-2.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-2.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-2.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-2.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-2.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-2.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-2.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-2.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-2.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-2.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-2.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-2.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-2.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-2.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-2.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-2.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-2.1
JC31165-2.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-2.1
JC31165-2.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-2.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-2.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-2.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-2.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-2.1
JC31165-2.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-2.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-2.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-2.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-2.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-2.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-2.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-2.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-2.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-2.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-2.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-2.1.3	Tin Marlar	Organics Prep	11/07/16 10:20	Extract from JC31165-2.1
JC31165-2.1.3	Organics Prep	Tin Marlar	11/07/16 15:08	Extract from JC31165-2.1
JC31165-2.1.3	Tin Marlar	Extract Storage	11/07/16 15:08	Return to Storage
JC31165-2.1.3	Extract Storage	Arielle Cocozza	11/08/16 13:54	Retrieve from Storage
JC31165-2.1.3	Arielle Cocozza	GCMS6P	11/08/16 13:54	Load on Instrument
JC31165-2.1.3	GCMS6P	Arielle Cocozza	11/09/16 09:13	Unload from Instrument
JC31165-2.1.3	Arielle Cocozza	Extract Freezer	11/09/16 09:13	Return to Storage
JC31165-2.1.4	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-2.1.1
JC31165-2.1.4	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-2.1.1
JC31165-2.1.4	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-2.1.5	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-2.1
JC31165-2.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-2.1
JC31165-2.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-2.1.5	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-2.1.5	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-2.1.6	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-2.1
JC31165-2.1.6	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-2.1
JC31165-2.1.6	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-2.1.6	Extract Storage	Kristen Drake	11/09/16 09:46	Retrieve from Storage
JC31165-2.1.6	Kristen Drake	GC6G	11/09/16 09:46	Load on Instrument
JC31165-2.1.6	GC6G	Rebecca Krug	11/16/16 10:44	Unload from Instrument
JC31165-2.1.6	Rebecca Krug	Extract Freezer	11/16/16 10:44	Return to Storage
JC31165-2.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-2.1.2
JC31165-2.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-2.1.2
JC31165-2.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-2.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-2.1.2
JC31165-2.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-2.1.2
JC31165-2.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-2.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-2.1.2
JC31165-2.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-2.1.2
JC31165-2.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-2.1.2
JC31165-2.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-2.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-2.1.2
JC31165-2.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-2.1.2
JC31165-2.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-2.1.11	Extract Storage	Christine Phillips	11/14/16 15:54	Retrieve from Storage
JC31165-2.1.11	Christine Phillips	GC4G	11/14/16 15:54	Load on Instrument
JC31165-2.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-2.1.2
JC31165-2.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-2.1.2
JC31165-2.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-2.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-2.1.2
JC31165-2.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-2.1.2
JC31165-2.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-2.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-2.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-2.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-2.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-2.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-2.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-2.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-2.3
JC31165-2.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-2.3
JC31165-2.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-2.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-2.3
JC31165-2.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-2.3.2	Secured Storage	HeeEun Ahn	11/07/16 11:48	Retrieve from Storage
JC31165-2.3.2	HeeEun Ahn	Secured Storage	11/07/16 16:49	Return to Storage
JC31165-2.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
JC31165-2.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31165-2.4	Sahara Feliciano	Secured Staging Area	11/06/16 08:00	Return to Storage
JC31165-2.4	Secured Staging Area	Kruti Patel	11/06/16 11:12	Retrieve from Storage
JC31165-2.4	Kruti Patel	Secured Storage	11/06/16 12:52	Return to Storage
JC31165-2.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-2.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-2.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-2.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-2.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-2.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-2.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-2.4
JC31165-2.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-2.4
JC31165-2.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-2.6	Secured Storage	Joshua Reitan	11/04/16 21:05	Retrieve from Storage
JC31165-2.6	Joshua Reitan	Secured Storage	11/04/16 21:05	Return to Storage
JC31165-2.7	Secured Storage	Joshua Reitan	11/04/16 21:05	Retrieve from Storage
JC31165-2.7	Joshua Reitan	Secured Storage	11/04/16 21:05	Return to Storage
JC31165-2.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-2.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-2.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-2.7	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-2.8	Secured Storage	Joshua Reitan	11/04/16 21:05	Retrieve from Storage
JC31165-2.8	Joshua Reitan	Secured Storage	11/04/16 21:05	Return to Storage
JC31165-3.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-3.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-3.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-3.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-3.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-3.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-3.1	Secured Storage	Todd Shoemaker	11/08/16 15:12	Retrieve from Storage
JC31165-3.1	Todd Shoemaker	Secured Staging Area	11/08/16 15:12	Return to Storage
JC31165-3.1	Secured Staging Area	Amir Takla	11/08/16 18:37	Retrieve from Storage
JC31165-3.1	Amir Takla	Secured Storage	11/08/16 21:59	Return to Storage
JC31165-3.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-3.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-3.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-3.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-3.1	Secured Storage	Alfredo Crespo	11/11/16 08:04	Retrieve from Storage
JC31165-3.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:04	Return to Storage
JC31165-3.1	Secured Staging Area	Paul Ojugo	11/11/16 08:34	Retrieve from Storage
JC31165-3.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-3.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-3.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-3.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-3.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-3.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-3.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-3.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-3.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-3.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-3.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-3.1
JC31165-3.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-3.1
JC31165-3.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-3.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-3.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-3.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-3.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-3.1
JC31165-3.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-3.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-3.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-3.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-3.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-3.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-3.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-3.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-3.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-3.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-3.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-3.1.3	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-3.1.1
JC31165-3.1.3	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-3.1.1
JC31165-3.1.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-3.1.4	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-3.1
JC31165-3.1.4	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-3.1
JC31165-3.1.4	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-3.1.4	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-3.1.4	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument
JC31165-3.1.5	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-3.1
JC31165-3.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-3.1
JC31165-3.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-3.1.5	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-3.1.5	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-3.1.6	Steven Zarchy	Organics Prep	11/08/16 07:20	Extract from JC31165-3.1
JC31165-3.1.6	Organics Prep	Albert Quayson	11/08/16 16:53	Extract from JC31165-3.1
JC31165-3.1.6	Albert Quayson	Extract Storage	11/08/16 16:53	Return to Storage
JC31165-3.1.6	Extract Storage	Julius Johnson	11/08/16 19:50	Retrieve from Storage
JC31165-3.1.6	Julius Johnson	GCMSF	11/08/16 19:50	Load on Instrument
JC31165-3.1.6	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC31165-3.1.6	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC31165-3.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-3.1.2
JC31165-3.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-3.1.2
JC31165-3.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-3.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-3.1.2
JC31165-3.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-3.1.2
JC31165-3.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-3.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-3.1.2
JC31165-3.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-3.1.2
JC31165-3.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-3.1.2
JC31165-3.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-3.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-3.1.2
JC31165-3.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-3.1.2
JC31165-3.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-3.1.11	Extract Storage	Kristen Drake	11/17/16 15:59	Retrieve from Storage
JC31165-3.1.11	Kristen Drake	GC4G	11/17/16 15:59	Load on Instrument

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-3.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-3.1.2
JC31165-3.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-3.1.2
JC31165-3.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-3.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-3.1.2
JC31165-3.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-3.1.2
JC31165-3.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-3.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-3.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-3.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-3.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-3.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-3.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-3.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-3.3
JC31165-3.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-3.3
JC31165-3.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-3.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-3.3
JC31165-3.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-3.3.2	Secured Storage	HeeEun Ahn	11/07/16 11:48	Retrieve from Storage
JC31165-3.3.2	HeeEun Ahn	Secured Storage	11/07/16 16:49	Return to Storage
JC31165-3.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
JC31165-3.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31165-3.4	Sahara Feliciano	Secured Staging Area	11/06/16 08:00	Return to Storage
JC31165-3.4	Secured Staging Area	Kruti Patel	11/06/16 11:12	Retrieve from Storage
JC31165-3.4	Kruti Patel	Secured Storage	11/06/16 12:52	Return to Storage
JC31165-3.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-3.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-3.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-3.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-3.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-3.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-3.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-3.4
JC31165-3.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-3.4
JC31165-3.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-3.6	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-3.6	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-3.7	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-3.7	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-3.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-3.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-3.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-3.7	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-3.8	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-3.8	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-3.8	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-3.8	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-3.8	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-3.8	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-4.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-4.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-4.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-4.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-4.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-4.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-4.1	Secured Storage	Todd Shoemaker	11/08/16 15:12	Retrieve from Storage
JC31165-4.1	Todd Shoemaker	Secured Staging Area	11/08/16 15:12	Return to Storage
JC31165-4.1	Secured Staging Area	Amir Takla	11/08/16 18:37	Retrieve from Storage
JC31165-4.1	Amir Takla	Secured Storage	11/08/16 21:59	Return to Storage
JC31165-4.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-4.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-4.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-4.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-4.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-4.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-4.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-4.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-4.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-4.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-4.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-4.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-4.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-4.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-4.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-4.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-4.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-4.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-4.1

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-4.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-4.1
JC31165-4.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-4.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-4.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-4.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-4.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-4.1
JC31165-4.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-4.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-4.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-4.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-4.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-4.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-4.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-4.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-4.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-4.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-4.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-4.1.3	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-4.1.1
JC31165-4.1.3	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-4.1.1
JC31165-4.1.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-4.1.4	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-4.1
JC31165-4.1.4	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-4.1
JC31165-4.1.4	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-4.1.4	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-4.1.4	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument
JC31165-4.1.5	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-4.1
JC31165-4.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-4.1
JC31165-4.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-4.1.5	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-4.1.5	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-4.1.6	Steven Zarchy	Organics Prep	11/08/16 07:20	Extract from JC31165-4.1
JC31165-4.1.6	Organics Prep	Albert Quayson	11/08/16 16:53	Extract from JC31165-4.1
JC31165-4.1.6	Albert Quayson	Extract Storage	11/08/16 16:53	Return to Storage
JC31165-4.1.6	Extract Storage	Julius Johnson	11/08/16 19:50	Retrieve from Storage
JC31165-4.1.6	Julius Johnson	GCMSF	11/08/16 19:50	Load on Instrument
JC31165-4.1.6	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC31165-4.1.6	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC31165-4.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-4.1.2

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-4.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-4.1.2
JC31165-4.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-4.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-4.1.2
JC31165-4.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-4.1.2
JC31165-4.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-4.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-4.1.2
JC31165-4.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-4.1.2
JC31165-4.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-4.1.2
JC31165-4.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-4.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-4.1.2
JC31165-4.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-4.1.2
JC31165-4.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-4.1.11	Extract Storage	Kristen Drake	11/17/16 15:59	Retrieve from Storage
JC31165-4.1.11	Kristen Drake	GC4G	11/17/16 15:59	Load on Instrument
JC31165-4.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-4.1.2
JC31165-4.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-4.1.2
JC31165-4.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-4.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-4.1.2
JC31165-4.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-4.1.2
JC31165-4.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-4.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-4.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-4.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-4.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-4.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-4.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-4.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-4.3
JC31165-4.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-4.3
JC31165-4.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-4.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-4.3
JC31165-4.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-4.3.2	Secured Storage	HeeEun Ahn	11/07/16 11:48	Retrieve from Storage
JC31165-4.3.2	HeeEun Ahn	Secured Storage	11/07/16 16:49	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-4.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
JC31165-4.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31165-4.4	Sahara Feliciano	Secured Staging Area	11/06/16 08:00	Return to Storage
JC31165-4.4	Secured Staging Area	Kruti Patel	11/06/16 11:12	Retrieve from Storage
JC31165-4.4	Kruti Patel	Secured Storage	11/06/16 12:52	Return to Storage
JC31165-4.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-4.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-4.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-4.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-4.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-4.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-4.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-4.4
JC31165-4.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-4.4
JC31165-4.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-4.6	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-4.6	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-4.7	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-4.7	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-4.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-4.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-4.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-4.7	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-4.8	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-4.8	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-5.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-5.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-5.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-5.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-5.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-5.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-5.1	Secured Storage	Todd Shoemaker	11/08/16 15:12	Retrieve from Storage
JC31165-5.1	Todd Shoemaker	Secured Staging Area	11/08/16 15:12	Return to Storage
JC31165-5.1	Secured Staging Area	Amir Takla	11/08/16 18:37	Retrieve from Storage
JC31165-5.1	Amir Takla	Secured Storage	11/08/16 21:59	Return to Storage
JC31165-5.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-5.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-5.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-5.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
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Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-5.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-5.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-5.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-5.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-5.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-5.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-5.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-5.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-5.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-5.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-5.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-5.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-5.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-5.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-5.1
JC31165-5.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-5.1
JC31165-5.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-5.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-5.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-5.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-5.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-5.1
JC31165-5.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-5.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-5.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-5.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-5.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-5.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-5.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-5.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-5.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-5.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-5.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-5.1.3	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-5.1.1
JC31165-5.1.3	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-5.1.1
JC31165-5.1.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-5.1.4	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-5.1
JC31165-5.1.4	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-5.1
JC31165-5.1.4	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-5.1.4	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-5.1.4	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument

SGS Accutest Internal Chain of Custody

Job Number: JC31165
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Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-5.1.5	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-5.1
JC31165-5.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-5.1
JC31165-5.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-5.1.5	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-5.1.5	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-5.1.6	Steven Zarchy	Organics Prep	11/08/16 07:20	Extract from JC31165-5.1
JC31165-5.1.6	Organics Prep	Albert Quayson	11/08/16 16:53	Extract from JC31165-5.1
JC31165-5.1.6	Albert Quayson	Extract Storage	11/08/16 16:53	Return to Storage
JC31165-5.1.6	Extract Storage	Julius Johnson	11/08/16 19:50	Retrieve from Storage
JC31165-5.1.6	Julius Johnson	GCMSF	11/08/16 19:50	Load on Instrument
JC31165-5.1.6	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC31165-5.1.6	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC31165-5.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-5.1.2
JC31165-5.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-5.1.2
JC31165-5.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-5.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-5.1.2
JC31165-5.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-5.1.2
JC31165-5.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-5.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-5.1.2
JC31165-5.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-5.1.2
JC31165-5.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-5.1.2
JC31165-5.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-5.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-5.1.2
JC31165-5.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-5.1.2
JC31165-5.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-5.1.11	Extract Storage	Kristen Drake	11/17/16 15:59	Retrieve from Storage
JC31165-5.1.11	Kristen Drake	GC4G	11/17/16 15:59	Load on Instrument
JC31165-5.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-5.1.2
JC31165-5.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-5.1.2
JC31165-5.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-5.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-5.1.2
JC31165-5.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-5.1.2
JC31165-5.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-5.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-5.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-5.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-5.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-5.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-5.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-5.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-5.3
JC31165-5.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-5.3
JC31165-5.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-5.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-5.3
JC31165-5.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-5.3.2	Secured Storage	HeeEun Ahn	11/07/16 11:48	Retrieve from Storage
JC31165-5.3.2	HeeEun Ahn	Secured Storage	11/07/16 16:49	Return to Storage
JC31165-5.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
JC31165-5.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31165-5.4	Sahara Feliciano	Secured Staging Area	11/06/16 08:00	Return to Storage
JC31165-5.4	Secured Staging Area	Kruti Patel	11/06/16 11:12	Retrieve from Storage
JC31165-5.4	Kruti Patel	Secured Storage	11/06/16 12:52	Return to Storage
JC31165-5.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-5.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-5.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-5.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-5.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-5.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-5.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-5.4
JC31165-5.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-5.4
JC31165-5.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-5.6	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-5.6	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-5.7	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-5.7	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-5.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-5.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-5.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-5.7	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-5.8	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-5.8	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage

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Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-5.8	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-5.8	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-5.8	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-5.8	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-6.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-6.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-6.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-6.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-6.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-6.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-6.1	Secured Storage	Todd Shoemaker	11/08/16 15:12	Retrieve from Storage
JC31165-6.1	Todd Shoemaker	Secured Staging Area	11/08/16 15:12	Return to Storage
JC31165-6.1	Secured Staging Area	Amir Takla	11/08/16 18:37	Retrieve from Storage
JC31165-6.1	Amir Takla	Secured Storage	11/08/16 21:59	Return to Storage
JC31165-6.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-6.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-6.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-6.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-6.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-6.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-6.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-6.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-6.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-6.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-6.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-6.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-6.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-6.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-6.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-6.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-6.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-6.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-6.1
JC31165-6.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-6.1
JC31165-6.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-6.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-6.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-6.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-6.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-6.1
JC31165-6.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-6.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-6.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage

SGS Accutest Internal Chain of Custody

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-6.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-6.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-6.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-6.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-6.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-6.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-6.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-6.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-6.1.3	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-6.1.1
JC31165-6.1.3	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-6.1.1
JC31165-6.1.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-6.1.4	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-6.1
JC31165-6.1.4	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-6.1
JC31165-6.1.4	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-6.1.4	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-6.1.4	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument
JC31165-6.1.5	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-6.1
JC31165-6.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-6.1
JC31165-6.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-6.1.5	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-6.1.5	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-6.1.6	Steven Zarchy	Organics Prep	11/08/16 07:20	Extract from JC31165-6.1
JC31165-6.1.6	Organics Prep	Albert Quayson	11/08/16 16:53	Extract from JC31165-6.1
JC31165-6.1.6	Albert Quayson	Extract Storage	11/08/16 16:53	Return to Storage
JC31165-6.1.6	Extract Storage	Julius Johnson	11/08/16 19:50	Retrieve from Storage
JC31165-6.1.6	Julius Johnson	GCMSF	11/08/16 19:50	Load on Instrument
JC31165-6.1.6	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC31165-6.1.6	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC31165-6.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-6.1.2
JC31165-6.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-6.1.2
JC31165-6.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-6.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-6.1.2
JC31165-6.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-6.1.2
JC31165-6.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-6.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-6.1.2
JC31165-6.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-6.1.2

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-6.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-6.1.2
JC31165-6.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-6.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-6.1.2
JC31165-6.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-6.1.2
JC31165-6.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-6.1.11	Extract Storage	Kristen Drake	11/17/16 15:59	Retrieve from Storage
JC31165-6.1.11	Kristen Drake	GC4G	11/17/16 15:59	Load on Instrument
JC31165-6.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-6.1.2
JC31165-6.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-6.1.2
JC31165-6.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-6.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-6.1.2
JC31165-6.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-6.1.2
JC31165-6.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-6.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-6.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-6.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-6.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-6.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-6.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-6.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-6.3
JC31165-6.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-6.3
JC31165-6.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-6.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-6.3
JC31165-6.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-6.3.2	Secured Storage	Eddie Huang	11/07/16 15:50	Retrieve from Storage
JC31165-6.3.2	Eddie Huang	GCMS2V	11/07/16 15:50	Load on Instrument
JC31165-6.3.2	GCMS2V	Eddie Huang	11/08/16 16:49	Unload from Instrument
JC31165-6.3.2	Eddie Huang	Secured Storage	11/08/16 16:49	Return to Storage
JC31165-6.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
JC31165-6.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31165-6.4	Sahara Feliciano	Secured Staging Area	11/06/16 08:00	Return to Storage
JC31165-6.4	Secured Staging Area	Kruti Patel	11/06/16 11:12	Retrieve from Storage
JC31165-6.4	Kruti Patel	Secured Storage	11/06/16 12:52	Return to Storage
JC31165-6.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-6.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-6.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-6.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-6.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-6.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-6.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-6.4
JC31165-6.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-6.4
JC31165-6.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-6.6	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-6.6	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-6.7	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-6.7	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-6.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-6.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-6.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-6.7	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-6.8	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-6.8	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-7.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-7.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-7.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-7.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-7.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-7.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-7.1	Secured Storage	Todd Shoemaker	11/08/16 15:12	Retrieve from Storage
JC31165-7.1	Todd Shoemaker	Secured Staging Area	11/08/16 15:12	Return to Storage
JC31165-7.1	Secured Staging Area	Amir Takla	11/08/16 18:37	Retrieve from Storage
JC31165-7.1	Amir Takla	Secured Storage	11/08/16 21:59	Return to Storage
JC31165-7.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-7.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-7.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-7.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-7.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-7.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-7.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-7.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-7.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-7.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-7.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-7.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-7.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-7.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-7.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-7.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-7.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-7.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-7.1
JC31165-7.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-7.1
JC31165-7.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-7.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-7.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-7.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-7.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-7.1
JC31165-7.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-7.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-7.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-7.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-7.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-7.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-7.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-7.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-7.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-7.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-7.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-7.1.3	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-7.1.1
JC31165-7.1.3	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-7.1.1
JC31165-7.1.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-7.1.4	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-7.1
JC31165-7.1.4	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-7.1
JC31165-7.1.4	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-7.1.4	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-7.1.4	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument
JC31165-7.1.5	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-7.1
JC31165-7.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-7.1
JC31165-7.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-7.1.5	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-7.1.5	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-7.1.6	Steven Zarchy	Organics Prep	11/08/16 07:20	Extract from JC31165-7.1
JC31165-7.1.6	Organics Prep	Albert Quayson	11/08/16 16:53	Extract from JC31165-7.1

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-7.1.6	Albert Quayson	Extract Storage	11/08/16 16:53	Return to Storage
JC31165-7.1.6	Extract Storage	Julius Johnson	11/08/16 19:50	Retrieve from Storage
JC31165-7.1.6	Julius Johnson	GCMSF	11/08/16 19:50	Load on Instrument
JC31165-7.1.6	GCMSF	Kristi Schollenberger	11/13/16 14:04	Unload from Instrument
JC31165-7.1.6	Kristi Schollenberger	Extract Freezer	11/13/16 14:04	Return to Storage
JC31165-7.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-7.1.2
JC31165-7.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-7.1.2
JC31165-7.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-7.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-7.1.2
JC31165-7.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-7.1.2
JC31165-7.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-7.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-7.1.2
JC31165-7.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-7.1.2
JC31165-7.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-7.1.2
JC31165-7.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-7.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-7.1.2
JC31165-7.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-7.1.2
JC31165-7.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-7.1.11	Extract Storage	Kristen Drake	11/17/16 15:59	Retrieve from Storage
JC31165-7.1.11	Kristen Drake	GC4G	11/17/16 15:59	Load on Instrument
JC31165-7.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-7.1.2
JC31165-7.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-7.1.2
JC31165-7.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-7.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-7.1.2
JC31165-7.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-7.1.2
JC31165-7.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-7.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-7.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-7.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-7.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-7.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-7.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-7.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-7.3
JC31165-7.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-7.3

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-7.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-7.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-7.3
JC31165-7.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-7.3.2	Secured Storage	Eddie Huang	11/07/16 15:50	Retrieve from Storage
JC31165-7.3.2	Eddie Huang	GCMS2V	11/07/16 15:50	Load on Instrument
JC31165-7.3.2	GCMS2V	Eddie Huang	11/08/16 16:49	Unload from Instrument
JC31165-7.3.2	Eddie Huang	Secured Storage	11/08/16 16:49	Return to Storage
JC31165-7.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
JC31165-7.4	Secured Storage	Sahara Feliciano	11/06/16 08:00	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31165-7.4	Sahara Feliciano	Secured Staging Area	11/06/16 08:00	Return to Storage
JC31165-7.4	Secured Staging Area	Kruti Patel	11/06/16 11:12	Retrieve from Storage
JC31165-7.4	Kruti Patel	Secured Storage	11/06/16 12:52	Return to Storage
JC31165-7.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-7.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-7.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-7.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-7.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-7.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-7.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-7.4
JC31165-7.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-7.4
JC31165-7.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-7.6	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-7.6	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-7.7	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-7.7	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-7.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-7.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-7.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-7.7	Sushila Yadav		11/10/16 09:26	Depleted
JC31165-7.8	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-7.8	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-8.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-8.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-8.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-8.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-8.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-8.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-8.1	Secured Storage	Sora Lynn Mathurin	11/08/16 12:37	Retrieve from Storage
JC31165-8.1	Sora Lynn Mathurin	Rebecca Gluckman	11/08/16 14:53	Custody Transfer
JC31165-8.1	Rebecca Gluckman	Secured Storage	11/08/16 18:41	Return to Storage
JC31165-8.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-8.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-8.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-8.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-8.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-8.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-8.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-8.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-8.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-8.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-8.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-8.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-8.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-8.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-8.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-8.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-8.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-8.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-8.1
JC31165-8.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-8.1
JC31165-8.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-8.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-8.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-8.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-8.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-8.1
JC31165-8.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-8.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-8.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-8.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:08	Retrieve from Storage
JC31165-8.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-8.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-8.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-8.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-8.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-8.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-8.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-8.1.3	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-8.1.1
JC31165-8.1.3	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-8.1.1

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-8.1.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-8.1.4	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-8.1
JC31165-8.1.4	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-8.1
JC31165-8.1.4	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-8.1.4	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-8.1.4	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument
JC31165-8.1.5	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-8.1
JC31165-8.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-8.1
JC31165-8.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-8.1.5	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-8.1.5	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-8.1.6	Sora Lynn Mathurin	Organics Prep	11/08/16 12:37	Extract from JC31165-8.1
JC31165-8.1.6	Organics Prep	Sora Lynn Mathurin	11/08/16 19:33	Extract from JC31165-8.1
JC31165-8.1.6	Sora Lynn Mathurin	Extract Storage	11/08/16 19:33	Return to Storage
JC31165-8.1.6	Extract Storage	Sean Block	11/09/16 01:47	Retrieve from Storage
JC31165-8.1.6	Sean Block	GCMS2M	11/09/16 01:47	Load on Instrument
JC31165-8.1.6	GCMS2M	Ashley Noble	11/10/16 16:21	Unload from Instrument
JC31165-8.1.6	Ashley Noble	Extract Freezer	11/10/16 16:21	Return to Storage
JC31165-8.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-8.1.2
JC31165-8.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-8.1.2
JC31165-8.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-8.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-8.1.2
JC31165-8.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-8.1.2
JC31165-8.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-8.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-8.1.2
JC31165-8.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-8.1.2
JC31165-8.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-8.1.2
JC31165-8.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-8.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:08	Extract from JC31165-8.1.2
JC31165-8.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-8.1.2
JC31165-8.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-8.1.11	Extract Storage	Kristen Drake	11/17/16 15:59	Retrieve from Storage
JC31165-8.1.11	Kristen Drake	GC4G	11/17/16 15:59	Load on Instrument
JC31165-8.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-8.1.2
JC31165-8.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-8.1.2

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-8.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-8.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-8.1.2
JC31165-8.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-8.1.2
JC31165-8.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-8.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-8.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-8.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-8.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-8.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-8.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-8.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-8.3
JC31165-8.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-8.3
JC31165-8.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-8.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-8.3
JC31165-8.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-8.3.2	Secured Storage	Eddie Huang	11/07/16 15:50	Retrieve from Storage
JC31165-8.3.2	Eddie Huang	GCMS2V	11/07/16 15:50	Load on Instrument
JC31165-8.3.2	GCMS2V	Eddie Huang	11/08/16 16:49	Unload from Instrument
JC31165-8.3.2	Eddie Huang	Secured Storage	11/08/16 16:49	Return to Storage
JC31165-8.4	Secured Storage	Alfredo Crespo	11/07/16 10:20	Retrieve from Storage
JC31165-8.4	Alfredo Crespo	Secured Staging Area	11/07/16 10:20	Return to Storage
JC31165-8.4	Secured Staging Area	Minhaj Hashmi	11/07/16 10:37	Retrieve from Storage
JC31165-8.4	Minhaj Hashmi	Secured Storage	11/07/16 14:51	Return to Storage
JC31165-8.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage
JC31165-8.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-8.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-8.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-8.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-8.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-8.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-8.4
JC31165-8.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-8.4
JC31165-8.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-8.6	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-8.6	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-8.7	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-8.7	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-8.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-8.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-8.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-8.7	Sushila Yadav	GCMSC	11/10/16 11:16	Load on Instrument
JC31165-8.8	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-8.8	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-9.1	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-9.1	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-9.1	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-9.1	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-9.1	Secured Storage	Steven Zarchy	11/08/16 06:29	Retrieve from Storage
JC31165-9.1	Steven Zarchy	Secured Storage	11/08/16 09:18	Return to Storage
JC31165-9.1	Secured Storage	Sora Lynn Mathurin	11/08/16 12:37	Retrieve from Storage
JC31165-9.1	Sora Lynn Mathurin	Rebecca Gluckman	11/08/16 14:53	Custody Transfer
JC31165-9.1	Rebecca Gluckman	Secured Storage	11/08/16 18:41	Return to Storage
JC31165-9.1	Secured Storage	Alfredo Crespo	11/09/16 07:17	Retrieve from Storage
JC31165-9.1	Alfredo Crespo	Secured Staging Area	11/09/16 07:18	Return to Storage
JC31165-9.1	Secured Staging Area	Paul Ojugo	11/09/16 08:36	Retrieve from Storage
JC31165-9.1	Paul Ojugo	Secured Storage	11/10/16 08:22	Return to Storage
JC31165-9.1	Secured Storage	Alfredo Crespo	11/11/16 08:03	Retrieve from Storage
JC31165-9.1	Alfredo Crespo	Secured Staging Area	11/11/16 08:03	Return to Storage
JC31165-9.1	Secured Staging Area	Paul Ojugo	11/11/16 08:33	Retrieve from Storage
JC31165-9.1	Paul Ojugo	Secured Storage	11/11/16 16:00	Return to Storage
JC31165-9.1	Secured Storage	Todd Shoemaker	11/14/16 09:17	Retrieve from Storage
JC31165-9.1	Todd Shoemaker	Secured Staging Area	11/14/16 09:17	Return to Storage
JC31165-9.1	Secured Staging Area	Paul Ojugo	11/14/16 10:29	Retrieve from Storage
JC31165-9.1	Paul Ojugo	Secured Storage	11/14/16 17:37	Return to Storage
JC31165-9.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31165-9.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31165-9.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31165-9.1	Sarvadaman Tripathi	Paul Ojugo	11/15/16 08:53	Custody Transfer
JC31165-9.1	Paul Ojugo	Secured Storage	11/15/16 16:54	Return to Storage
JC31165-9.1.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-9.1
JC31165-9.1.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-9.1
JC31165-9.1.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-9.1.1	Secured Storage	Martin Serwatka	11/07/16 09:42	Retrieve from Storage
JC31165-9.1.1	Martin Serwatka	Radhika Mistry	11/07/16 15:51	Custody Transfer
JC31165-9.1.1	Radhika Mistry	Secured Storage	11/07/16 15:59	Return to Storage
JC31165-9.1.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-9.1

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-9.1.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-9.1.2	Secured Storage	Allan Chung-yew	11/08/16 14:54	Retrieve from Storage
JC31165-9.1.2	Allan Chung-yew	Secured Storage	11/08/16 23:13	Return to Storage
JC31165-9.1.2	Secured Storage	Nicholas Goydish	11/09/16 08:02	Retrieve from Storage
JC31165-9.1.2	Nicholas Goydish	Secured Storage	11/09/16 14:02	Return to Storage
JC31165-9.1.2	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31165-9.1.2	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31165-9.1.2	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31165-9.1.2	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31165-9.1.2	Secured Storage	Vikas Parikh	11/11/16 04:45	Retrieve from Storage
JC31165-9.1.2	Vikas Parikh	Secured Storage	11/11/16 10:25	Return to Storage
JC31165-9.1.3	Radhika Mistry	Metals Digestion	11/07/16 15:59	Digestate from JC31165-9.1.1
JC31165-9.1.3	Metals Digestion	Radhika Mistry	11/07/16 15:59	Digestate from JC31165-9.1.1
JC31165-9.1.3	Radhika Mistry	Metals Digestate Storage	11/07/16 15:59	Return to Storage
JC31165-9.1.4	Steven Zarchy	Organics Prep	11/08/16 06:33	Extract from JC31165-9.1
JC31165-9.1.4	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-9.1
JC31165-9.1.4	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-9.1.4	Extract Storage	William Gonzalez	11/08/16 16:31	Retrieve from Storage
JC31165-9.1.4	William Gonzalez	GC5G	11/08/16 16:31	Load on Instrument
JC31165-9.1.5	Steven Zarchy	Organics Prep	11/08/16 06:35	Extract from JC31165-9.1
JC31165-9.1.5	Organics Prep	Matthew Stoecklin	11/08/16 15:23	Extract from JC31165-9.1
JC31165-9.1.5	Matthew Stoecklin	Extract Storage	11/08/16 15:23	Return to Storage
JC31165-9.1.5	Extract Storage	Rebecca Krug	11/16/16 16:41	Retrieve from Storage
JC31165-9.1.5	Rebecca Krug	GC6G	11/16/16 16:41	Load on Instrument
JC31165-9.1.6	Sora Lynn Mathurin	Organics Prep	11/08/16 12:37	Extract from JC31165-9.1
JC31165-9.1.6	Organics Prep	Sora Lynn Mathurin	11/08/16 19:33	Extract from JC31165-9.1
JC31165-9.1.6	Sora Lynn Mathurin	Extract Storage	11/08/16 19:33	Return to Storage
JC31165-9.1.6	Extract Storage	Sean Block	11/09/16 01:47	Retrieve from Storage
JC31165-9.1.6	Sean Block	GCMS2M	11/09/16 01:47	Load on Instrument
JC31165-9.1.6	GCMS2M	Ashley Noble	11/14/16 08:50	Unload from Instrument
JC31165-9.1.6	Ashley Noble	Extract Freezer	11/14/16 08:50	Return to Storage
JC31165-9.1.7	Allan Chung-yew	Organics Prep	11/08/16 14:54	Extract from JC31165-9.1.2
JC31165-9.1.7	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-9.1.2
JC31165-9.1.7	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage
JC31165-9.1.8	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-9.1.2
JC31165-9.1.8	Organics Prep	Allan Chung-yew	11/08/16 23:34	Extract from JC31165-9.1.2
JC31165-9.1.8	Allan Chung-yew	Extract Storage	11/08/16 23:34	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-9.1.9	Allan Chung-yew	Organics Prep	11/08/16 14:56	Extract from JC31165-9.1.2
JC31165-9.1.10	Allan Chung-yew	Organics Prep	11/08/16 14:57	Extract from JC31165-9.1.2
JC31165-9.1.10	Organics Prep	Vincent Drago	11/10/16 10:23	Extract from JC31165-9.1.2
JC31165-9.1.10	Vincent Drago	Extract Storage	11/10/16 10:23	Return to Storage
JC31165-9.1.11	Nicholas Goydish	Organics Prep	11/09/16 08:05	Extract from JC31165-9.1.2
JC31165-9.1.11	Organics Prep	Anthony DiSanto	11/09/16 17:36	Extract from JC31165-9.1.2
JC31165-9.1.11	Anthony DiSanto	Extract Storage	11/09/16 17:36	Return to Storage
JC31165-9.1.11	Extract Storage	Kristen Drake	11/17/16 15:59	Retrieve from Storage
JC31165-9.1.11	Kristen Drake	GC4G	11/17/16 15:59	Load on Instrument
JC31165-9.1.12	Nicholas Goydish	Organics Prep	11/10/16 07:50	Extract from JC31165-9.1.2
JC31165-9.1.12	Organics Prep	Ryan Fantasia	11/11/16 21:38	Extract from JC31165-9.1.2
JC31165-9.1.12	Ryan Fantasia	Extract Storage	11/11/16 21:38	Return to Storage
JC31165-9.1.13	Vikas Parikh	Organics Prep	11/11/16 04:51	Extract from JC31165-9.1.2
JC31165-9.1.13	Organics Prep	Anthony DiSanto	11/11/16 16:09	Extract from JC31165-9.1.2
JC31165-9.1.13	Anthony DiSanto	Extract Storage	11/11/16 16:09	Return to Storage
JC31165-9.2	Secured Storage	Bernadette Vassilatos	11/07/16 10:54	Retrieve from Storage
JC31165-9.2	Bernadette Vassilatos		11/07/16 10:54	Subcontract
JC31165-9.3	Secured Storage	Sahara Feliciano	11/06/16 08:34	Retrieve from Storage
JC31165-9.3	Sahara Feliciano	Secured Staging Area	11/06/16 08:34	Return to Storage
JC31165-9.3	Secured Staging Area	Minhaj Hashmi	11/06/16 09:10	Retrieve from Storage
JC31165-9.3	Minhaj Hashmi	Secured Storage	11/06/16 13:35	Return to Storage
JC31165-9.3.1	Minhaj Hashmi	TCLP	11/06/16 12:15	Leachate from JC31165-9.3
JC31165-9.3.1	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-9.3
JC31165-9.3.1	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-9.3.2	TCLP	Minhaj Hashmi	11/06/16 14:22	Leachate from JC31165-9.3
JC31165-9.3.2	Minhaj Hashmi	Secured Storage	11/06/16 14:24	Return to Storage
JC31165-9.3.2	Secured Storage	Eddie Huang	11/07/16 15:50	Retrieve from Storage
JC31165-9.3.2	Eddie Huang	GCMS2V	11/07/16 15:50	Load on Instrument
JC31165-9.3.2	GCMS2V	Eddie Huang	11/08/16 16:49	Unload from Instrument
JC31165-9.3.2	Eddie Huang	Secured Storage	11/08/16 16:49	Return to Storage
JC31165-9.4	Secured Storage	Alfredo Crespo	11/07/16 10:20	Retrieve from Storage
JC31165-9.4	Alfredo Crespo	Secured Staging Area	11/07/16 10:20	Return to Storage
JC31165-9.4	Secured Staging Area	Minhaj Hashmi	11/07/16 10:37	Retrieve from Storage
JC31165-9.4	Minhaj Hashmi	Secured Storage	11/07/16 14:51	Return to Storage
JC31165-9.4	Secured Storage	Courtney Dringus	11/08/16 05:41	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31165
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/04/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31165-9.4	Courtney Dringus	Secured Storage	11/08/16 06:40	Return to Storage
JC31165-9.4	Secured Storage	Sahara Feliciano	11/09/16 14:04	Retrieve from Storage
JC31165-9.4	Sahara Feliciano	Secured Staging Area	11/09/16 14:04	Return to Storage
JC31165-9.4	Secured Staging Area	Radhika Mistry	11/09/16 14:44	Retrieve from Storage
JC31165-9.4	Radhika Mistry	Secured Storage	11/09/16 16:00	Return to Storage
JC31165-9.4.1	Radhika Mistry	Metals Digestion	11/09/16 15:59	Digestate from JC31165-9.4
JC31165-9.4.1	Metals Digestion	Radhika Mistry	11/09/16 15:59	Digestate from JC31165-9.4
JC31165-9.4.1	Radhika Mistry	Metals Digestate Storage	11/09/16 15:59	Return to Storage
JC31165-9.6	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-9.6	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-9.7	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-9.7	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage
JC31165-9.7	Secured Storage	Sushila Yadav	11/09/16 13:04	Retrieve from Storage
JC31165-9.7	Sushila Yadav	GCMSC	11/09/16 13:04	Load on Instrument
JC31165-9.7	GCMSC	Sushila Yadav	11/10/16 09:25	Unload from Instrument
JC31165-9.7	Sushila Yadav	GCMSC	11/10/16 11:16	Load on Instrument
JC31165-9.7	GCMSC	Sushila Yadav	11/11/16 15:49	Unload from Instrument
JC31165-9.7	Sushila Yadav		11/11/16 15:49	Depleted
JC31165-9.8	Secured Storage	Georga Torres	11/05/16 10:01	Retrieve from Storage
JC31165-9.8	Georga Torres	Secured Storage	11/05/16 10:01	Return to Storage

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Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31165X

Sampling Dates: 11/03/16 - 11/04/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: 254

Nancy Cole
Laboratory Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31165X

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31165-1X	11/03/16	09:30	MC	11/04/16	SO	Soil	SB17-161103
JC31165-2X	11/03/16	11:52	MC	11/04/16	SO	Soil	SB15-161103
JC31165-3X	11/03/16	13:10	MC	11/04/16	SO	Soil	SB27-161103
JC31165-4X	11/03/16	13:52	MC	11/04/16	SO	Soil	SB26-161103
JC31165-5X	11/03/16	14:23	MC	11/04/16	SO	Soil	SB25-161103
JC31165-6X	11/04/16	08:45	MC	11/04/16	SO	Soil	SB28-161104
JC31165-7X	11/04/16	09:57	MC	11/04/16	SO	Soil	SB29-161104
JC31165-8X	11/04/16	10:55	MC	11/04/16	SO	Soil	SB33-161104
JC31165-9X	11/04/16	12:25	MC	11/04/16	SO	Soil	SB31-161104

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Subcontract Lab Data

Report of Analysis

FINAL LAB REPORT

JC31165X

A9414

29-Nov-2016

Prepared by

SGS NORTH AMERICA

Prepared for

Accutest

Tammy McCloskey

Fresh Ponds Crp Village Bldg B 2235 Route 130
Dayton, NJ 08810
Phone: 732.329.0200
Email: Tammy.McCloskey@sgs.com

This report is approved by

Digitally signed by Amy Boehm
Date: 2016.11.30 14:18:38
-05'00'

Amy Boehm

Senior Project Manager

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Results reported relate only to the items tested.

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PROJECT INFORMATION SUMMARY *(When applicable, see QC Annotations for details)*

Client Project	JC31165X
SGS Project #	A9414
Analytical Protocol(s)	Method 8290 TCDD only
No. Samples Submitted	9
Additional QC Sample(s)	0
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
Date Received	08-Nov-16
Condition Received	Good
Temperature upon Receipt (ºC)	0.1
Extraction within Holding Time	Yes
Analysis within Holding Time	Yes

QC ANNOTATIONS:

1. Please see Appendices attached for data qualifier/attribute and lab identifier descriptions which may be contained in the project.

APPENDIX A: GENERAL DATA QUALIFIERS / DATA ATTRIBUTES

B	The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
C	Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve) and is an estimated value.
EMPC	Represents an Estimated Maximum Possible Concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
H/h	If the standard recovery is below the method or SOP specified value “H” is assigned. If the obtained value is less than half the specified value “h” is assigned.
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve) and is an estimated value.
ND	Indicates a non-detect.
NR or R	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
SI	Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.

APPENDIX B: DRBC/TMDL SPECIFIC DATA QUALIFIERS / DATA ATTRIBUTES

J	The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL).
U	The analyte was not detected in the sample at the estimated detection limit (EDL).
E	The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).
D	Dilution Data. Result was obtained from the analysis of a dilution.
B	Analyte found in the sample and associated method blank.
C	Co-eluting congener
Cxx	Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. 'Xx' denotes the IUPAC number with the lowest numerical designated congener.
NR	Analyte is not reportable because of problems in sample preparation or analysis.
V	Labeled standard recovery is not within method control limits.
X	Results from re-injection/repeat/second-column analysis.
EMPC	Estimated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

APPENDIX C: LAB IDENTIFIERS

AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

SGS CERTIFICATIONS

Arkansas	88-0682
California (ELAP)	ELAP Cert #2914
CLIA	34D1013708
Connecticut	PH-0258
USDA Soil Permit	P330-14-00135
DoD	2726.01
Florida (Primary NELAP)	E87634
ISO 17025/IEC	2726.01
Louisiana	4115
Maine	#2016028
Massachusetts	M-NC919
Minnesota (Primary NELAP For Method 23)	Lab #037-999-459 Cert #981125
New Jersey	NC100
New York	11685
North Carolina DWR	481
North Dakota	R-197
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	Lab #99029 Cert #99029002
Texas	T104704260-16-9
US Coast Guard	16714/159.317/SGS
Virginia	Lab #460214 Cert #8722
Washington	C913
West Virginia	293

Rev. 12-Sep-2016

Sample ID: SB17-161103 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	9.82 g	Lab Sample ID	A9414_14511_DF_001-RJ	Date Extracted:	14-Nov-2016
Date Collected:	03-Nov-2016	% Solid:	91.1 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	2:59:43

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.385			J	ES 2378-TCDD	84.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	100	

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Sample ID: SB15-161103 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	9.75 g	Lab Sample ID	A9414_14511_DF_002-RJ	Date Extracted:	14-Nov-2016
Date Collected:	03-Nov-2016	% Solid:	94.5 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	3:48:51

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.113			J	ES 2378-TCDD	82.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	101	

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Sample ID: SB27-161103 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	9.42 g	Lab Sample ID	A9414_14511_DF_003-RJ	Date Extracted:	14-Nov-2016
Date Collected:	03-Nov-2016	% Solid:	91.9 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	4:38:00

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.109			ES 2378-TCDD	93	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	112	

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Sample ID: SB26-161103 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	9.20 g	Lab Sample ID	A9414_14511_DF_004-RJ	Date Extracted:	14-Nov-2016
Date Collected:	03-Nov-2016	% Solid:	90.6 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	5:27:14

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.0995			ES 2378-TCDD	87	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	99.1	

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Sample ID: SB25-161103 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	10.24 g	Lab Sample ID	A9414_14511_DF_005-RJ	Date Extracted:	14-Nov-2016
Date Collected:	03-Nov-2016	% Solid:	94.7 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	6:16:22

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.241			J	ES 2378-TCDD	85.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	97.9	

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Sample ID: SB28-161104 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	9.37 g	Lab Sample ID	A9414_14511_DF_006-RJ	Date Extracted:	14-Nov-2016
Date Collected:	04-Nov-2016	% Solid:	89.5 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	7:05:31

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.344			J	ES 2378-TCDD	88.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	105	

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Sample ID: SB29-161104 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	9.97 g	Lab Sample ID	A9414_14511_DF_007-RJ	Date Extracted:	14-Nov-2016
Date Collected:	04-Nov-2016	% Solid:	95.1 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	7:54:40

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.308			J	ES 2378-TCDD	91.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	108	

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Sample ID: SB33-161104 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	9.46 g	Lab Sample ID	A9414_14511_DF_008-RJ	Date Extracted:	14-Nov-2016
Date Collected:	04-Nov-2016	% Solid:	92.5 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	8:43:49

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	1.62				ES 2378-TCDD	91.1	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	106	

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Sample ID: SB31-161104 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	08-Nov-2016
Project ID:	JC31165X	Weight/Volume:	10.31 g	Lab Sample ID	A9414_14511_DF_009-RJ	Date Extracted:	14-Nov-2016
Date Collected:	04-Nov-2016	% Solid:	96.3 %	QC Batch No:	14511	Date Analyzed:	24-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	9:32:57

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		0.824		ES 2378-TCDD	83.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	97.1	

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Sample ID: Method Blank A9414_14511 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9414	Date Received:	n/a
Project ID:	JC31165X	Weight/Volume:	10.00 g	Lab Sample ID	MB1_14511_DF_SDS-RJ	Date Extracted:	14-Nov-2016
Date Collected:	n/a	% Solid:	n/a	QC Batch No:	14511	Date Analyzed:	23-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	20:20:10

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.111			ES 2378-TCDD	89.5	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	111	

SGS
5500 Business Drive
Wilmington, NC 28405, USA
www.us.sgs.com
Tel: +1 910 794-1613; Toll-Free 866 846-8290

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P10	Analysis Date:	23-NOV-2016 18:43:33
Lab ID:	OPR1_14511_DF		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	11.3	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 28 Nov 2016 15:41 Analyst: pw

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P10	Analysis Date:	23-NOV-2016 18:43:33
Lab ID:	OPR1_14511_DF		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	91.5	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	45	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 28 Nov 2016 15:41 Analyst: pw

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*08-Nov-16 at 11:25*
AP Project name:	*A9414*
Requested TAT:	*14 days*
Projected due date:	*22-Nov-16*
Matrix:	*Soil*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	*Tammy McCloskey*
Company:	*Accutest*
Project Name & Site:	*JC31165X*
Project PO#:	*JC31165X*
QAAP/Contract #:	*N/A*
Requested Analysis:	*Method 8290 TCDD only*
Phone#:	*732-329-0200*
Email Address:	*tammy.mccloskey@sgs.com*

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB17-161103	A9414_001	SO	1	16oz	03-Nov-16	09:30	0.1	1	5633 9349 6251
SB15-161103	A9414_002	SO	1	16oz	03-Nov-16	11:52	0.1	1	5633 9349 6251
SB27-161103	A9414_003	SO	1	16oz	03-Nov-16	13:10	0.1	1	5633 9349 6251
SB26-161103	A9414_004	SO	1	16oz	03-Nov-16	13:52	0.1	1	5633 9349 6251
SB25-161103	A9414_005	SO	1	16oz	03-Nov-16	14:23	0.1	1	5633 9349 6251
SB28-161104	A9414_006	SO	1	16oz	04-Nov-16	08:45	0.1	1	5633 9349 6251
SB29-161104	A9414_007	SO	1	16oz	04-Nov-16	09:57	0.1	1	5633 9349 6251
SB33-161104	A9414_008	SO	1	16oz	04-Nov-16	10:55	0.1	1	5633 9349 6251
SB31-161104	A9414_009	SO	1	16oz	04-Nov-16	12:25	0.1	1	5633 9349 6251

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact.

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AK 9 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

SGS ACCUTEST

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED EX Tracking # 5633 9349 6251
Bottle Order Control #
SGS Accutest Quote #
SGS Accutest Job JC31165X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: Tammy.McCloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR Expansion, Long Island, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

	Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD	LAB USE ONLY
001	1X	SB17-161103		11/3/16	9:30:00 AM	MC	SO	1					1				X	
002	2X	SB15-161103		11/3/16	11:52:00 AM	MC	SO	1					1				X	
003	3X	SB27-161103		11/3/16	1:10:00 PM	MC	SO	1					1				X	
004	4X	SB26-161103		11/3/16	1:52:00 PM	MC	SO	1					1				X	
005	5X	SB25-161103		11/3/16	2:23:00 PM	MC	SO	1					1				X	
006	6X	SB28-161104		11/4/16	8:45:00 AM	MC	SO	1					1				X	
007	7X	SB29-161104		11/4/16	9:57:00 AM	MC	SO	1					1				X	
008	8X	SB33-161104		11/4/16	10:55:00 AM	MC	SO	1					1				X	
009	9X	SB31-161104		11/4/16	12:25:00 PM	MC	SO	1					1				X	

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 14

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date/Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Bvassilaros	11/7/16 17:00	1 FedEx	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 11/8/16 11:25	Received By: 4 Ashley Owens
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 446 [X] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [X] Cooler Temp 0.1°

2

SGS

Project Initiation Form

Project Number: A9414

Initiation Date: 09-Nov-16

Client Name: Accutest

Analysis Method: 8290 PCDD/F

Sample Matrix: Soil

TAT: 14 days

Project Manager: Tamara

Special Instructions

8290 w/ OPR
2378 TCDD only

Reporting Instructions

8290 w/ OPR
2378 TCDD only

PM Initials: akornega Date: 09-Nov-2016

SGS

Methods: PCB PAH | PCDD/F WHO-2 | QUANTICS USV PEST | Extraction Type: SDS CLL | TALEX Carbon SPE | Solid | Final Volume:

Batch# 14511 | Split: 1/2 1/4 | Extract Initial/Date: AW 11/14/16 | Clean-up Initial/Date: 11/18/16 | Transfer Init/Date:

Lab Sample ID	Extraction Position (Solvent: DCM)	Extraction Weight/Volume g	mL	(Td)	~~ASECS #~~	Observations	Supply IDs	
A9403_14511_001	3	10.06				grey ~~brown~~, rock-like, clumpy, heavy rocks	Toluene	158853
A9403_14511_002	4	10.50				grey, rock-like, clumpy	MeCHL	163037
A9414_14511_001	5	10.78				brown soil, rocks	Florisil	753779
A9414_14511_002	6	10.32				brown, sand-like, rocks	Hexane	163429
A9414_14511_003	13	10.25				dark brown soil, rocks	Silica	06272016
A9414_14511_004	14	10.16				brown soil, rocks	S Nitrate	11172016
A9414_14511_005	15	10.82				See 9414 004	Base Silica	10212014
A9414_14511_006	16	10.47				See 9414 003	HydroMatrix	63251623-01
A9414_14511_007	17	10.48				See 9414 002	Tetradecane	08042016
A9414_14511_008	18	10.23				See 9414 003	H_2SO_4	—
A9414_14511_009	19	10.71				See 9414 003	A Silica	11182016
A9416_14511_001	20	10.10				brown, sand-like, rocks	Sodium Sulfate	06302016
A9416_14511_002	21	10.89				dark brown, sand-like, rocks		
A9416_14511_003	22	10.14				dark brown soil, rocks	Additional Cleanup	
A9416_14511_004	24	10.49				brown, sand-like, rocks	Acid Partition Date/Initial:	
BCS3_14511	—	—		CLL AW 11/14/16	—	Standards	Mini-Acid Date/Initial:	
MB1_14511	1	10.00				Hydromatrix 63251623-01	Carbon Column Date/Initial:	
OPR1_14511	2	10.00				Hydromatrix 63251623-01	GPC Date/Initial:	
				11/18/16	11/18/16		Bond-Elute Date/Initial:	
							Cycle Time	
							TOL	Start: 1700 Stop: 0952
							~~HEX~~	Start: AW Stop:
							DCM	Start: 11/14/16 Stop:

SGS

Methods: PCB PCDD/F QUANTICS
PAH WHO-2 USV PEST

Solid

Batch# 14511

Inter-Department Communication Sheet

MB, BCS3, OPR, 4 samples did not recieve the D/F AS spike. [illegible] 11/18/16

SGS

Wt. Volume Results
14511

Batch #: A9403
A9414
A9416

Comments:

ae 11/29/14

Lab Sample ID	Boat WT.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	% Solid	Average % Solid	RSD	Qtest Ratio (if Applicable)	Dry Wt. Equiv.	Extracted Wt.	Final Wt.
A9403_001	1.09	4.52	3.95	83.38%	83.38%	N/A	N/A	11.99	10.06	8.388028
A9403_002	1.1	3.39	2.55	63.32%	63.32%	N/A	N/A	15.79	10.5	6.6486
A9414_001	1.1	4.69	4.37	91.09%	91.09%	N/A	N/A	10.98	10.78	9.819502
A9414_002	1.1	4.89	4.68	94.46%	94.46%	N/A	N/A	10.59	10.32	9.748272
A9414_003	1.08	5.03	4.71	91.90%	91.90%	N/A	N/A	10.88	10.25	9.41975
A9414_004	1.12	3.35	3.14	90.58%	90.58%	N/A	N/A	11.04	10.16	9.202928
A9414_005	1.09	3.72	3.58	94.68%	94.68%	N/A	N/A	10.56	10.82	10.244376
A9414_006	1.12	5.02	4.61	89.49%	89.49%	N/A	N/A	11.17	10.47	9.369603
A9414_007	1.09	4.99	4.8	95.13%	95.13%	N/A	N/A	10.51	10.48	9.969624
A9414_008	1.09	4.14	3.91	92.46%	92.46%	N/A	N/A	10.82	10.23	9.458658
A9414_009	1.1	3.54	3.45	96.31%	96.31%	N/A	N/A	10.38	10.71	10.314801
A9416_001	1.1	4.73	4.54	94.77%	94.77%	N/A	N/A	10.55	10.1	9.57177

% Solid Determination WorkSheet

SGS

Batch: 14511

Lab Sample ID	Boat Wt.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	Comments
A9403_14511_001	1.09	4.52	3.95	
A9403_14511_002	1.10	3.39	2.55	
A9414_14511_001	1.10	4.69	4.37	
A9414_14511_002	1.10	4.89	4.68	
A9414_14511_003	1.08	5.03	4.71	
A9414_14511_004	1.12	3.35	3.14	
A9414_14511_005	1.09	3.92	3.58	
A9414_14511_006	1.12	5.02	4.61	
A9414_14511_007	1.09	4.99	4.80	
A9414_14511_008	1.09	4.14	3.91	
A9414_14511_009	1.10	3.54	3.45	
A9416_14511_001	1.10	4.93	4.54	
A9416_14511_002	1.09	3.93	3.57	
A9416_14511_003	1.09	3.87	3.60	
A9416_14511_004	1.09	5.08	4.77	
Date/Initials:				

2

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Methods: PCB, PAH, PCDD/F, WHO-2, QUANTICS, USV, PEST

Solid

Batch # 14511

Spiker Initials/Date:	[illegible]	[illegible]	[illegible]	11/18/16	[illegible]		
Lab Sample ID	Ax-17 Amount: 20	Ax-13 Amount: 20	ES7 Amount: 20	CS Amount: 20	Amount: 20	Amount:	Amount:
	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials
A9403_14511_001	—	—	AW	[illegible]	[illegible]		
A9403_14511_002	—	—	AW	[illegible]	[illegible]		
A9414_14511_001	—	—	AW	[illegible]	[illegible]		
A9414_14511_002	—	—	AW	[illegible]	[illegible]		
A9414_14511_003	—	—	AW	[illegible]	[illegible]		
A9414_14511_004	—	—	AW	[illegible]	[illegible]		
A9414_14511_005	—	—	AW	[illegible]	[illegible]		
A9414_14511_006	—	—	AW	[illegible]	[illegible]		
A9414_14511_007	—	—	AW	[illegible]	[illegible]		
A9414_14511_008	—	—	AW	[illegible]	[illegible]		
A9414_14511_009	—	—	AW	[illegible]	[illegible]		
A9416_14511_001	—	—	AW	[illegible]	[illegible]		
A9416_14511_002	—	—	AW	[illegible]	[illegible]		
A9416_14511_003	—	—	AW	[illegible]	[illegible]		
A9416_14511_004	—	—	AW	[illegible]	[illegible]		
BCS3_14511	AW	AW	AW	[illegible]	[illegible]		
MB1_14511	—	—	AW	[illegible]	[illegible]		
OPR1_14511	AW	AW	AW	[illegible]	[illegible]		
	11/14/16	11/14/16	11/14/16	11/18/16	11/22/16		

Standard Information

Spike ID	DF Ax-17	DF Ax-B	DF ES	D/F CS/SS	D/F [illegible]		
SIL #	21163	15-175-2	2230	15-152-1	15-102-4		
Concentration	10 pg/ml	10 pg/ml	10 pg/ml	40 pg/ml	100 pg/ml		
Expiration Date	11/7/17	7/27/17	11/7/21	6/17/17	12/31/16		

SGS

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	Tamara Morgan
Receipt Date & Time:	08-Nov-16 at 11:25
AP Project name:	A9414
Requested TAT:	14 days
Projected due date:	~~22~~ 23-Nov-16
Matrix:	Soil
Phone#:	910-794-1613
Email Address:	Tamara.Morgan@sgs.com

Company Contact:	~~Viktoriya Pushkova~~ Tammy McCloskey
Company:	Accutest
Project Name & Site:	JC31165X
Project PO#:	JC31165X
QAAP/Contract #:	
Requested Analysis:	M8290 TCDD
Phone#:	732-329-0200
Email Address:	viktoriya.pushkova@sgs.com

tammy.mccloskey

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB17-161103	A9414_001	SO	1	16oz	03-Nov-16	09:30	0.1	1	5633 9349 6251
SB15-161103	A9414_002	SO	1	16oz	03-Nov-16	11:52	0.1	1	5633 9349 6251
SB27-161103	A9414_003	SO	1	16oz	03-Nov-16	13:10	0.1	1	5633 9349 6251
SB26-161103	A9414_004	SO	1	16oz	03-Nov-16	13:52	0.1	1	5633 9349 6251
SB25-161103	A9414_005	SO	1	16oz	03-Nov-16	14:23	0.1	1	5633 9349 6251
SB28-161104	A9414_006	SO	1	16oz	04-Nov-16	08:45	0.1	1	5633 9349 6251
SB29-161104	A9414_007	SO	1	16oz	04-Nov-16	09:57	0.1	1	5633 9349 6251
SB33-161104	A9414_008	SO	1	16oz	04-Nov-16	10:55	0.1	1	5633 9349 6251
SB31-161104	A9414_009	SO	1	16oz	04-Nov-16	12:25	0.1	1	5633 9349 6251

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact.

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AL 9 Nov 11

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

SGS ACCUTEST

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking # 5033 9349 6251
Bottle Order Control #
SGS Accutest Quote #
SGS Accutest Job JC31165X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: Tammy.McCloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR Expansion, Long Island, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

	Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE		B8290TCDD										LAB USE ONLY
001	1X	SB17-161103		11/3/16	9:30:00 AM	MC	SO	1					1					X										
002	2X	SB15-161103		11/3/16	11:52:00 AM	MC	SO	1					1					X										
003	3X	SB27-161103		11/3/16	1:10:00 PM	MC	SO	1					1					X										
004	4X	SB26-161103		11/3/16	1:52:00 PM	MC	SO	1					1					X										
005	5X	SB25-161103		11/3/16	2:23:00 PM	MC	SO	1					1					X										
006	6X	SB28-161104		11/4/16	8:45:00 AM	MC	SO	1					1					X										
007	7X	SB29-161104		11/4/16	9:57:00 AM	MC	SO	1					1					X										
008	8X	SB33-161104		11/4/16	10:55:00 AM	MC	SO	1					1					X										
009	9X	SB31-161104		11/4/16	12:25:00 PM	MC	SO	1					1					X										

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 14

Emergency & Rush T/A data available VIA Labtink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler	Date/Tir	Received By:	Relinquished By:	Date Time:	Received By:
1 Bvassilaros	11/7/16 17:00	1 Fed Ex	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 11/8/16 11:25	Received By: 4 Ashley-Owens
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 446 [X] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [X] Cooler Temp. 0.1°

SGS Environmental Services — Run Log **Project: A9414_14511_DF**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: zb5-ms_60m

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
9	161123P09	3	CS3_161123_DF_PB	1.00	SIL 15-104-2	ARL, PSW	952-102	23-Nov-2016	17:48:15
10	161123P10	49	OPR1_14511_DF	1.00	0_14511_OPR001	PSW	731-621	23-Nov-2016	18:43:33
11	161123P11	2	SBS_161123_DF_PB	1.00	SIL 15-49-1	PSW	026-831	23-Nov-2016	19:30:56
12	161123P12	48	MB1_14511_DF_SDS-RJ	10.00	Method Blank	PSW	339-804	23-Nov-2016	20:20:10
17	161123P17	2	SBS_161123_DF_PC	1.00	SIL 15-49-1	PSW	254-999	24-Nov-2016	00:25:59
18	161123P18	3	CS3_161123_DF_PC	1.00	SIL 15-104-2	PSW	518-307	24-Nov-2016	01:15:07
19	161123P19	49	OPR1_14511_DF-RJ	1.00	0_14511_OPR001	PSW	316-420	24-Nov-2016	02:12:20
20	161123P20	50	A9414_14511_DF_001-RJ	9.82	SB17-161103	PSW	801-725	24-Nov-2016	02:59:43
21	161123P21	51	A9414_14511_DF_002-RJ	9.75	SB15-161103	PSW	058-375	24-Nov-2016	03:48:51
22	161123P22	52	A9414_14511_DF_003-RJ	9.42	SB27-161103	PSW	454-678	24-Nov-2016	04:38:00
23	161123P23	53	A9414_14511_DF_004-RJ	9.20	SB26-161103	PSW	707-898	24-Nov-2016	05:27:14
24	161123P24	54	A9414_14511_DF_005-RJ	10.24	SB25-161103	PSW	659-099	24-Nov-2016	06:16:22
25	161123P25	55	A9414_14511_DF_006-RJ	9.37	SB28-161104	PSW	461-044	24-Nov-2016	07:05:31
26	161123P26	56	A9414_14511_DF_007-RJ	9.97	SB29-161104	PSW	842-644	24-Nov-2016	07:54:40
27	161123P27	57	A9414_14511_DF_008-RJ	9.46	SB33-161104	PSW	876-936	24-Nov-2016	08:43:49
28	161123P28	58	A9414_14511_DF_009-RJ	10.31	SB31-161104	PSW	726-293	24-Nov-2016	09:32:57
29	161123P29	2	SBS_161123_DF_PD	1.00	SIL 15-49-1	PSW	496-404	24-Nov-2016	10:22:06
30	161123P30	3	CS3_161123_DF_PD	1.00	SIL 15-104-2	PSW	436-459	24-Nov-2016	11:11:20

REVIEWED
By Paul Walton at 4:07 pm, Nov 28, 2016

REVIEWED
By Amber Kornegay at 9:44 am, Nov 29, 2016

Lab ID: MB1_14511_DF_SDS-RJ | Acq'd: 23 Nov 2016 20:20 PSW | Wt/Vol: 10.00 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: Method Blank A9414_14511 | UTP: 28-Nov-2016 15:38:07 PSW | J-level: 0.5 pg/g | Split: 1 | Checkcode: 339-804-XDF

Datafile: 161123P12 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0008	-		-	-	-	1.04	-	2769	0.111

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.60	1.0243	1.0244	+0.2	5.19E+07	0.80	Y	1.04	89.5

Lab ID: MB1_14511_DF_SDS-RJ | Acq'd: 23 Nov 2016 20:20 PSW | Wt/Vol: 10.00 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: Method Blank A9414_14511 | UTP: 28-Nov-2016 15:38:07 PSW | J-level: 0.5 pg/g | Split: 1 | Checkcode: 339-804-XDF

Datafile: 161123P12 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	5.60E+07	0.78	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	2.56E+07	1.29	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0252	0	2.62E+07	n/a	-	1.05	111

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: MB1_14511_DF_SDS-RJ | **Sample ID: Method Blank** | **Acq: 23-Nov-2016 20:20:10**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 48** | **User: PSW Datafile: 161123P12**

Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\MB1_14511_DF_SDS-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 3524, 1085, 9168 scc: 339-804 *PKD: 28-Nov-2016 08:39 Printed: 28-Nov-2016 15:58 Page 1 of 1*

Lab ID: A9414_14511_DF_001-RJ | Acq'd: 24 Nov 2016 02:59 PSW | Wt/Vol: 9.82 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB17-161103 | UTP: 28-Nov-2016 15:38:35 PSW | J-level: 0.509 pg/g | Split: 1 | Checkcode: 801-725-DXR

Datafile: 161123P20 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.61	J	1.0008	1.0010	+0.3	1.10E+05	0.74	Y	1.04	0.385	2388	0.0848

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.59	1.0243	1.0244	+0.2	5.58E+07	0.78	Y	1.04	84.9

Lab ID: A9414_14511_DF_001-RJ | Acq'd: 24 Nov 2016 02:59 PSW | Wt/Vol: 9.82 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB17-161103 | UTP: 28-Nov-2016 15:38:35 PSW | J-level: 0.509 pg/g | Split: 1 | Checkcode: 801-725-DXR
Datafile: 161123P20 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

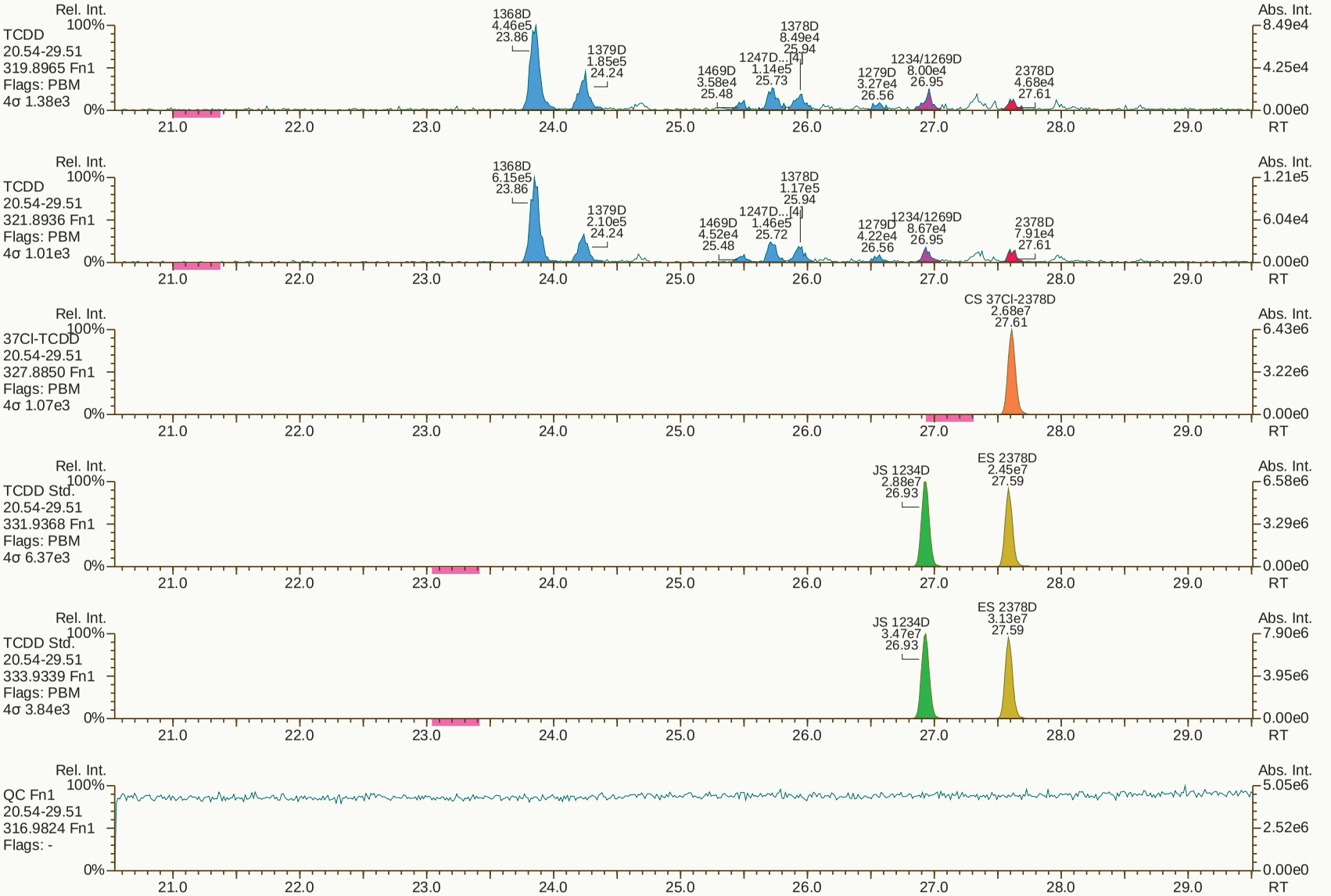
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.93		-	-	-	6.35E+07	0.83	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	2.94E+07	1.29	Y	-	-
CS 37Cl-2378-TCDD	27.61		1.0252	1.0253	+0.2	2.68E+07	n/a	-	1.05	100

Totals	Conc	EMPC
Total TCDD	7.66	8.2

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.59	0.74
Response	1.26E+05	1.10E+05

SGS ID: A9414_14511_DF_001-RJ | **Sample ID: SB17-161103** | **Acq: 24-Nov-2016 02:59:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 50** | **User: PSW Datafile: 161123P20**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_001-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 1253, 1026, 2746 scc: 801-725 *Revised: 28-Nov-2016 15:32 (PSW) Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_002-RJ | Acq'd: 24 Nov 2016 03:48 PSW | Wt/Vol: 9.75 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB15-161103 | UTP: 28-Nov-2016 15:38:41 PSW | J-level: 0.513 pg/g | Split: 1 | Checkcode: 058-375-MFB

Datafile: 161123P21 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.60	J	1.0008	1.0006	-0.3	2.79E+04	0.68	Y	1.04	0.113	2765	0.116

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.58	1.0243	1.0245	+0.3	4.88E+07	0.80	Y	1.04	82.8

Lab ID: A9414_14511_DF_002-RJ | Acq'd: 24 Nov 2016 03:48 PSW | Wt/Vol: 9.75 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB15-161103 | UTP: 28-Nov-2016 15:38:41 PSW | J-level: 0.513 pg/g | Split: 1 | Checkcode: 058-375-MFB
Datafile: 161123P21 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.93		-	-	-	5.70E+07	0.80	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	2.75E+07	1.29	Y	-	-
CS 37Cl-2378-TCDD	27.61		1.0252	1.0253	+0.2	2.43E+07	n/a	-	1.05	101

Totals	Conc	EMPC
Total TCDD	0.733	0.733

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.36	0.68
Response	4.25E+04	2.79E+04

SGS ID: A9414_14511_DF_002-RJ | **Sample ID: SB15-161103** | **Acq: 24-Nov-2016 03:48:51**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 51** | **User: PSW Datafile: 161123P21**

Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_002-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 1554, 3642, 5692 scc: 058-375 | *PKD: 28-Nov-2016 08:51 Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_003-RJ | Acq'd: 24 Nov 2016 04:38 PSW | Wt/Vol: 9.42 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB27-161103 | UTP: 28-Nov-2016 15:38:46 PSW | J-level: 0.531 pg/g | Split: 1 | Checkcode: 454-678-FCB
Datafile: 161123P22 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0008	-		-	-	-	1.04	-	2820	0.109

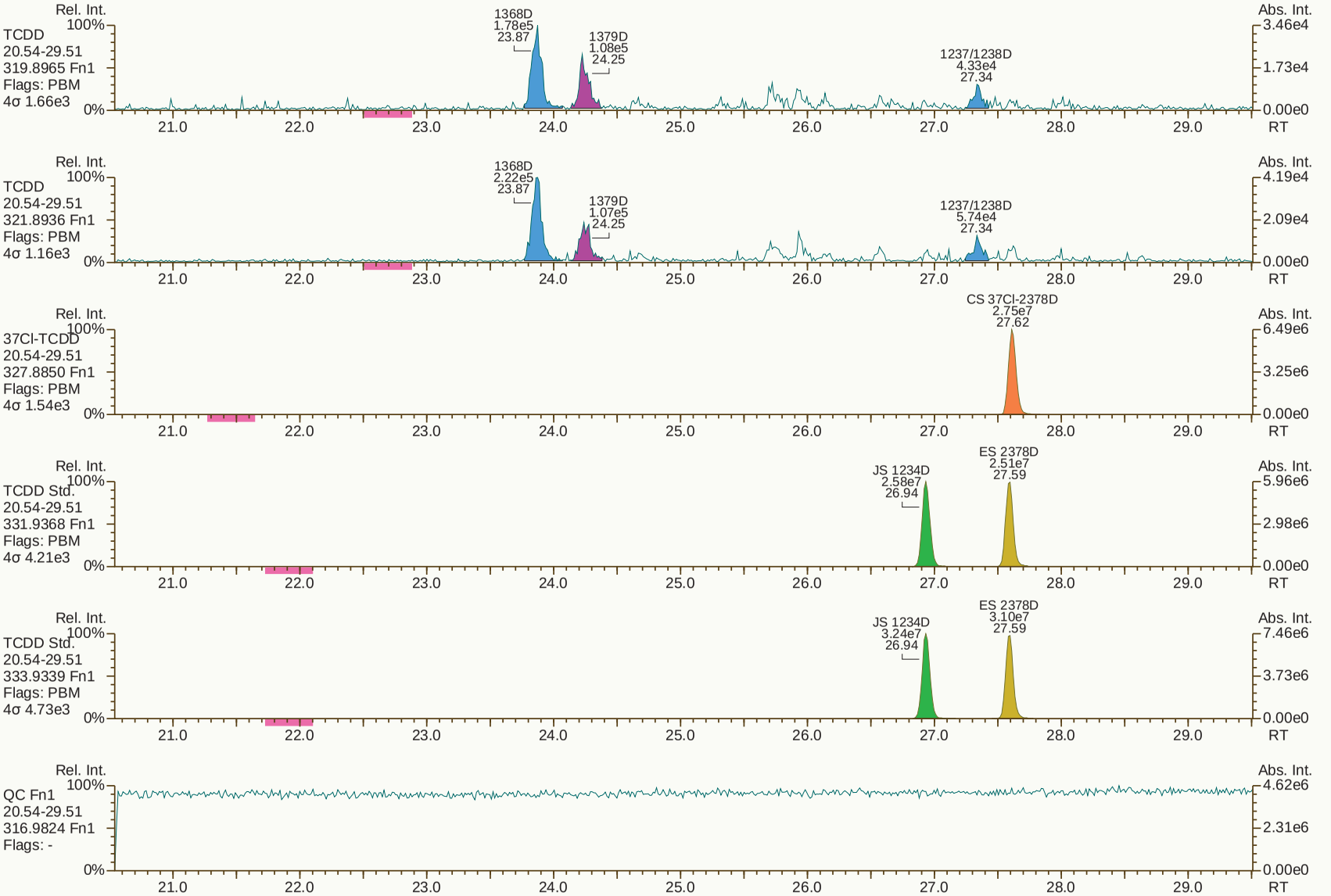
Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.59	1.0243	1.0244	+0.2	5.61E+07	0.81	Y	1.04	93

Lab ID: A9414_14511_DF_003-RJ | Acq'd: 24 Nov 2016 04:38 PSW | Wt/Vol: 9.42 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB27-161103 | UTP: 28-Nov-2016 15:38:46 PSW | J-level: 0.531 pg/g | Split: 1 | Checkcode: 454-678-FCB
Datafile: 161123P22 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	5.83E+07	0.80	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	2.79E+07	1.30	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0253	+0.2	2.75E+07	n/a	-	1.05	112

Totals	Conc	EMPC
Total TCDD	1.82	2.51

SGS ID: A9414_14511_DF_003-RJ **Sample ID: SB27-161103** **Acq: 24-Nov-2016 04:38:00**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 52** **User: PSW Datafile: 161123P22**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_003-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 1268, 7701, 2177 scc: 454-678 *Revised: 28-Nov-2016 15:34 (PSW) Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_004-RJ | Acq'd: 24 Nov 2016 05:27 PSW | Wt/Vol: 9.20 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB26-161103 | UTP: 28-Nov-2016 15:38:52 PSW | J-level: 0.543 pg/g | Split: 1 | Checkcode: 707-898-HMK
Datafile: 161123P23 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0008	-		-	-	-	1.04	-	2329	0.0995

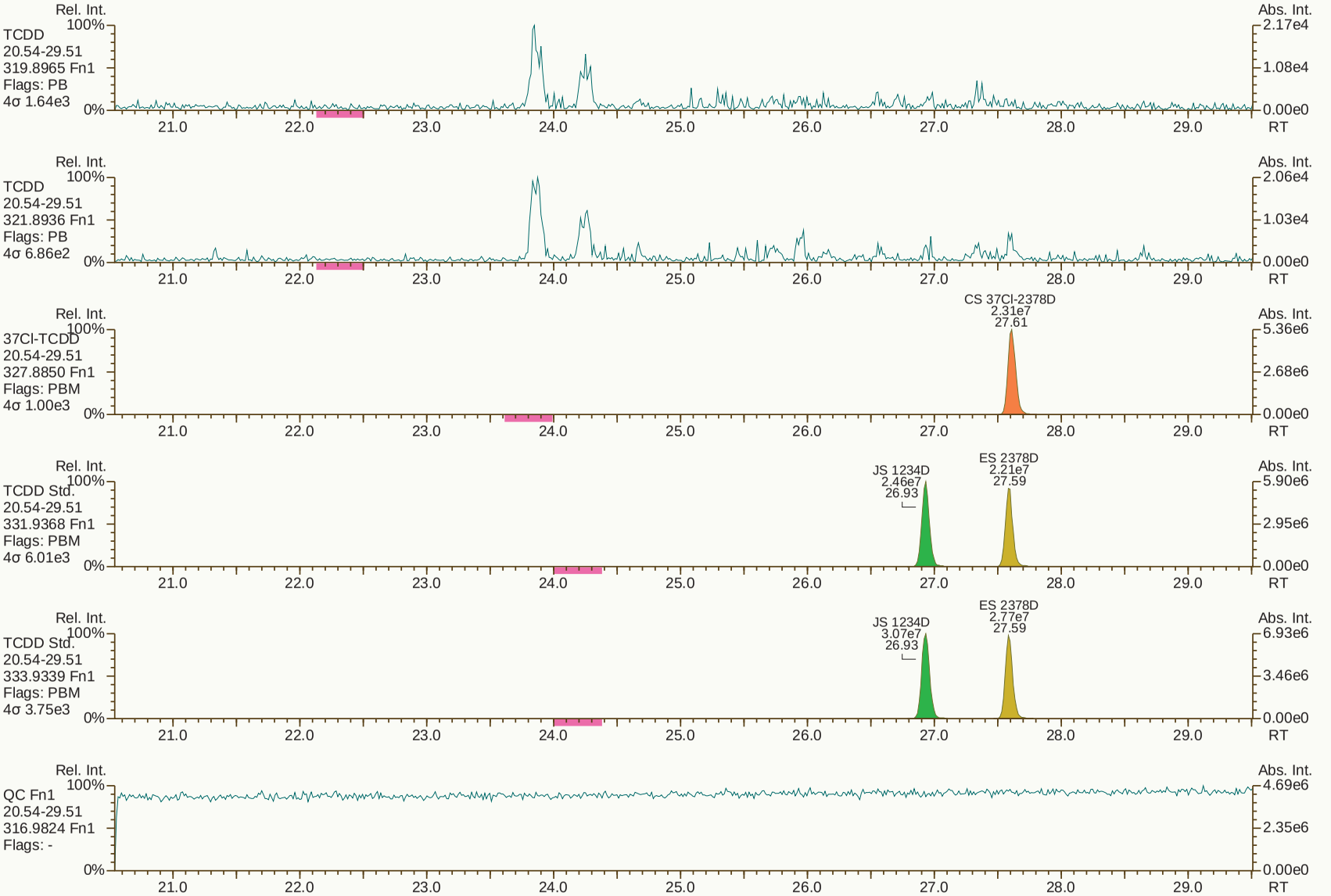
Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.59	1.0243	1.0245	+0.3	4.98E+07	0.80	Y	1.04	87

Lab ID: A9414_14511_DF_004-RJ | Acq'd: 24 Nov 2016 05:27 PSW | Wt/Vol: 9.20 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB26-161103 | UTP: 28-Nov-2016 15:38:52 PSW | J-level: 0.543 pg/g | Split: 1 | Checkcode: 707-898-HMK
Datafile: 161123P23 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.93		-	-	-	5.53E+07	0.80	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	2.64E+07	1.29	Y	-	-
CS 37Cl-2378-TCDD	27.61		1.0252	1.0253	+0.2	2.31E+07	n/a	-	1.05	99.1

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: A9414_14511_DF_004-RJ **Sample ID: SB26-161103** **Acq: 24-Nov-2016 05:27:14**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 53** **User: PSW Datafile: 161123P23**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_004-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 2749, 3004, 8299 scc: 707-898 *PKD: 28-Nov-2016 08:52 Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_005-RJ | Acq'd: 24 Nov 2016 06:16 PSW | Wt/Vol: 10.24 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB25-161103 | UTP: 28-Nov-2016 15:38:58 PSW | J-level: 0.488 pg/g | Split: 1 | Checkcode: 659-099-GGB

Datafile: 161123P24 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.62	J	1.0008	1.0010	+0.3	6.18E+04	0.79	Y	1.04	0.241	2727	0.115

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.59	1.0243	1.0245	+0.3	4.81E+07	0.79	Y	1.04	85.9

Lab ID: A9414_14511_DF_005-RJ | Acq'd: 24 Nov 2016 06:16 PSW | Wt/Vol: 10.24 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB25-161103 | UTP: 28-Nov-2016 15:38:58 PSW | J-level: 0.488 pg/g | Split: 1 | Checkcode: 659-099-GGB
Datafile: 161123P24 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

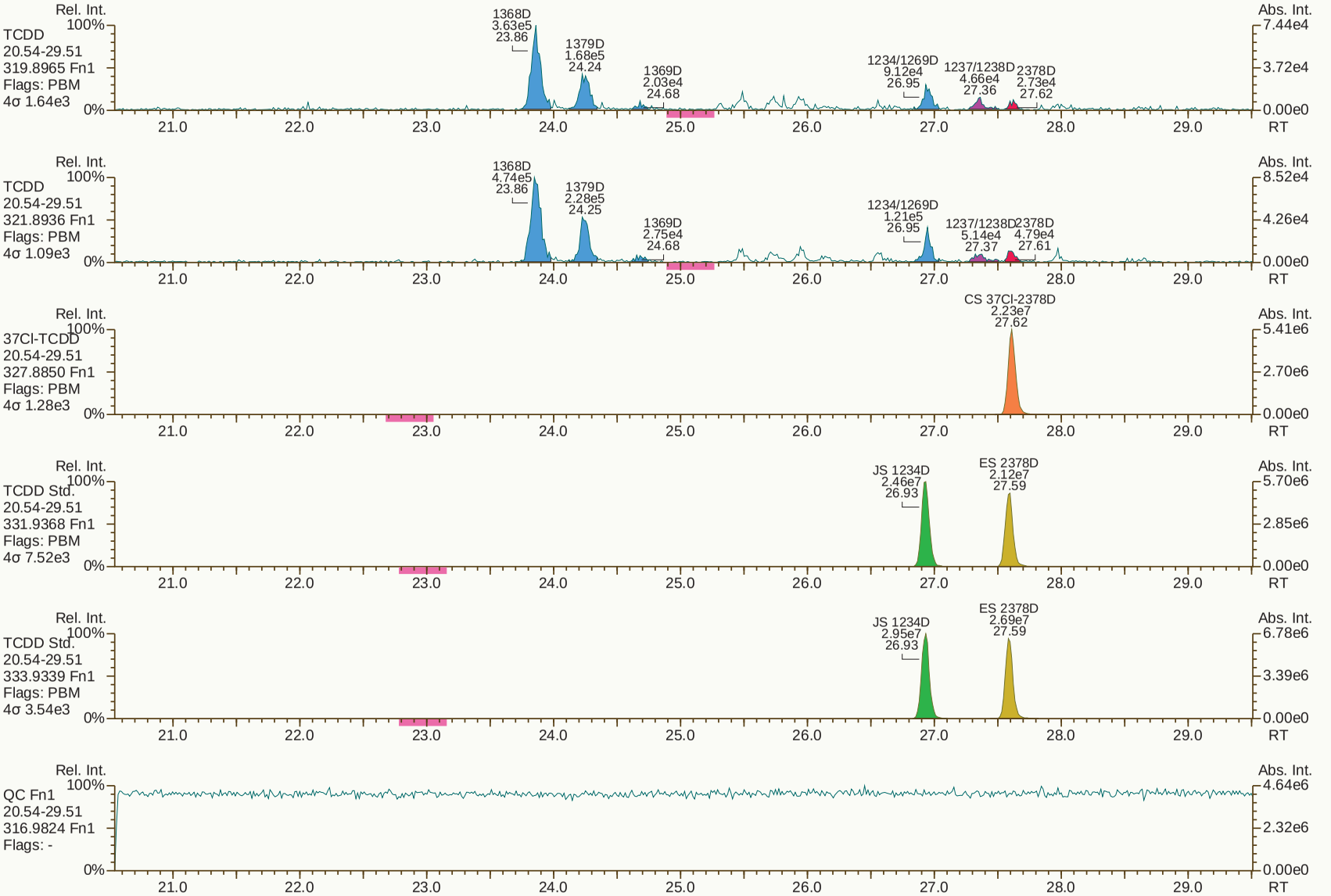
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.93		-	-	-	5.41E+07	0.83	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	2.06E+07	1.31	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0254	+0.3	2.23E+07	n/a	-	1.05	97.9

Totals	Conc	EMPC
Total TCDD	6.06	6.42

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.57	0.79
Response	7.52E+04	6.18E+04

SGS ID: A9414_14511_DF_005-RJ **Sample ID: SB25-161103** **Acq: 24-Nov-2016 06:16:22**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 54** **User: PSW Datafile: 161123P24**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_005-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 2540, 9670, 2214 scc: 659-099 *PKD: 28-Nov-2016 08:53 Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_006-RJ | Acq'd: 24 Nov 2016 07:05 PSW | Wt/Vol: 9.37 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB28-161104 | UTP: 28-Nov-2016 15:39:03 PSW | J-level: 0.534 pg/g | Split: 1 | Checkcode: 461-044-NXP

Datafile: 161123P25 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.60	J	1.0008	1.0005	-0.5	9.79E+04	0.82	Y	1.04	0.344	2418	0.0915

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.59	1.0243	1.0245	+0.3	5.84E+07	0.80	Y	1.04	88.9

Lab ID: A9414_14511_DF_006-RJ | Acq'd: 24 Nov 2016 07:05 PSW | Wt/Vol: 9.37 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB28-161104 | UTP: 28-Nov-2016 15:39:03 PSW | J-level: 0.534 pg/g | Split: 1 | Checkcode: 461-044-NXP
Datafile: 161123P25 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

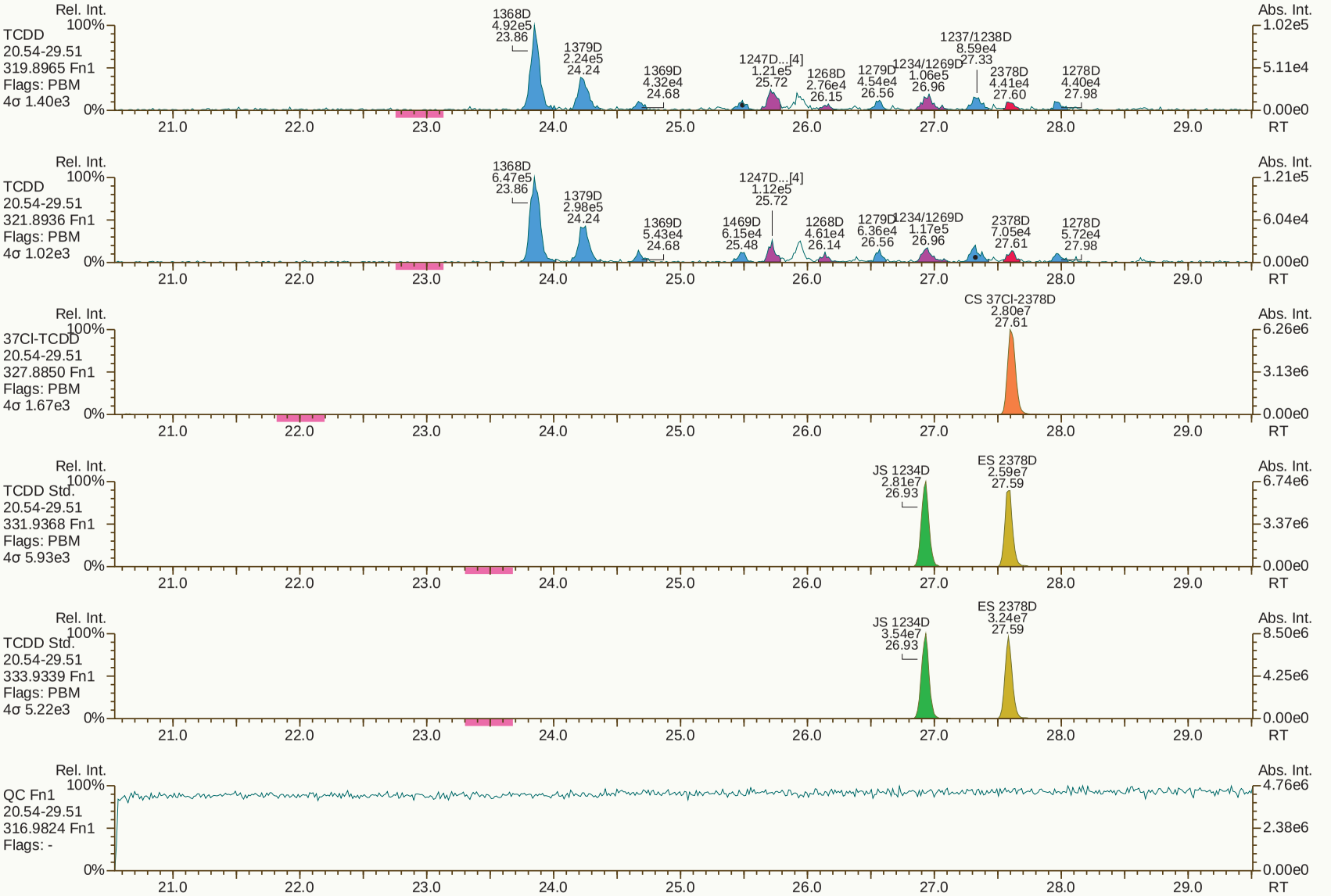
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.93		-	-	-	6.35E+07	0.79	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	2.79E+07	1.26	Y	-	-
CS 37Cl-2378-TCDD	27.61		1.0252	1.0254	+0.3	2.80E+07	n/a	-	1.05	105

Totals	Conc	EMPC
Total TCDD	8.37	10

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.63	0.82
Response	1.15E+05	9.79E+04

SGS ID: A9414_14511_DF_006-RJ **Sample ID: SB28-161104** **Acq: 24-Nov-2016 07:05:31**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 55** **User: PSW Datafile: 161123P25**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_006-RJ.utp_res, saved 28-Nov-2016 15:39 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 3191, 6099, 9429 scc: 461-044 *Revised: 28-Nov-2016 15:35 (PSW) Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_007-RJ | Acq'd: 24 Nov 2016 07:54 PSW | Wt/Vol: 9.97 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB29-161104 | UTP: 28-Nov-2016 15:39:08 PSW | J-level: 0.502 pg/g | Split: 1 | Checkcode: 842-644-FRD

Datafile: 161123P26 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.61	J	1.0008	1.0008	0	1.10E+05	0.67	Y	1.04	0.308	2581	0.0764

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.59	1.0243	1.0244	+0.2	6.88E+07	0.81	Y	1.04	91.8

Lab ID: A9414_14511_DF_007-RJ | Acq'd: 24 Nov 2016 07:54 PSW | Wt/Vol: 9.97 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB29-161104 | UTP: 28-Nov-2016 15:39:08 PSW | J-level: 0.502 pg/g | Split: 1 | Checkcode: 842-644-FRD
Datafile: 161123P26 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

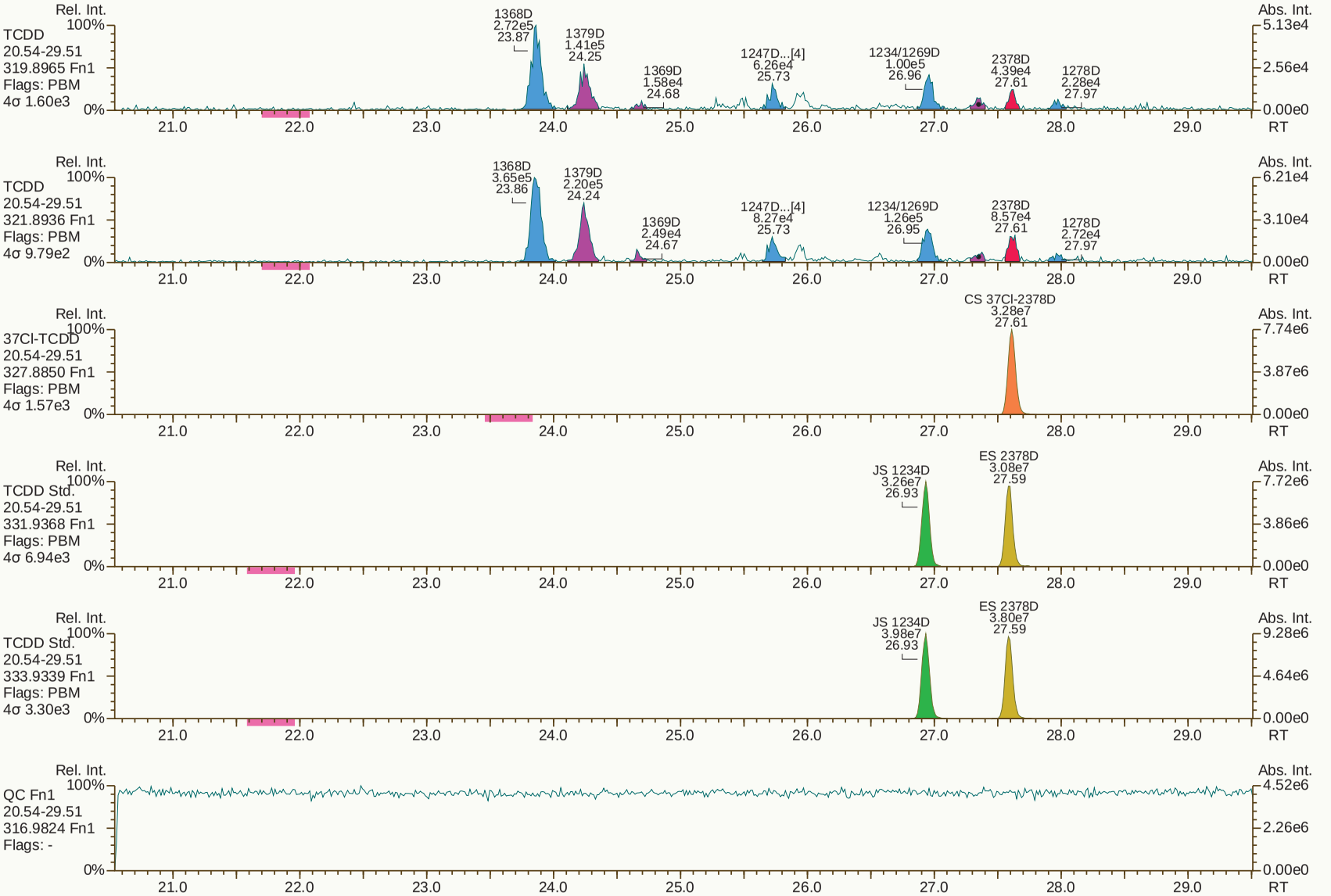
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.93		-	-	-	7.24E+07	0.82	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	3.48E+07	1.27	Y	-	-
CS 37Cl-2378-TCDD	27.61		1.0252	1.0252	0	3.28E+07	n/a	-	1.05	108

Totals	Conc	EMPC
Total TCDD	3.28	4.43

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.51	0.67
Response	1.30E+05	1.10E+05

SGS ID: A9414_14511_DF_007-RJ **Sample ID: SB29-161104** **Acq: 24-Nov-2016 07:54:40**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 56** **User: PSW Datafile: 161123P26**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_007-RJ.utp_res, saved 28-Nov-2016 15:39 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 8230, 5760, 6710 scc: 842-644 *PKD: 28-Nov-2016 08:54 Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_008-RJ | Acq'd: 24 Nov 2016 08:43 PSW | Wt/Vol: 9.46 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB33-161104 | UTP: 28-Nov-2016 15:39:14 PSW | J-level: 0.529 pg/g | Split: 1 | Checkcode: 876-936-PQN
Datafile: 161123P27 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.62		1.0008	1.0008	0	5.10E+05	0.83	Y	1.04	1.62	2356	0.0793

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.59	1.0243	1.0245	+0.3	6.39E+07	0.79	Y	1.04	91.1

Lab ID: A9414_14511_DF_008-RJ | Acq'd: 24 Nov 2016 08:43 PSW | Wt/Vol: 9.46 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB33-161104 | UTP: 28-Nov-2016 15:39:14 PSW | J-level: 0.529 pg/g | Split: 1 | Checkcode: 876-936-PQN
Datafile: 161123P27 | Report: 28 Nov 2016 15:42 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

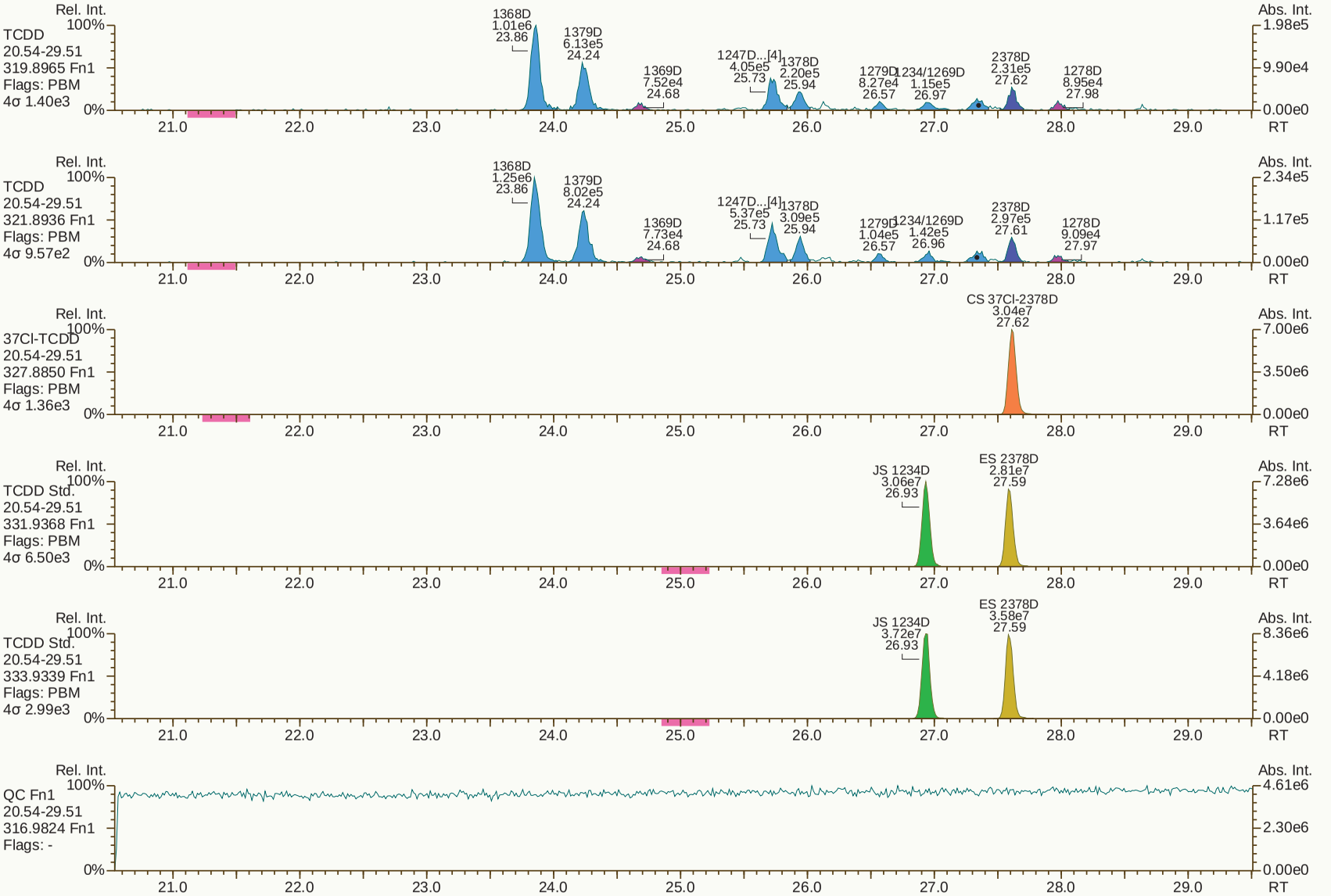
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.93		-	-	-	6.78E+07	0.82	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	3.21E+07	1.29	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0254	+0.3	3.04E+07	n/a	-	1.05	106

Totals	Conc	EMPC
Total TCDD	20.4	21.4

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.78	0.83
Response	5.28E+05	5.10E+05

SGS ID: A9414_14511_DF_008-RJ **Sample ID: SB33-161104** **Acq: 24-Nov-2016 08:43:49**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 57** **User: PSW Datafile: 161123P27**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_008-RJ.utp_res, saved 28-Nov-2016 15:39 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 1581, 3640, 3595 scc: 876-936 *PKD: 28-Nov-2016 08:55 Printed: 28-Nov-2016 15:59 Page 1 of 1*

Lab ID: A9414_14511_DF_009-RJ | Acq'd: 24 Nov 2016 09:32 PSW | Wt/Vol: 10.31 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB31-161104 | UTP: 28-Nov-2016 15:39:20 PSW | J-level: 0.485 pg/g | Split: 1 | Checkcode: 726-293-ZWF

Datafile: 161123P28 | Report: 28 Nov 2016 15:43 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.75	EMPC	1.0008	1.0007	-0.2	2.07E+05	0.96	N	1.04	0.824	3792	0.191

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.73	1.0243	1.0247	+0.7	4.67E+07	0.78	Y	1.04	83.8

Lab ID: A9414_14511_DF_009-RJ | Acq'd: 24 Nov 2016 09:32 PSW | Wt/Vol: 10.31 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB31-161104 | UTP: 28-Nov-2016 15:39:20 PSW | J-level: 0.485 pg/g | Split: 1 | Checkcode: 726-293-ZWF
Datafile: 161123P28 | Report: 28 Nov 2016 15:43 pw | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	27.06		-	-	-	5.39E+07	0.80	Y	-	-
JS 123467-HxCDD	37.54		-	-	-	1.03E+07	1.33	Y	-	-
CS 37Cl-2378-TCDD	27.75		1.0252	1.0255	+0.5	2.21E+07	n/a	-	1.05	97.1

Totals	Conc	EMPC
Total TCDD	0.973	1.8

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.86	0.96
Response	2.42E+05	2.29E+05

SGS ID: A9414_14511_DF_009-RJ **Sample ID: SB31-161104** **Acq: 24-Nov-2016 09:32:57**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 58** **User: PSW Datafile: 161123P28**

Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\A9414_14511_DF_009-RJ.utp_res, saved 28-Nov-2016 15:39 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 0904, 8181, 7420 scc: 726-293 *PKD: 28-Nov-2016 08:56 Printed: 28-Nov-2016 15:59 Page 1 of 1*

SGS Environmental Services — Run Log **Project: A9414_14511_DF**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: zb5-ms_60m

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
9	161123P09	3	CS3_161123_DF_PB	1.00	SIL 15-104-2	ARL, PSW	952-102	23-Nov-2016	17:48:15
10	161123P10	49	OPR1_14511_DF	1.00	0_14511_OPR001	PSW	731-621	23-Nov-2016	18:43:33
11	161123P11	2	SBS_161123_DF_PB	1.00	SIL 15-49-1	PSW	026-831	23-Nov-2016	19:30:56
12	161123P12	48	MB1_14511_DF_SDS-RJ	10.00	Method Blank	PSW	339-804	23-Nov-2016	20:20:10
17	161123P17	2	SBS_161123_DF_PC	1.00	SIL 15-49-1	PSW	254-999	24-Nov-2016	00:25:59
18	161123P18	3	CS3_161123_DF_PC	1.00	SIL 15-104-2	PSW	518-307	24-Nov-2016	01:15:07
19	161123P19	49	OPR1_14511_DF-RJ	1.00	0_14511_OPR001	PSW	316-420	24-Nov-2016	02:12:20
20	161123P20	50	A9414_14511_DF_001-RJ	9.82	SB17-161103	PSW	801-725	24-Nov-2016	02:59:43
21	161123P21	51	A9414_14511_DF_002-RJ	9.75	SB15-161103	PSW	058-375	24-Nov-2016	03:48:51
22	161123P22	52	A9414_14511_DF_003-RJ	9.42	SB27-161103	PSW	454-678	24-Nov-2016	04:38:00
23	161123P23	53	A9414_14511_DF_004-RJ	9.20	SB26-161103	PSW	707-898	24-Nov-2016	05:27:14
24	161123P24	54	A9414_14511_DF_005-RJ	10.24	SB25-161103	PSW	659-099	24-Nov-2016	06:16:22
25	161123P25	55	A9414_14511_DF_006-RJ	9.37	SB28-161104	PSW	461-044	24-Nov-2016	07:05:31
26	161123P26	56	A9414_14511_DF_007-RJ	9.97	SB29-161104	PSW	842-644	24-Nov-2016	07:54:40
27	161123P27	57	A9414_14511_DF_008-RJ	9.46	SB33-161104	PSW	876-936	24-Nov-2016	08:43:49
28	161123P28	58	A9414_14511_DF_009-RJ	10.31	SB31-161104	PSW	726-293	24-Nov-2016	09:32:57
29	161123P29	2	SBS_161123_DF_PD	1.00	SIL 15-49-1	PSW	496-404	24-Nov-2016	10:22:06
30	161123P30	3	CS3_161123_DF_PD	1.00	SIL 15-104-2	PSW	436-459	24-Nov-2016	11:11:20

REVIEWED
By Paul Walton at 4:07 pm, Nov 28, 2016

2nd OPR run as CPSM. AK 11/29/16

REVIEWED
By Amber Kornegay at 9:22 am, Nov 29, 2016

Dioxin/Furan QC Summary | **Acq'd: 23 Nov 2016 17:48 ARL** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161123_DF_PB | **UTP: 28-Nov-2016 15:37:07 PSW** | **Checkcode: 952-102-YFV**

Sample ID: SB15-161103 | **Report: 28 Nov 2016 15:40 pw** | **Datafile: 161123P09**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.62	6.69E+06	0.79	Y	1.04	1.16	12%
ES 2378-TCDD	27.59	5.74E+07	0.79	Y	1.04	0.97	-6%

Dioxin/Furan QC Summary | **Acq'd: 23 Nov 2016 17:48 ARL** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161123_DF_PB | **UTP: 28-Nov-2016 15:37:07 PSW** | **Checkcode: 952-102-YFV**

Sample ID: SB15-161103 | **Report: 28 Nov 2016 15:40 pw** | **Datafile: 161123P09**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.93	5.92E+07	0.80	Y	-	-	-
CS 37Cl-2378-TCDD	27.61	6.33E+06	n/a	-	1.05	1.07	1%

Dioxin/Furan QC Summary | **Acq'd: 24 Nov 2016 01:15 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161123_DF_PC | **UTP: 28-Nov-2016 15:38:21 PSW** | **Checkcode: 518-307-CJD**

Sample ID: SB25-161103 | **Report: 28 Nov 2016 15:40 pw** | **Datafile: 161123P18**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.61	5.93E+06	0.78	Y	1.04	1.14	10%
ES 2378-TCDD	27.59	5.20E+07	0.78	Y	1.04	1.04	1%

Dioxin/Furan QC Summary | **Acq'd: 24 Nov 2016 01:15 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161123_DF_PC | **UTP: 28-Nov-2016 15:38:21 PSW** | **Checkcode: 518-307-CJD**

Sample ID: SB25-161103 | **Report: 28 Nov 2016 15:40 pw** | **Datafile: 161123P18**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.93	4.99E+07	0.80	Y	-	-	-
CS 37Cl-2378-TCDD	27.61	5.61E+06	n/a	-	1.05	1.12	7%

Dioxin/Furan QC Summary | Acq'd: 24 Nov 2016 11:11 PSW | ICAL: MM1_DF_12212015_14JUL2016

Lab ID: CS3_161123_DF_PD | UTP: 28-Nov-2016 15:39:35 PSW | Checkcode: 436-459-GMW

Sample ID: SIL 15-104-2 | Report: 28 Nov 2016 15:49 pw | Datafile: 161123P30

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.62	7.07E+06	0.77	Y	1.04	1.11	7%
ES 2378-TCDD	27.59	6.34E+07	0.76	Y	1.04	1.05	1%

Dioxin/Furan QC Summary | Acq'd: 24 Nov 2016 11:11 PSW | ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS3_161123_DF_PD | UTP: 28-Nov-2016 15:39:35 PSW | Checkcode: 436-459-GMW
Sample ID: SIL 15-104-2 | Report: 28 Nov 2016 15:49 pw | Datafile: 161123P30

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.93	6.04E+07	0.80	Y	-	-	-
CS 37Cl-2378-TCDD	27.61	6.92E+06	n/a	-	1.05	1.15	9%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161123P09 Analysis Date: 23-NOV-2016 17:48:15

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.79	0.65 - 0.89	Y	11.2	8 - 12	Y

Processed: 28 Nov 2016 15:40 Analyst: pw

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161123P09 Analysis Date: 23-NOV-2016 17:48:15

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65 - 0.89	Y	93.8	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				10.1	7.9 - 12.7	Y

Processed: 28 Nov 2016 15:40 Analyst: pw

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016

Instrument ID: MM1 GC Column ID: ZB-5ms

VER Data Filename: 161123P18 Analysis Date: 24-NOV-2016 01:15:07

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	11	8 - 12	Y

Processed: 28 Nov 2016 15:40 Analyst: pw

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161123P18 Analysis Date: 24-NOV-2016 01:15:07

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	101	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				10.7	7.9 - 12.7	Y

Processed: 28 Nov 2016 15:40 Analyst: pw

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161123P30 Analysis Date: 24-NOV-2016 11:11:20

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.77	0.65 - 0.89	Y	10.7	8 - 12	Y

Processed: 28 Nov 2016 15:40 Analyst: pw

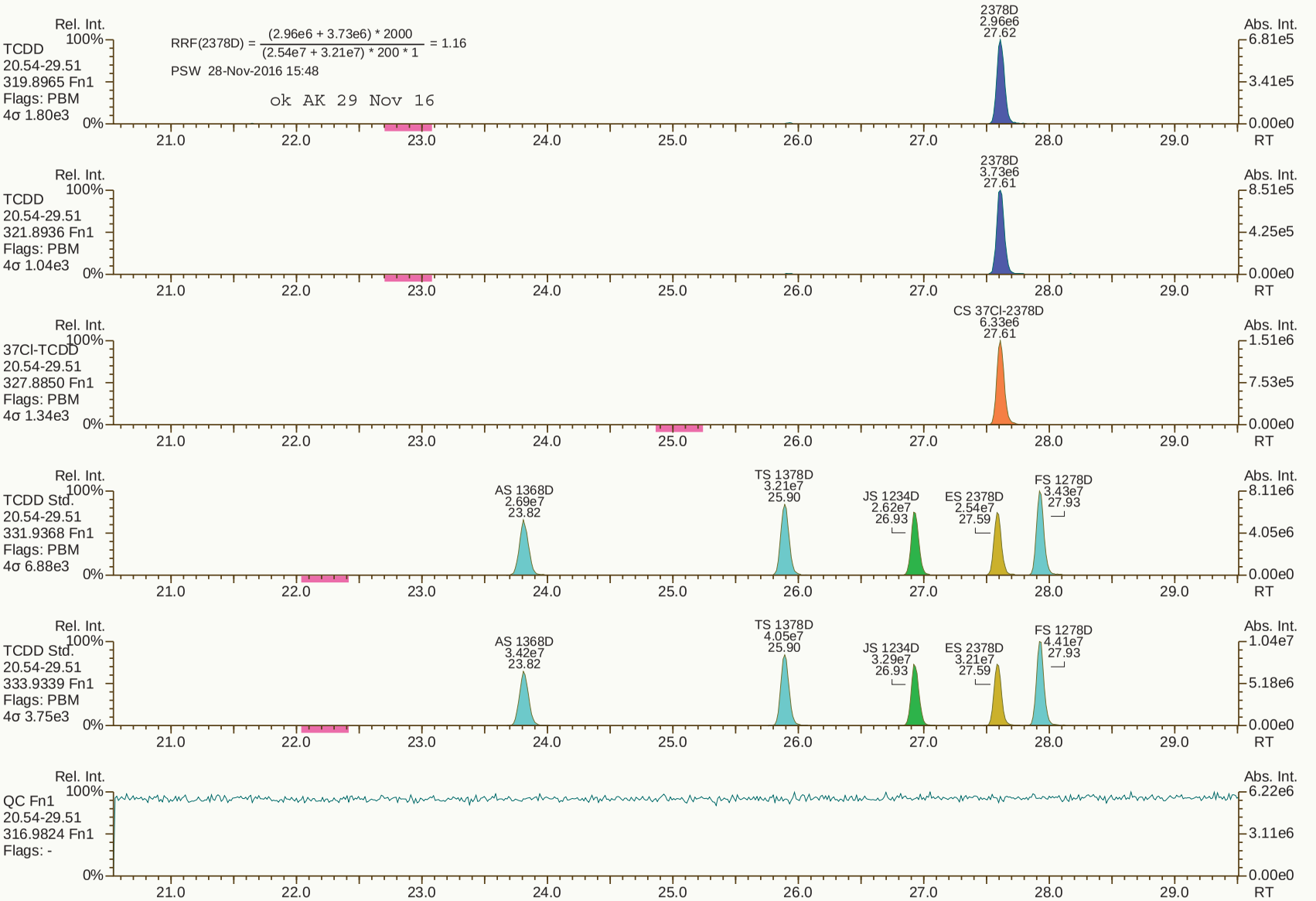
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161123P30 Analysis Date: 24-NOV-2016 11:11:20

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65 - 0.89	Y	101	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				10.9	7.9 - 12.7	Y

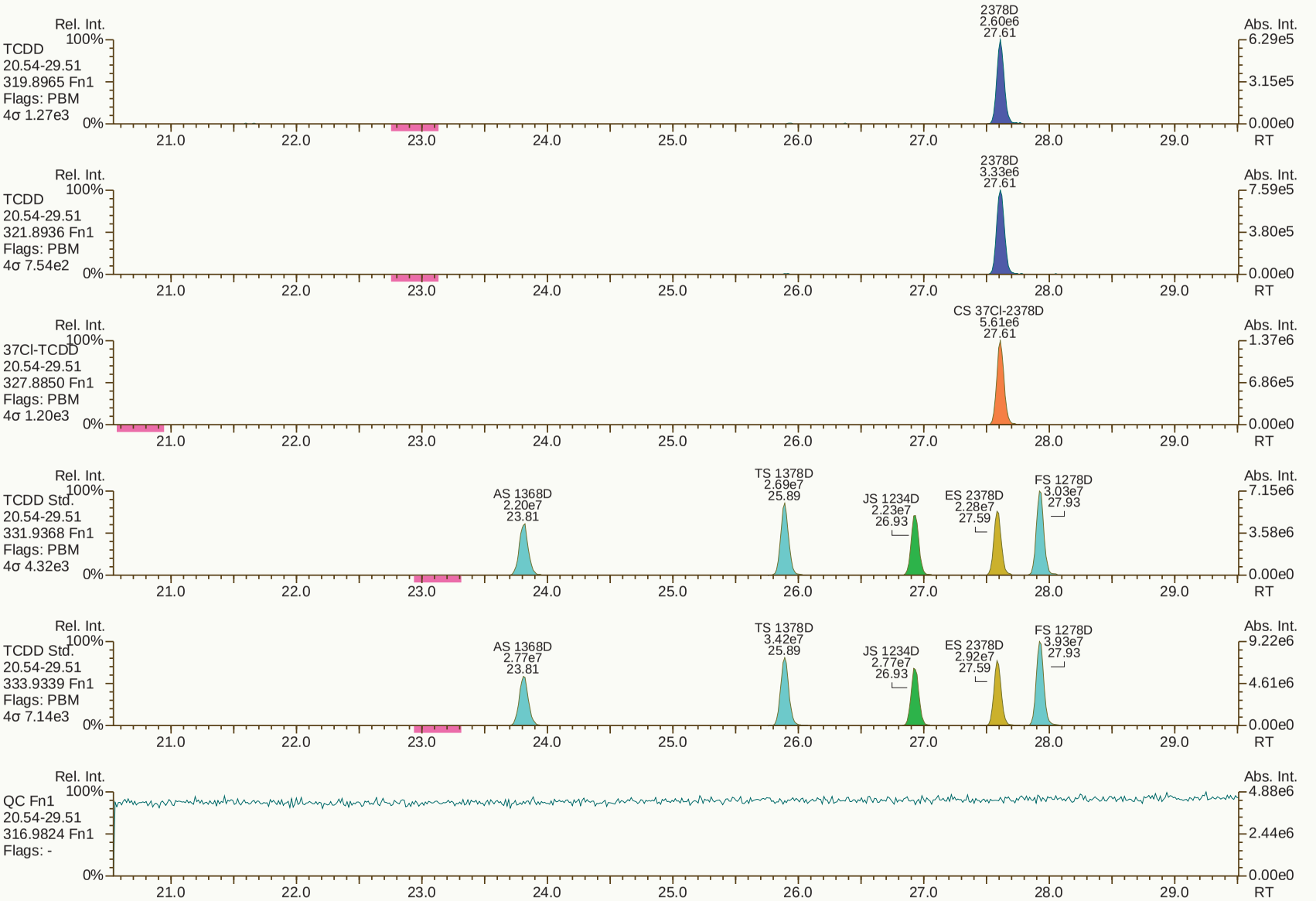
Processed: 28 Nov 2016 15:40 Analyst: pw

SGS ID: CS3_161123_DF_PB | **Sample ID: SIL 15-104-2** | **Acq: 23-Nov-2016 17:48:15**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: ARL Datafile: 161123P09**



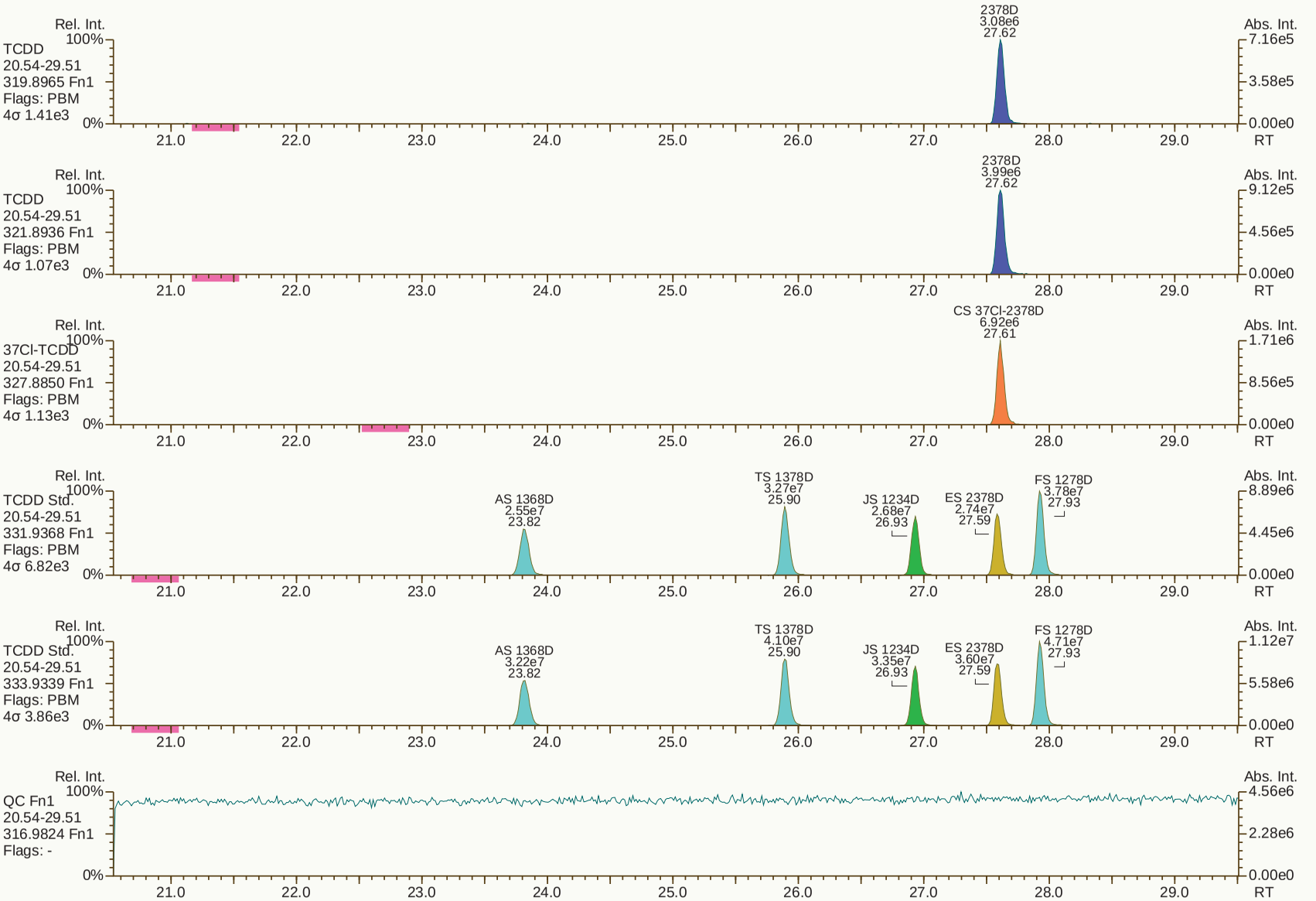
Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\CS3_161123_DF_PB.utp_res, saved 28-Nov-2016 15:48 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 0302, 6290, 7610 scc: 952-102 *PKD: 28-Nov-2016 08:13 Printed: 28-Nov-2016 15:58 Page 1 of 1*

SGS ID: CS3_161123_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 24-Nov-2016 01:15:07**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161123P18**



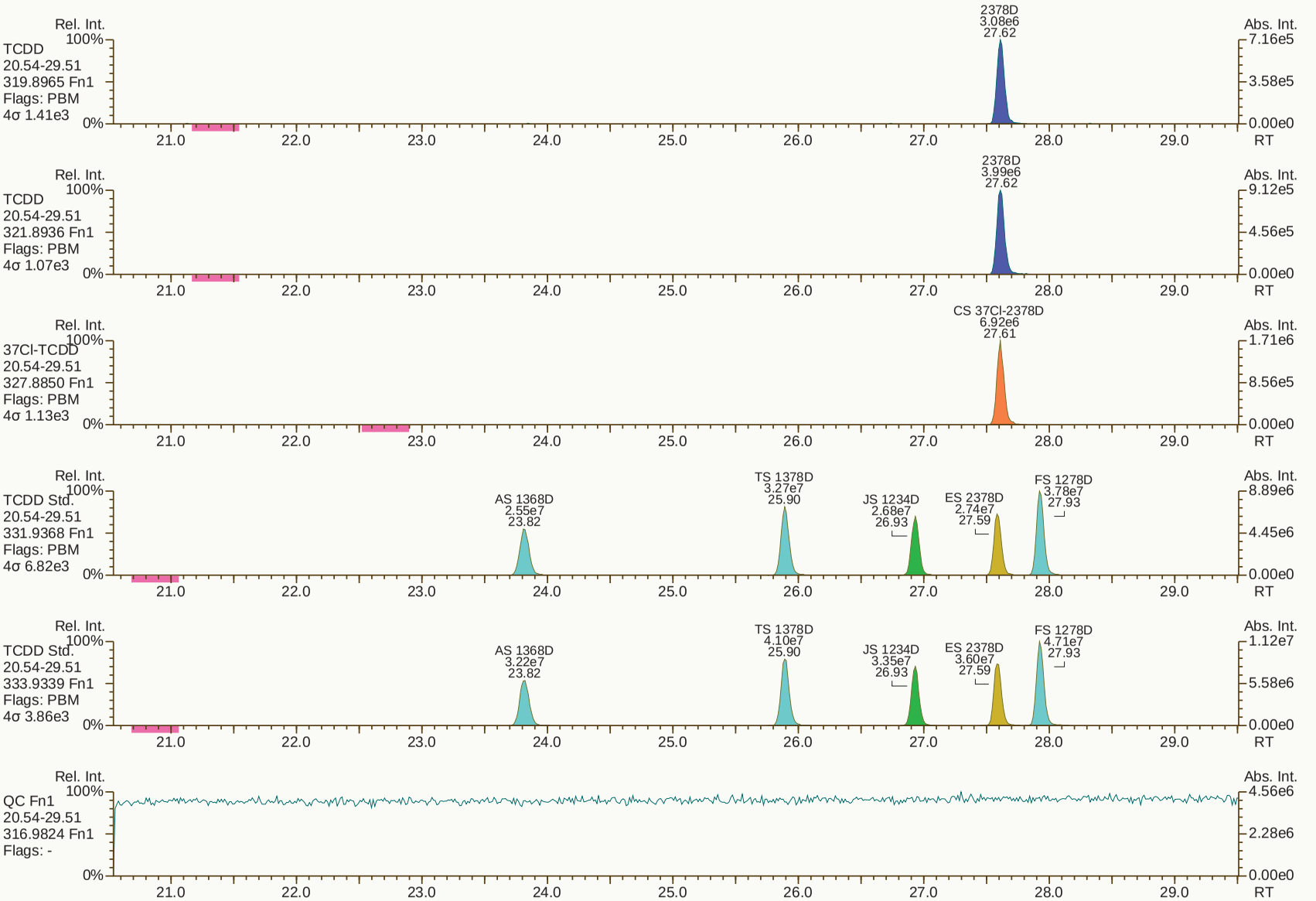
Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\CS3_161123_DF_PC.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 3938, 8135, 6877 scc: 518-307 *PKD: 28-Nov-2016 08:17 Printed: 28-Nov-2016 15:59 Page 1 of 1*

SGS ID: CS3_161123_DF_PD | **Sample ID: SIL 15-104-2** | **Acq: 24-Nov-2016 11:11:20**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161123P30**



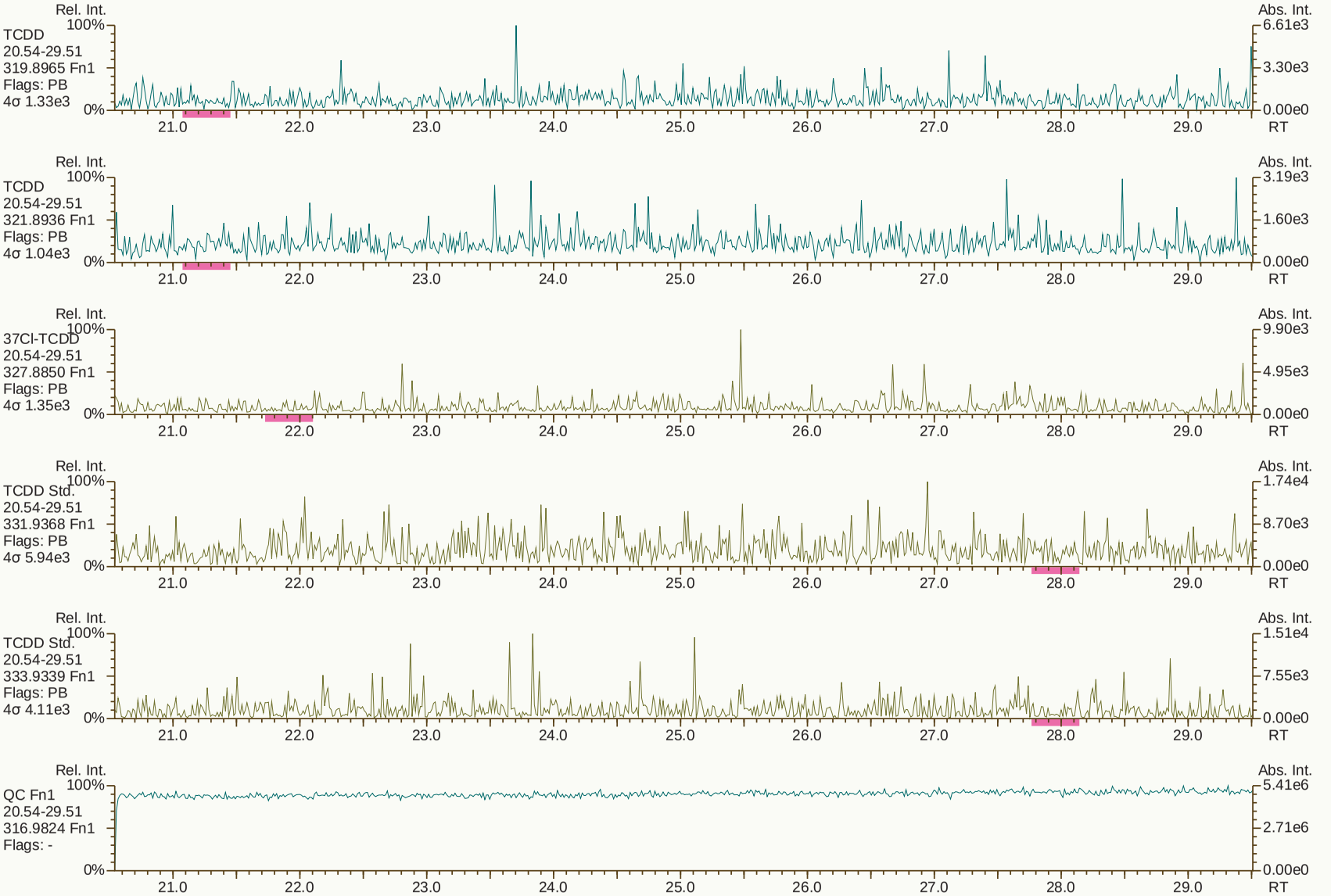
Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\CS3_161123_DF_PD.utp_res, saved 28-Nov-2016 15:39 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 7488, 0954, 6749 scc: 436-459 | *PKD: 28-Nov-2016 08:24 Printed: 28-Nov-2016 16:01 Page 1 of 1*

SGS ID: CS3_161123_DF_PD | **Sample ID: SIL 15-104-2** | **Acq: 24-Nov-2016 11:11:20**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161123P30**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\CS3_161123_DF_PD.utp_res, saved 28-Nov-2016 15:39 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 7488, 0954, 6749 scc: 436-459 *PKD: 28-Nov-2016 08:24 Printed: 28-Nov-2016 15:59 Page 1 of 1*

SGS ID: SBS_161123_DF_PB | **Sample ID: SIL 15-49-1** | **Acq: 23-Nov-2016 19:30:56**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: PSW Datafile: 161123P11**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\SBS_161123_DF_PB.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 8818, 1877, 1581 scc: 026-831 *PKD: 28-Nov-2016 08:38 Printed: 28-Nov-2016 15:58 Page 1 of 1*

SGS ID: SBS_161123_DF_PC | **Sample ID: SIL 15-49-1** | **Acq: 24-Nov-2016 00:25:59**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: PSW Datafile: 161123P17**

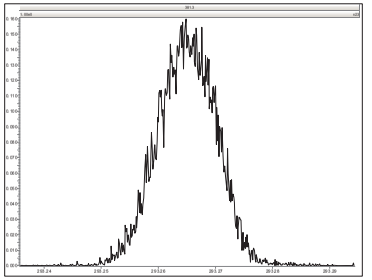
Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\SBS_161123_DF_PC.utp_res, saved 28-Nov-2016 15:38 (PSW) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 4579, 5872, 5430 scc: 254-999 | *PKD: 28-Nov-2016 08:44 Printed: 28-Nov-2016 15:59 Page 1 of 1*

Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

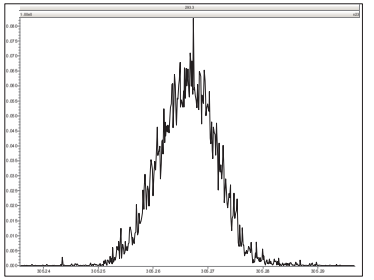
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, November 23, 2016 13:33:40 Eastern Standard Time

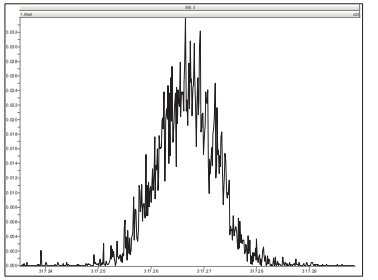
M 292.9824 R 12952



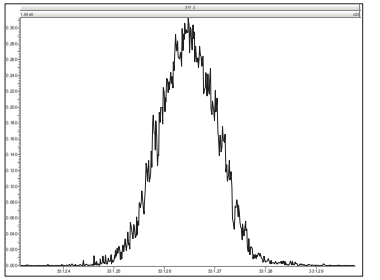
M 304.9824 R 12817



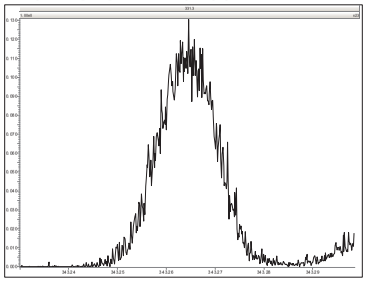
M 316.9824 R 13968



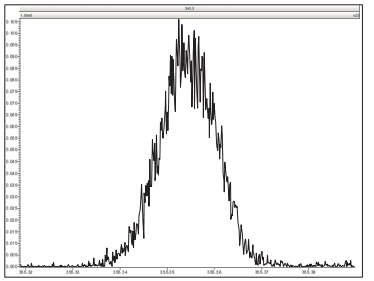
M 330.9792 R 13088



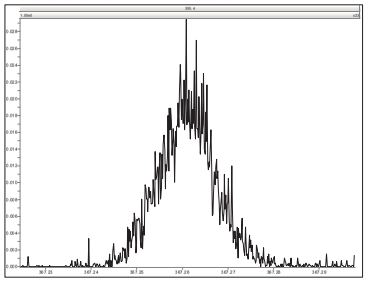
M 342.9792 R 13155



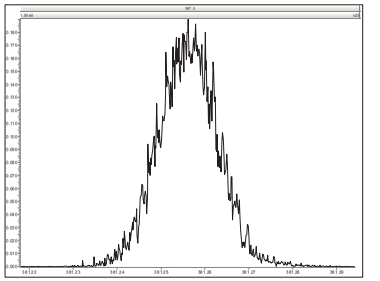
M 354.9792 R 12625



M 366.9792 R 15336



M 380.9760 R 12823

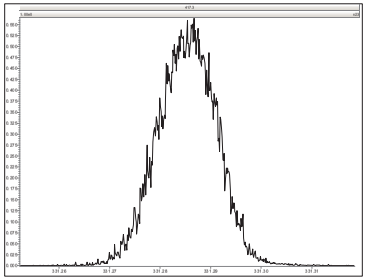


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

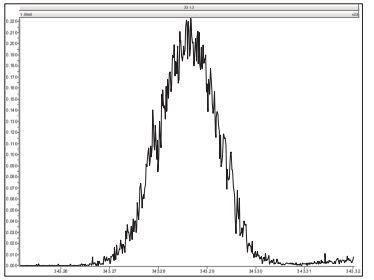
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, November 23, 2016 13:35:33 Eastern Standard Time

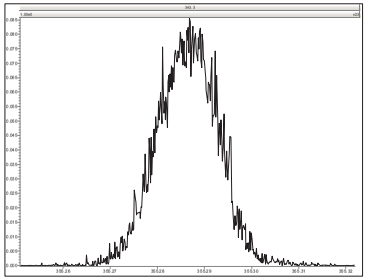
M 330.9792 R 13152



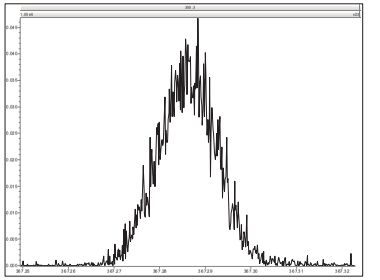
M 342.9792 R 12441



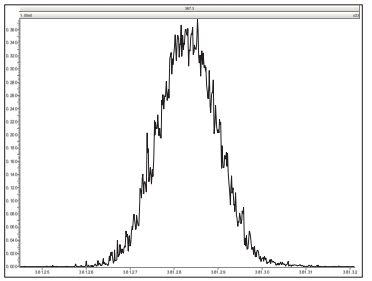
M 354.9792 R 12373



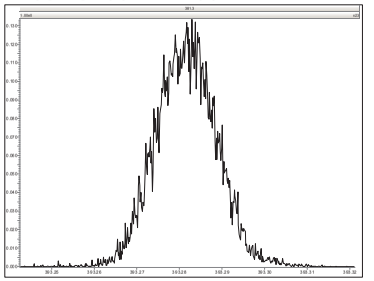
M 366.9792 R 13298



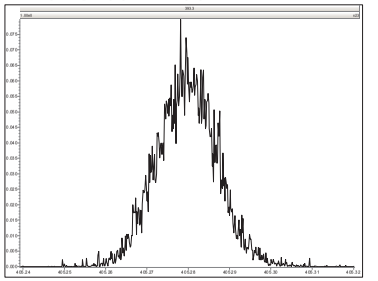
M 380.9760 R 12253



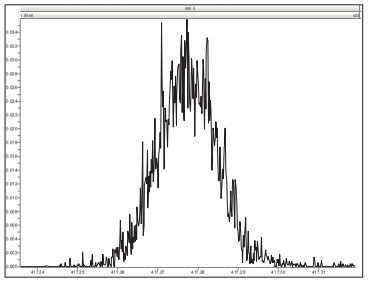
M 392.9760 R 12687



M 404.9760 R 13021



M 416.9760 R 14533

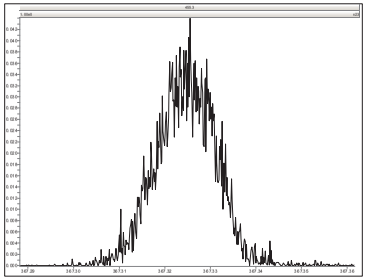


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

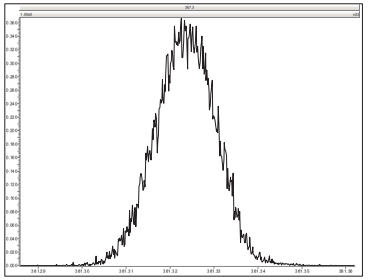
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, November 23, 2016 13:36:49 Eastern Standard Time

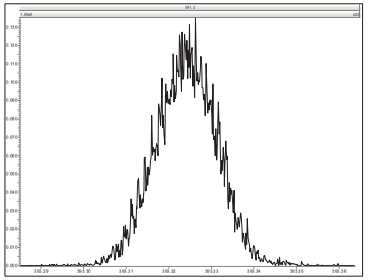
M 366.9792 R 13657



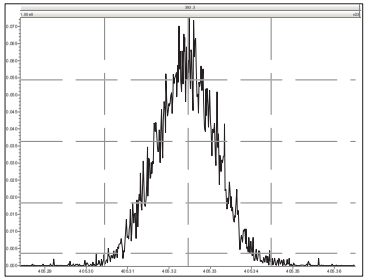
M 380.9760 R 12563



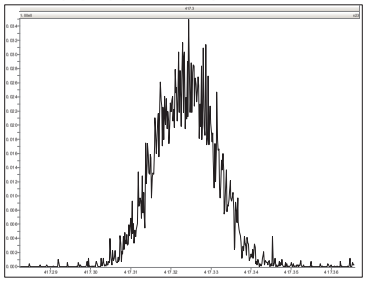
M 392.9760 R 12753



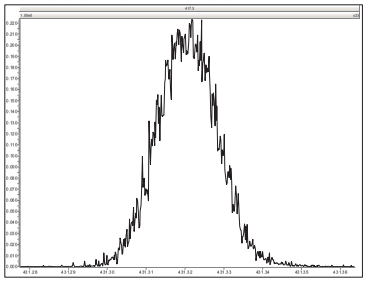
M 404.9760 R 13022



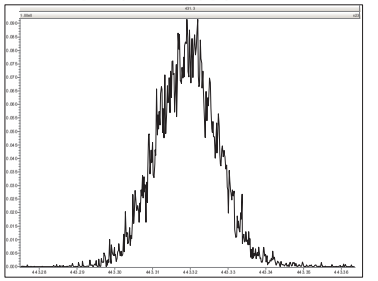
M 416.9760 R 13157



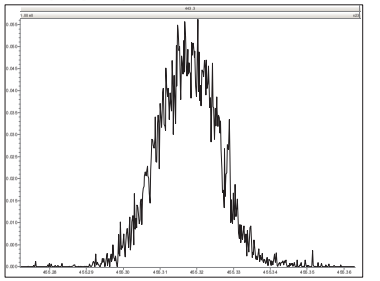
M 430.9728 R 12138



M 442.9728 R 13090



M 454.9728 R 13227

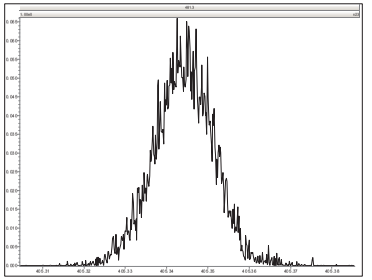


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

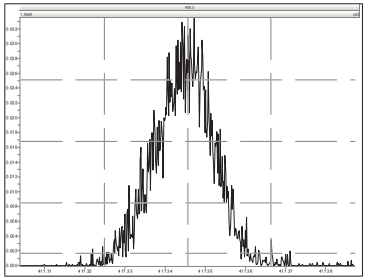
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, November 23, 2016 13:41:17 Eastern Standard Time

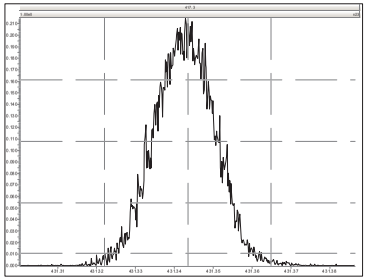
M 404.9760 R 13371



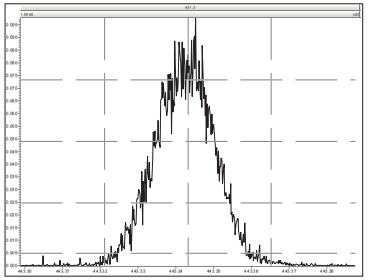
M 416.9760 R 14620



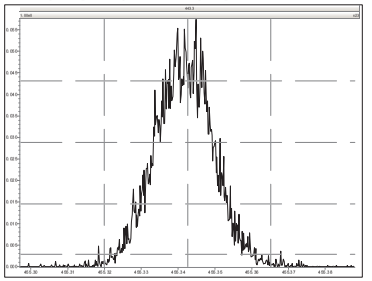
M 430.9728 R 12689



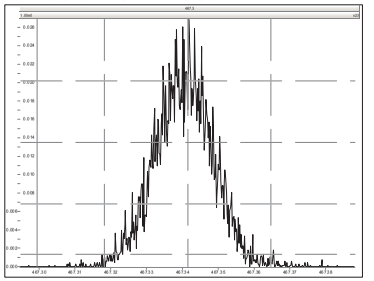
M 442.9728 R 12752



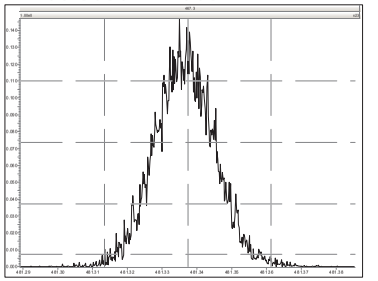
M 454.9728 R 12019



M 466.9728 R 13367



M 480.9696 R 13091

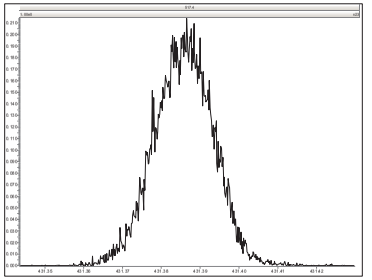


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

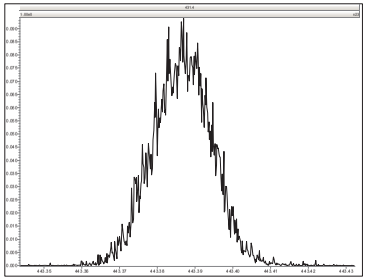
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, November 23, 2016 13:41:46 Eastern Standard Time

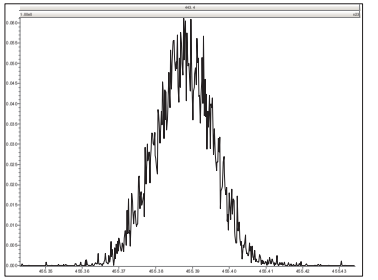
M 430.9728 R 12626



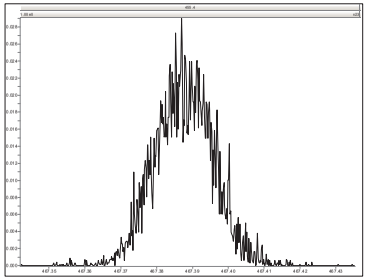
M 442.9728 R 13296



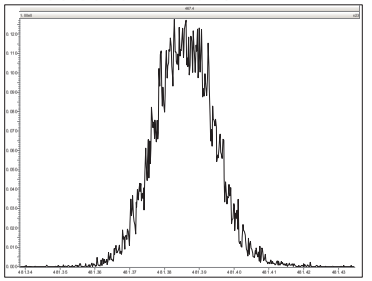
M 454.9728 R 13299



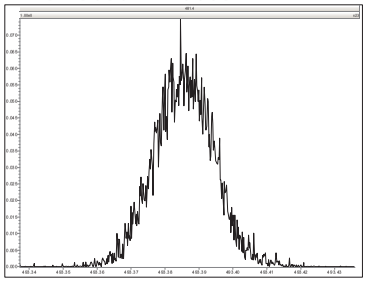
M 466.9728 R 14368



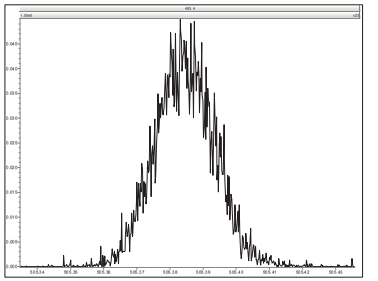
M 480.9696 R 12018



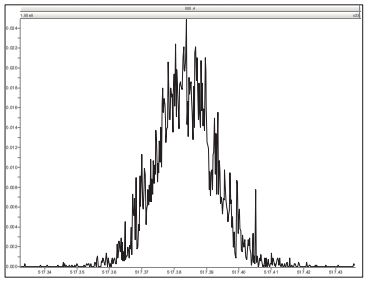
M 492.9696 R 13809



M 504.9696 R 13661



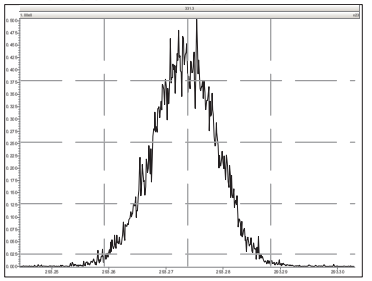
M 516.9697 R 13883



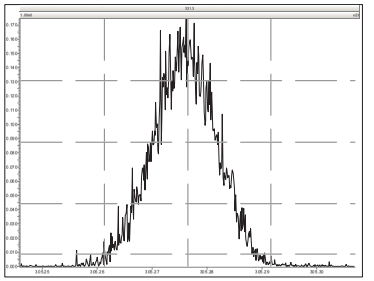
Resolution Check Report **MassLynx 4.1 SCN640** Page 1 of 4

Printed: Wednesday, November 23, 2016 18:43:29 Eastern Standard Time

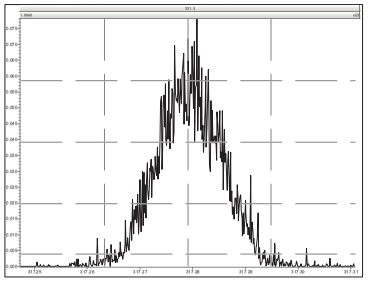
M 292.9824 R 11363



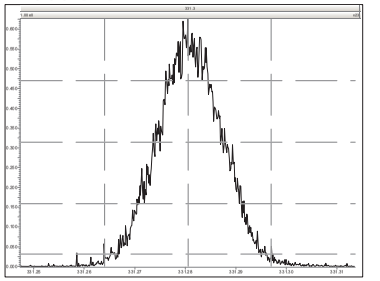
M 304.9824 R 11709



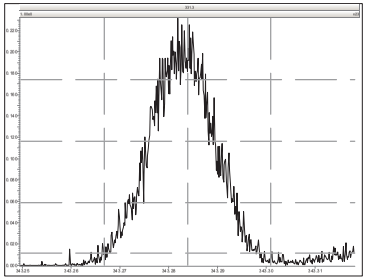
M 316.9824 R 11849



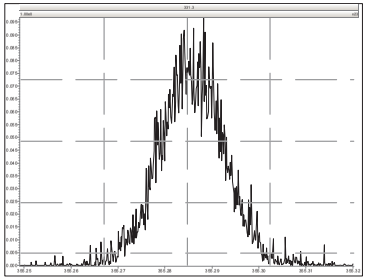
M 330.9792 R 11471



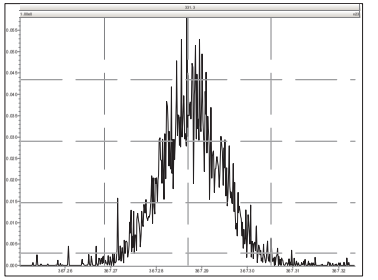
M 342.9792 R 11669



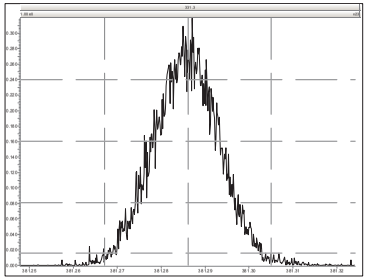
M 354.9792 R 12230



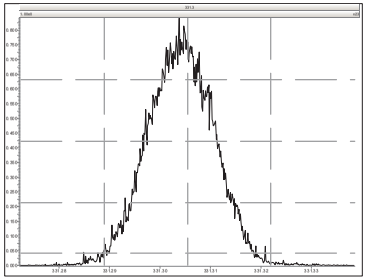
M 366.9792 R 13409



M 380.9760 R 11242



M 330.9792 R 11522



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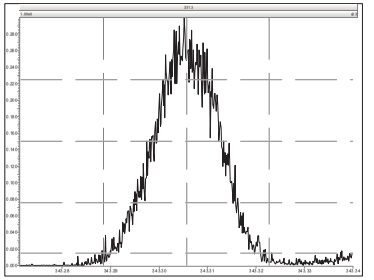
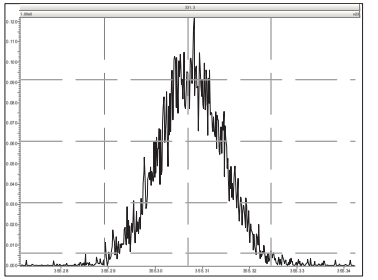
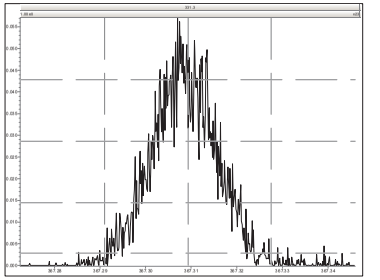


M 354.9792 R 11820



M 366.9792 R 12708



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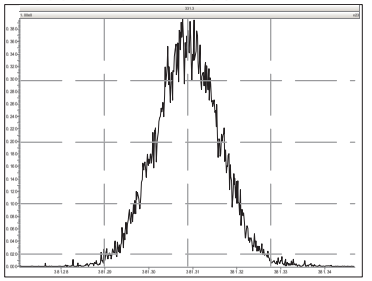
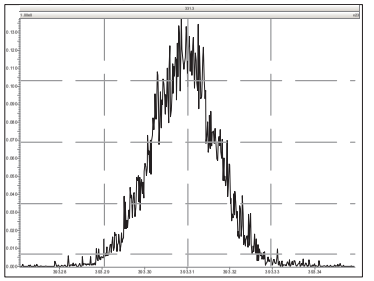
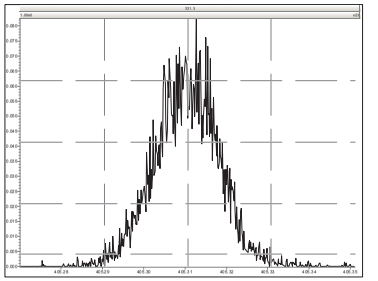
M 380.9760 R 11338



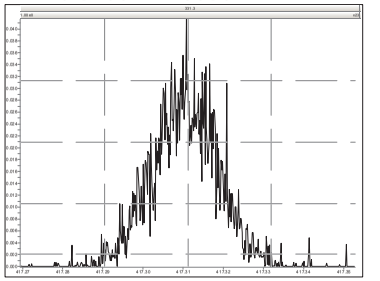
M 392.9760 R 11293



M 404.9760 R 12138



M 416.9760 R 13596



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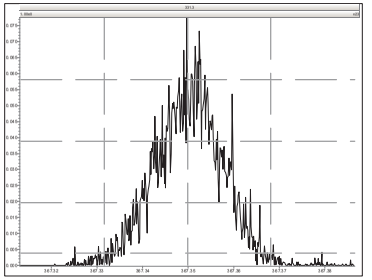
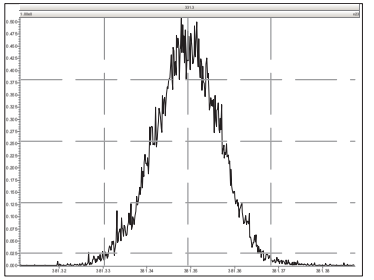
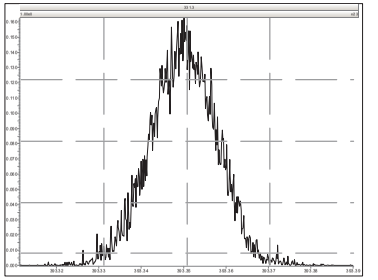


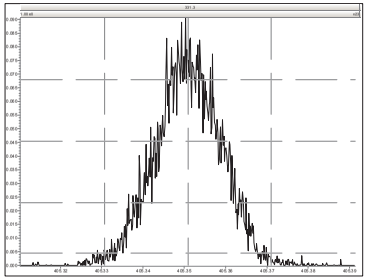
M 380.9760 R 11238



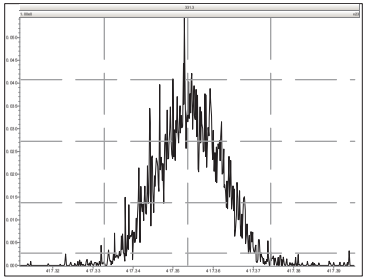
M 392.9760 R 11393



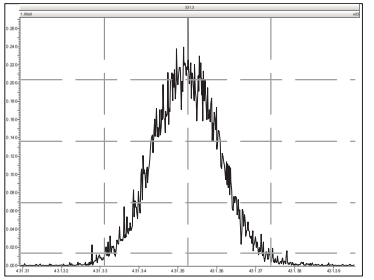
M 404.9760 R 12367



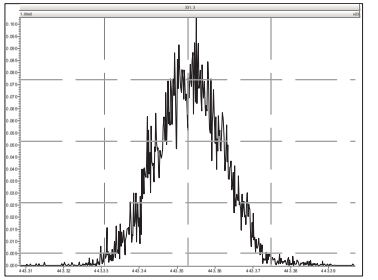
M 416.9760 R 12891



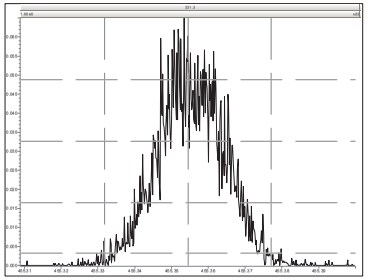
M 430.9728 R 11337



M 442.9728 R 11655



M 454.9728 R 11529



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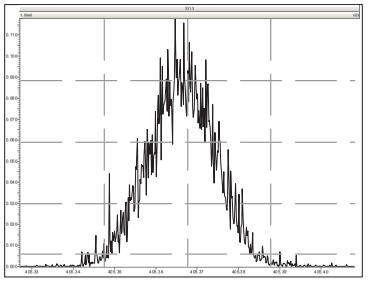
M 404.9760 R 11086



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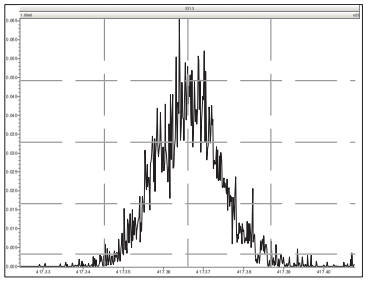

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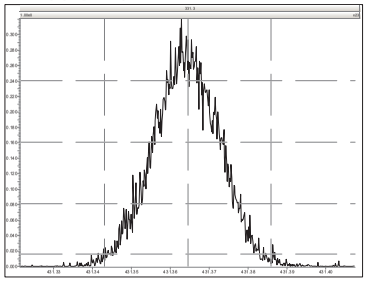
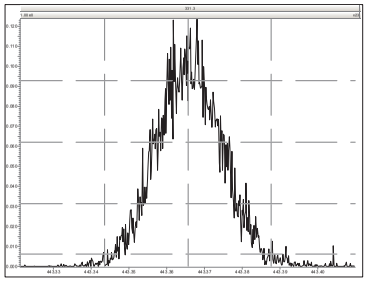
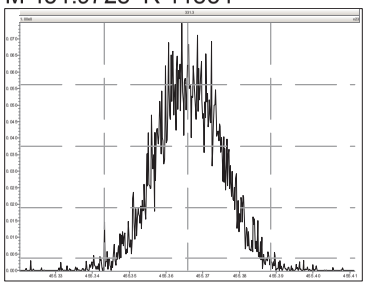


M 442.9728 R 11421



M 454.9728 R 11854



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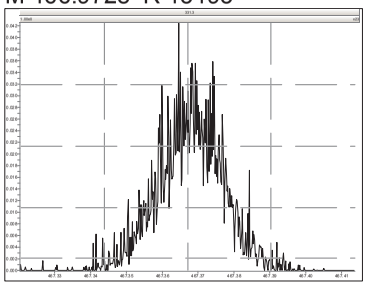
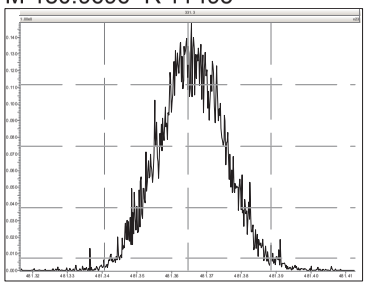
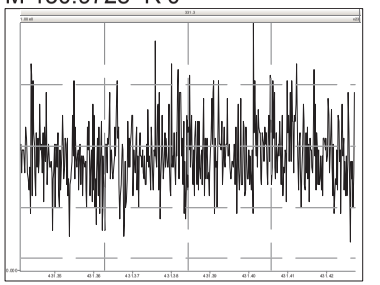


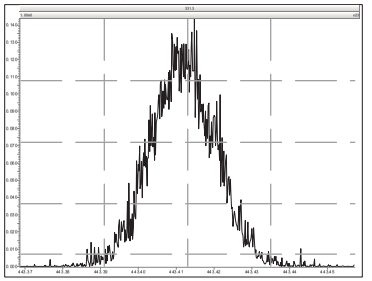
M 480.9696 R 11495



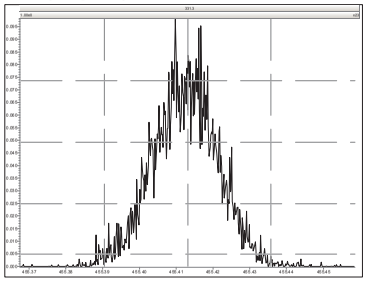
M 430.9728 R 0



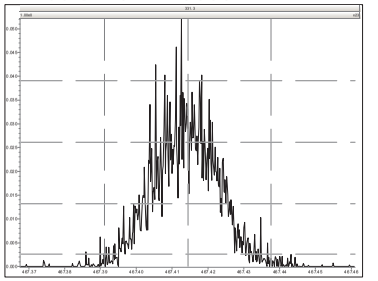
M 442.9728 R 12246



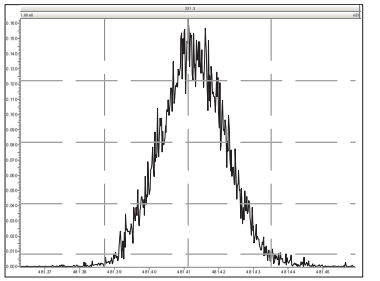
M 454.9728 R 12142



M 466.9728 R 13058



M 480.9696 R 11601



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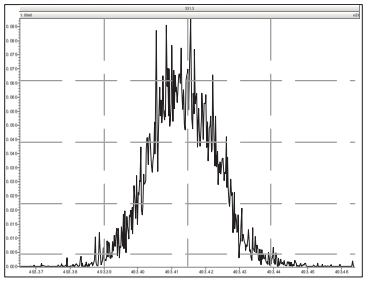
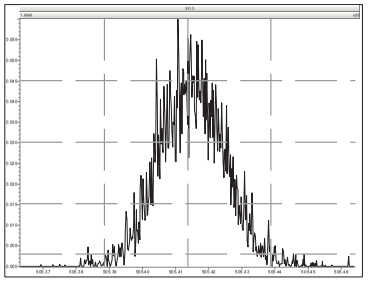
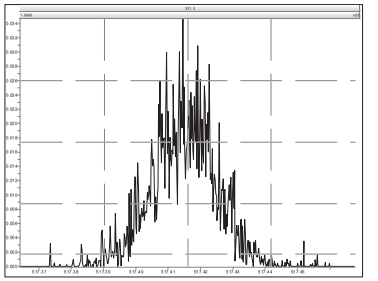
M 492.9696 R 12049



M 504.9696 R 12524



M 516.9697 R 14239



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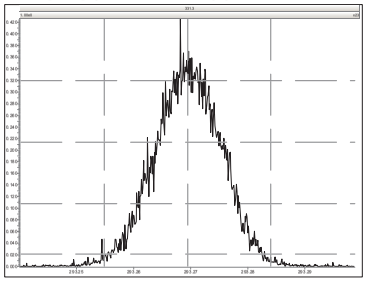
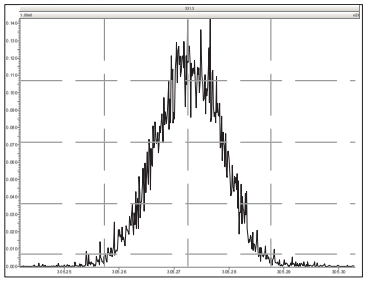
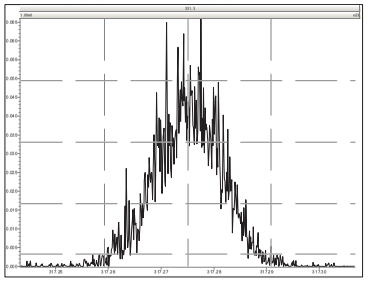
M 292.9824 R 11135



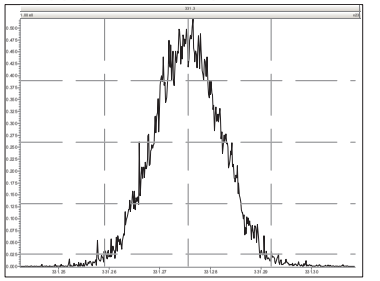
M 304.9824 R 11574



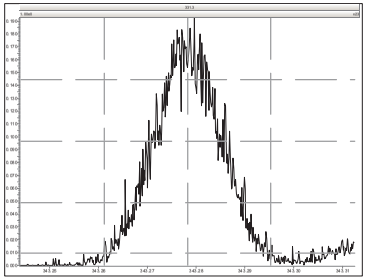
M 316.9824 R 12608



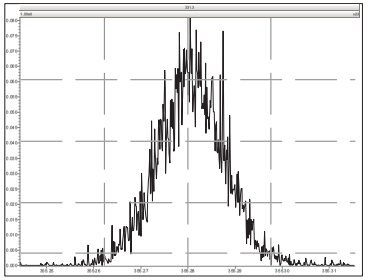
M 330.9792 R 11151



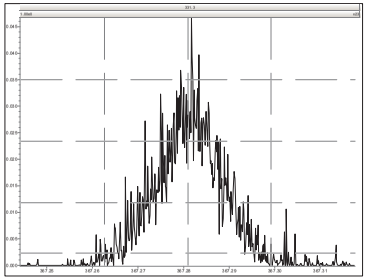
M 342.9792 R 11248



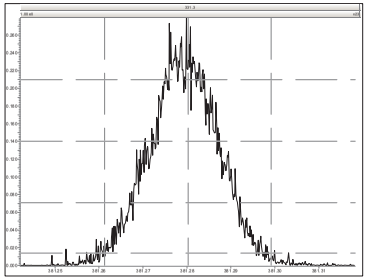
M 354.9792 R 12376



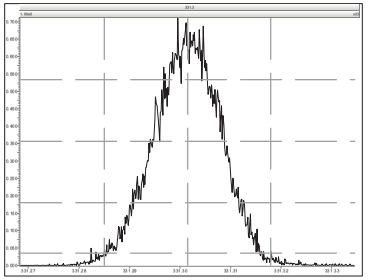
M 366.9792 R 12111



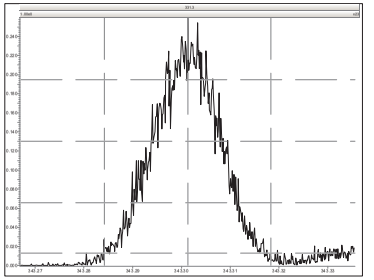
M 380.9760 R 10611



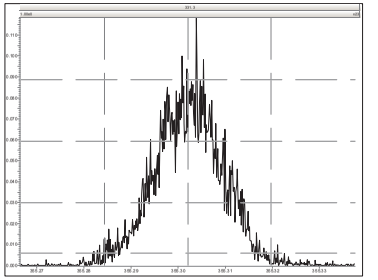
M 330.9792 R 10893



M 342.9792 R 10763



M 354.9792 R 11536



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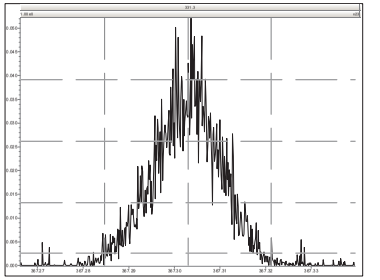

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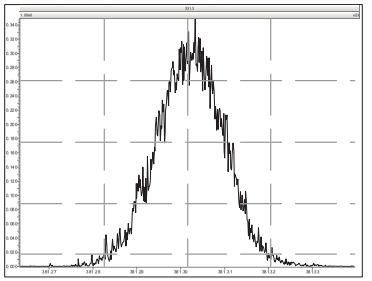
M 380.9760 R 10869



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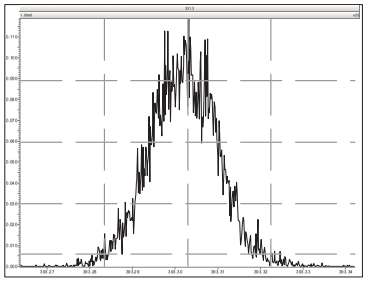
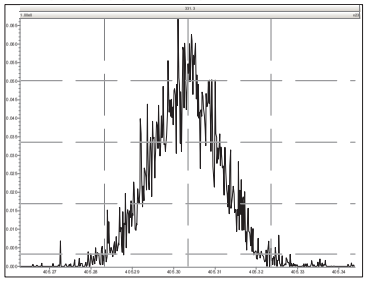
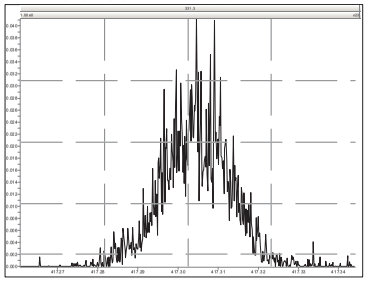


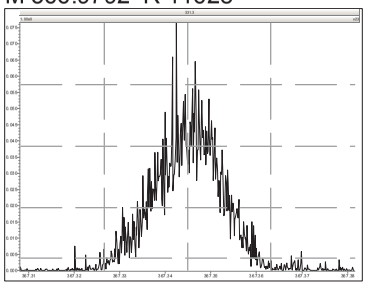
M 404.9760 R 11371



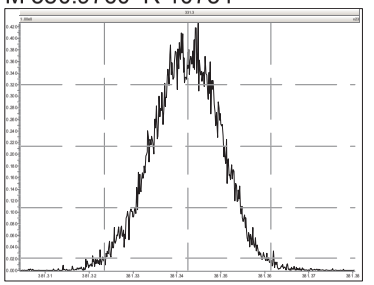
M 416.9760 R 12106



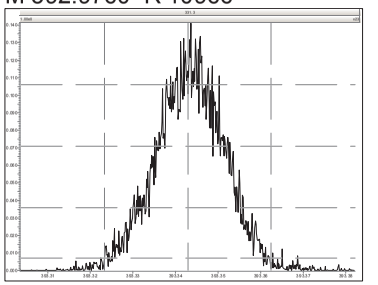
M 366.9792 R 11628



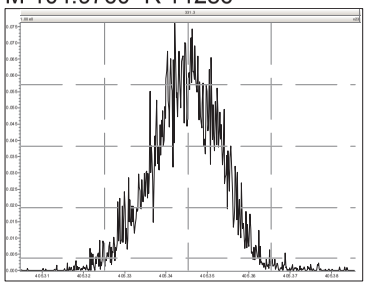
M 380.9760 R 10734



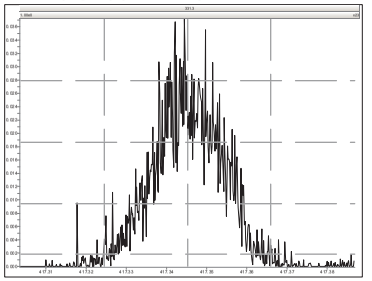
M 392.9760 R 10966



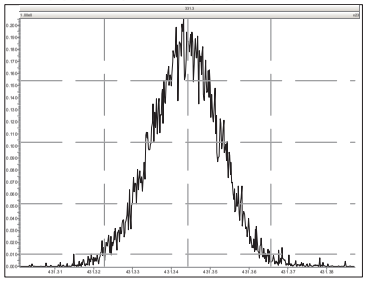
M 404.9760 R 11286



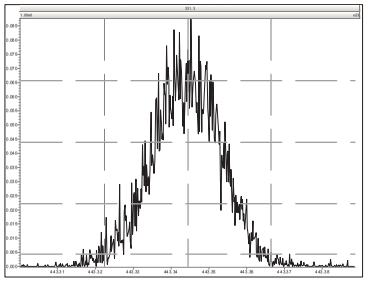
M 416.9760 R 12347



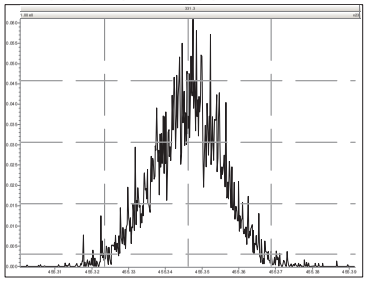
M 430.9728 R 10965



M 442.9728 R 11295



M 454.9728 R 13001



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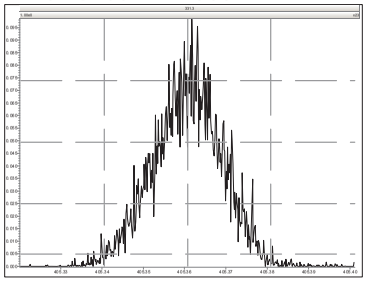
M 404.9760 R 11335



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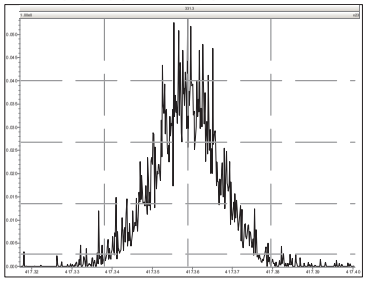

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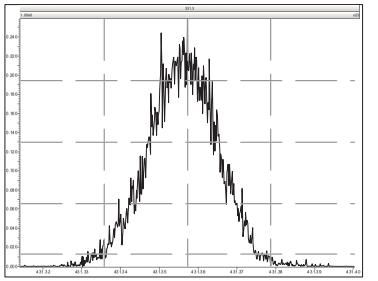
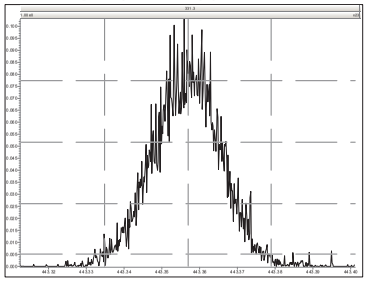
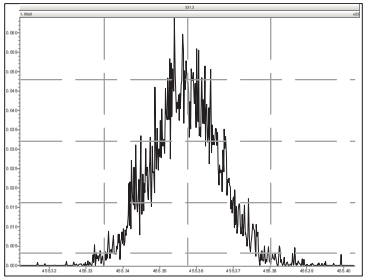


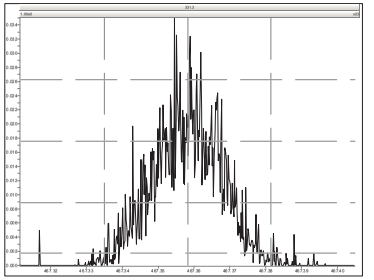
M 442.9728 R 11062



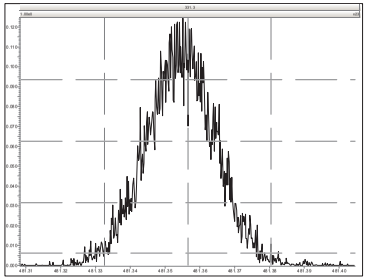
M 454.9728 R 11798



M 466.9728 R 12863



M 480.9696 R 10975



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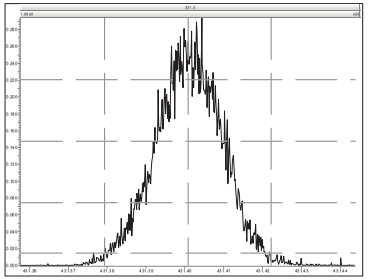

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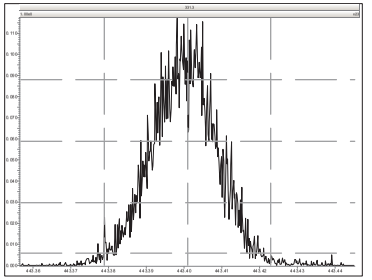

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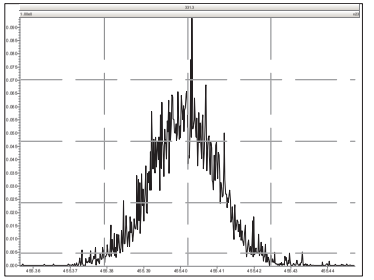
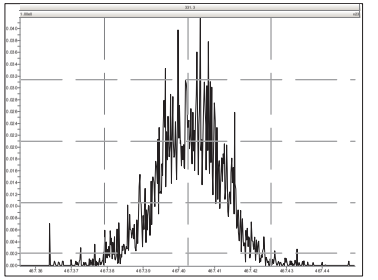
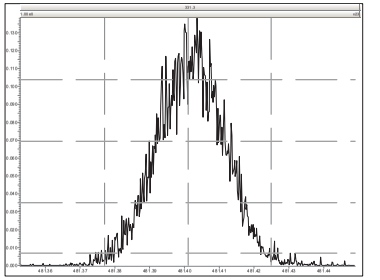


M 466.9728 R 12908



M 480.9696 R 11779



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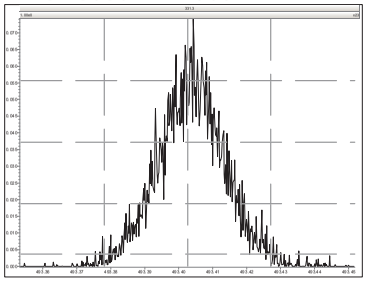
M 492.9696 R 11865



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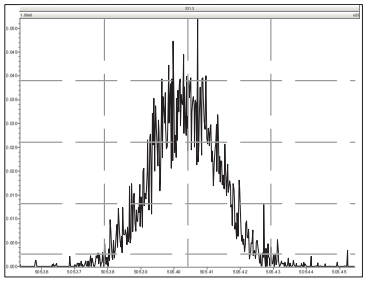

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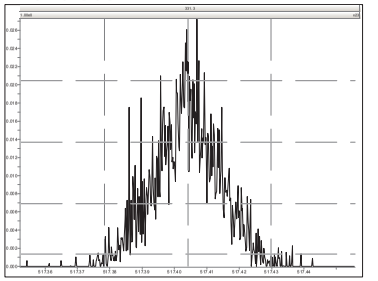

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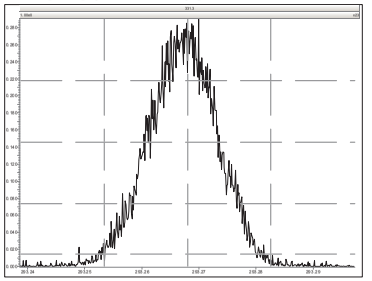
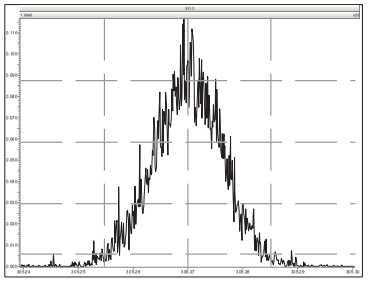
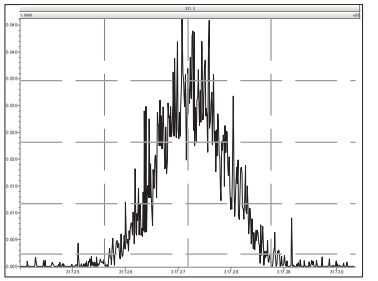
M 292.9824 R 10917



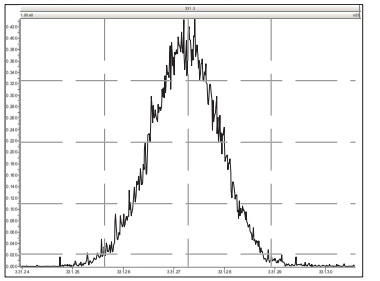
M 304.9824 R 11469



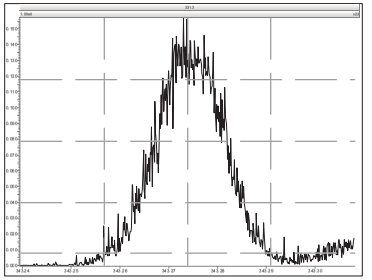
M 316.9824 R 11823



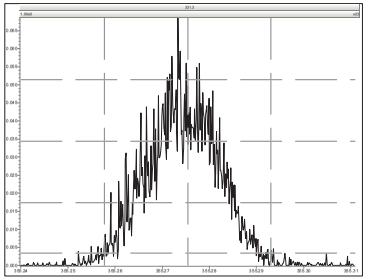
M 330.9792 R 10419



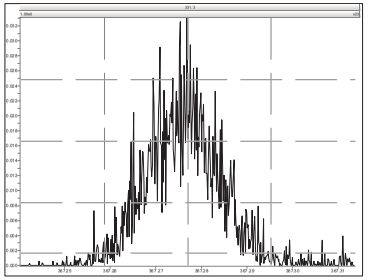
M 342.9792 R 10941



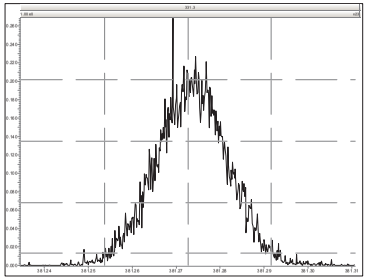
M 354.9792 R 11409



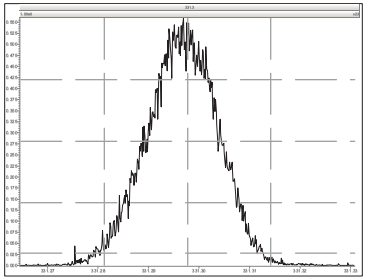
M 366.9792 R 11664



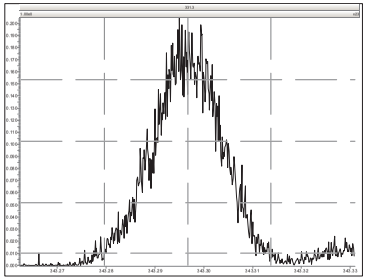
M 380.9760 R 10351



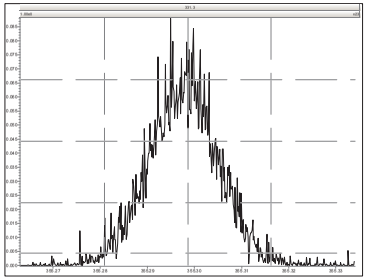
M 330.9792 R 10440



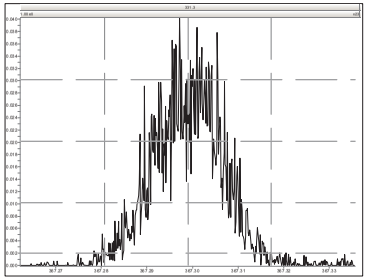
M 342.9792 R 10225



M 354.9792 R 11641



M 366.9792 R 12241



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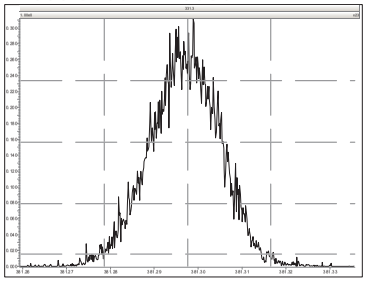
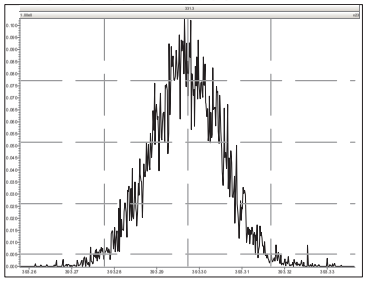
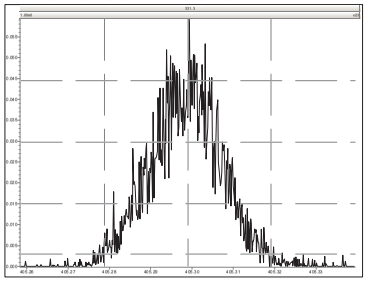
M 380.9760 R 10396



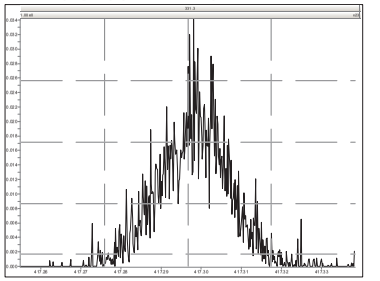
M 392.9760 R 10933



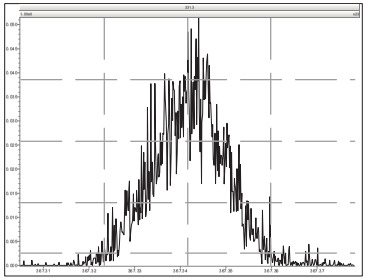
M 404.9760 R 10823



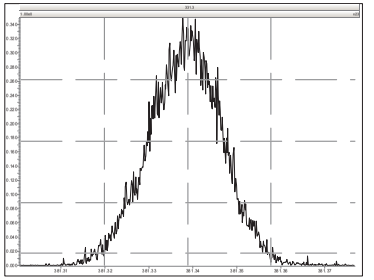
M 416.9760 R 12701



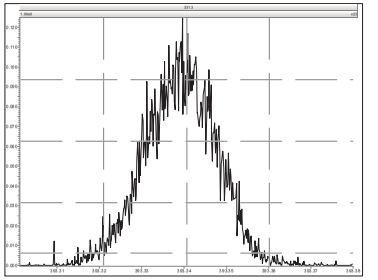
M 366.9792 R 11043



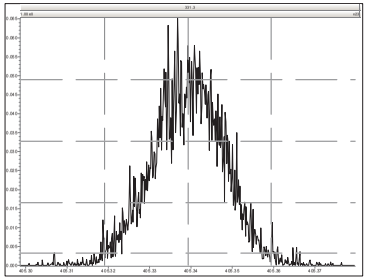
M 380.9760 R 9930



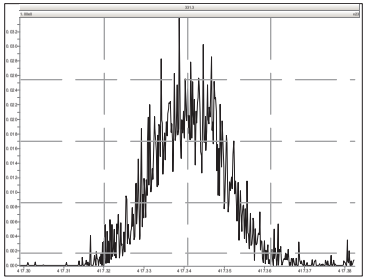
M 392.9760 R 10795



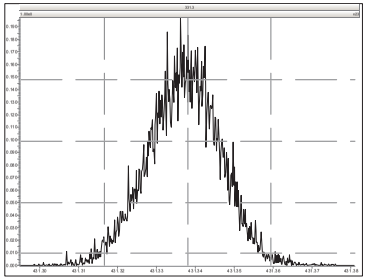
M 404.9760 R 10949



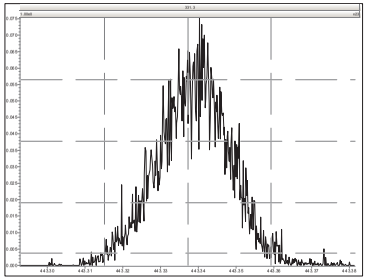
M 416.9760 R 12059



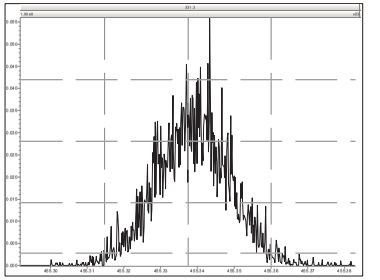
M 430.9728 R 10164



M 442.9728 R 10857



M 454.9728 R 10829



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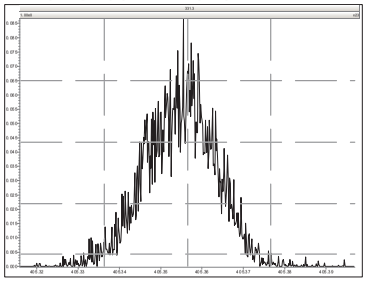
M 404.9760 R 11323



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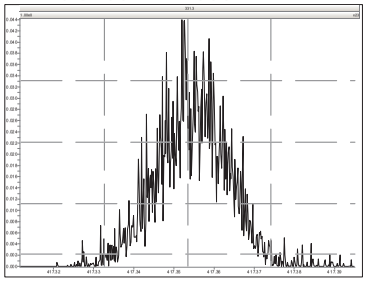

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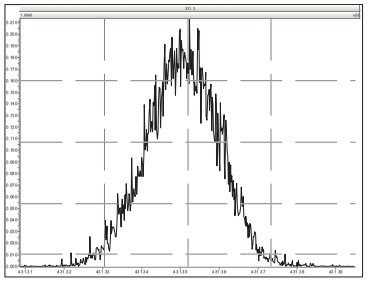
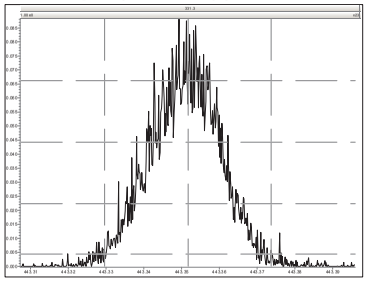
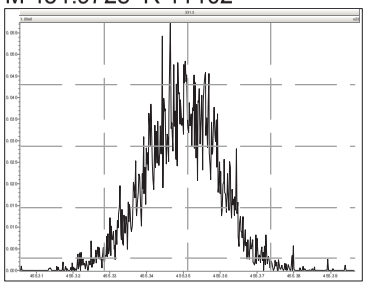


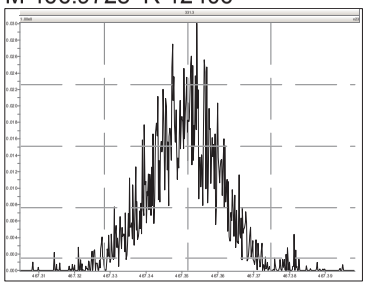
M 442.9728 R 11263



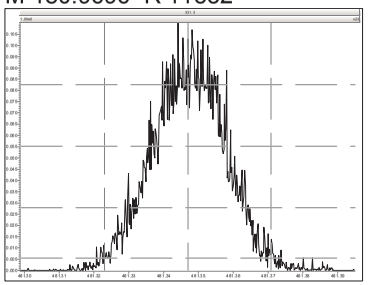
M 454.9728 R 11402



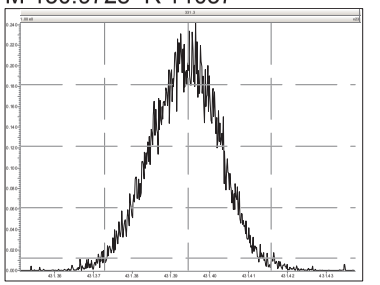
M 466.9728 R 12406



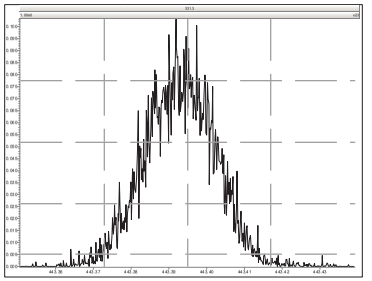
M 480.9696 R 11532



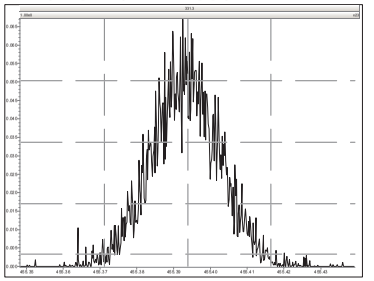
M 430.9728 R 11037



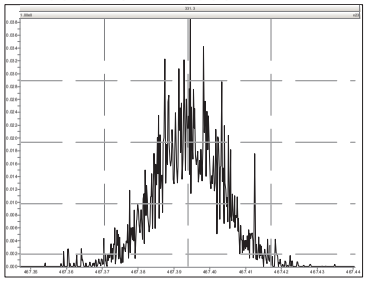
M 442.9728 R 10845



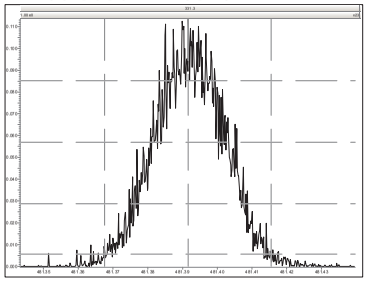
M 454.9728 R 11995



M 466.9728 R 13966



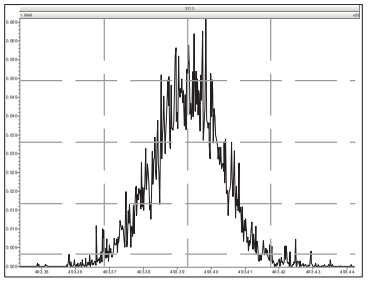
M 480.9696 R 10978



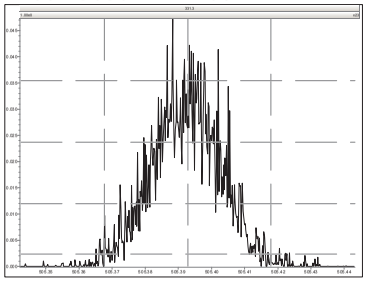
Resolution Check Report **MassLynx 4.1 SCN640**

Printed: Thursday, November 24, 2016 12:08:26 Eastern Standard Time

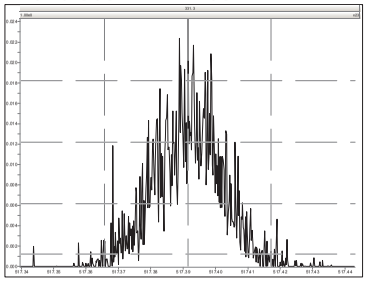
M 492.9696 R 11075



M 504.9696 R 12168



M 516.9697 R 14409



Dioxin/Furan ICAL Summary — SGS North America — Processed: 15 Jul 2016 14:41

ICAL: MM1_DF_12212015_14JUL2016
Data Acquired: 14-Jul-2016

Name	Mean	% RSD	160714P14 0.25 pg/uL CS0	160714P15 0.5 pg/uL CS1	160714P16 2 pg/uL CS2	160714P17 10 pg/uL CS3	160714P18 40 pg/uL CS4	160714P19 200 pg/uL CS5	160714P21 500 pg/uL CS6
2378-TCDD	1.04	6.6%	0.96	0.96	1.01	1.03	1.11	1.10	1.11
12378-PeCDD	0.93	6.0%	0.87	0.86	0.92	0.92	0.98	0.99	0.99
123478-HxCDD	0.97	4.6%	0.92	0.96	0.94	0.94	1.03	1.03	1.01
123678-HxCDD	1.00	4.2%	0.98	0.94	0.97	0.98	1.05	1.02	1.04
123789-HxCDD	0.92	4.7%	0.88	0.88	0.88	0.91	0.96	0.95	0.98
1234678-HpCDD	0.96	5.3%	0.89	0.90	0.93	0.94	1.01	1.00	1.01
OCDD	1.03	5.7%	0.94	0.97	1.04	1.00	1.09	1.08	1.08
2378-TCDF	0.99	3.2%	0.96	0.96	0.98	0.96	1.03	1.02	1.01
12378-PeCDF	0.94	5.3%	0.89	0.89	0.95	0.91	0.99	1.01	0.98
23478-PeCDF	0.93	5.3%	0.90	0.86	0.92	0.91	0.99	0.98	0.97
123478-HxCDF	1.19	4.6%	1.12	1.17	1.17	1.15	1.25	1.25	1.24
123678-HxCDF	1.10	4.9%	1.04	1.03	1.08	1.08	1.17	1.16	1.14
234678-HxCDF	1.11	5.5%	1.00	1.08	1.10	1.09	1.18	1.15	1.15
123789-HxCDF	1.08	6.8%	0.96	1.01	1.08	1.06	1.15	1.15	1.14
1234678-HpCDF	1.28	3.9%	1.23	1.24	1.26	1.24	1.35	1.32	1.33
1234789-HpCDF	1.22	6.4%	1.09	1.14	1.24	1.19	1.29	1.28	1.28
OCDF	1.01	4.8%	0.94	0.96	1.01	0.99	1.08	1.04	1.05
ES 2378-TCDD	1.04	3.3%	1.02	1.03	1.02	1.01	1.01	1.05	1.10
ES 12378-PeCDD	1.00	6.6%	0.96	0.97	0.95	0.95	0.98	1.02	1.14
ES 123478-HxCDD	1.08	5.6%	1.00	1.07	1.09	1.01	1.11	1.06	1.18
ES 123678-HxCDD	1.03	4.9%	0.99	1.07	1.01	0.97	1.04	1.05	1.11
ES 123789-HxCDD	1.18	4.9%	1.12	1.21	1.18	1.09	1.23	1.18	1.26
ES 1234678-HpCDD	0.97	5.0%	0.93	1.00	0.93	0.91	0.99	0.97	1.05
ES OCDD	0.76	7.3%	0.70	0.75	0.72	0.71	0.79	0.77	0.86
ES 2378-TCDF	1.06	3.8%	1.02	1.07	1.05	1.04	1.05	1.07	1.14
ES 12378-PeCDF	0.99	7.5%	0.94	0.97	0.92	0.98	0.98	1.01	1.15
ES 23478-PeCDF	1.02	7.5%	0.97	1.00	0.97	0.98	1.01	1.05	1.18
ES 123478-HxCDF	1.20	4.7%	1.16	1.22	1.18	1.14	1.24	1.19	1.31
ES 123678-HxCDF	1.40	5.0%	1.33	1.43	1.38	1.33	1.42	1.40	1.53
ES 234678-HxCDF	1.27	4.6%	1.23	1.29	1.24	1.20	1.30	1.27	1.38
ES 123789-HxCDF	1.16	6.0%	1.11	1.17	1.12	1.07	1.19	1.17	1.29
ES 1234678-HpCDF	0.98	5.4%	0.93	0.98	0.95	0.93	0.99	0.98	1.08
ES 1234789-HpCDF	0.90	6.1%	0.86	0.91	0.87	0.84	0.93	0.90	1.01
ES OCDF	0.96	9.0%	0.87	0.94	0.90	0.88	1.00	0.99	1.11

Dioxin/Furan ICAL Summary — SGS North America — Processed: 15 Jul 2016 14:41

ICAL: MM1_DF_12212015_14JUL2016
Data Acquired: 14-Jul-2016

Name	Mean	% RSD	160714P14 0.25 pg/uL CS0	160714P15 0.5 pg/uL CS1	160714P16 2 pg/uL CS2	160714P17 10 pg/uL CS3	160714P18 40 pg/uL CS4	160714P19 200 pg/uL CS5	160714P21 500 pg/uL CS6
CS 37Cl-2378-TCDD	1.05	7.5%	-	0.99	0.96	1.06	1.12	1.14	-
CS 12347-PeCDD	0.91	4.0%	0.92	0.86	0.92	0.88	0.90	0.92	0.98
CS 12346-PeCDF	0.98	3.5%	0.95	0.94	1.00	0.94	0.98	0.99	1.03
CS 123469-HxCDF	1.25	3.7%	1.27	1.24	1.30	1.17	1.30	1.23	1.23
CS 1234689-HpCDF	0.85	3.4%	0.88	0.86	0.85	0.80	0.88	0.82	0.83
SS 37Cl-2378-TCDD	1.03	7.3%	-	0.96	0.94	1.05	1.11	1.09	-
SS 12347-PeCDD	0.92	3.9%	0.96	0.89	0.96	0.93	0.92	0.90	0.86
SS 12346-PeCDF	0.99	5.5%	1.01	0.97	1.08	0.97	1.01	0.98	0.90
SS 123469-HxCDF	0.89	5.7%	0.96	0.87	0.94	0.88	0.92	0.87	0.80
SS 1234689-HpCDF	0.87	6.1%	0.94	0.87	0.90	0.87	0.89	0.84	0.77
AS 1368-TCDD	1.02	2.5%	1.03	1.03	1.03	1.02	0.98	0.99	1.05
AS 1368-TCDF	1.41	2.9%	1.41	1.47	1.40	1.39	1.37	1.37	1.47
OCDD-a	0.06	0.14	-	0.05	0.05	0.06	0.07	0.07	0.07
OCDF-a	0.06	8.2%	-	0.05	0.06	0.06	0.06	0.06	0.06
Totals									
Total TCDD	1.04	6.6%	0.96	0.96	1.01	1.03	1.11	1.10	1.11
Total PeCDD	0.93	6.0%	0.87	0.86	0.92	0.92	0.98	0.99	0.99
Total HxCDD	0.96	4.3%	0.93	0.93	0.93	0.94	1.01	1.00	1.01
Total HpCDD	0.96	5.3%	0.89	0.90	0.93	0.94	1.01	1.00	1.01
Total TCDF	0.99	3.2%	0.96	0.96	0.98	0.96	1.03	1.02	1.01
Total PeCDF	0.94	5.3%	0.90	0.87	0.93	0.91	0.99	1.00	0.98
Total HxCDF	1.12	5.3%	1.03	1.07	1.11	1.09	1.19	1.18	1.17
Total HpCDF	1.25	5.0%	1.16	1.19	1.25	1.22	1.32	1.30	1.31
FS 1278-TCDD	1.31	2.6%	1.33	1.32	1.34	1.32	1.31	1.25	1.28
FS 12478-PeCDD	1.15	4.8%	1.18	1.19	1.21	1.17	1.14	1.07	1.08
FS 123468-HxCDD	1.31	6.4%	1.43	1.36	1.32	1.34	1.32	1.25	1.16
FS 1234679-HpCDD	1.24	6.4%	1.30	1.26	1.32	1.28	1.27	1.15	1.11
TS 1378-TCDD	1.23	2.4%	1.26	1.23	1.28	1.24	1.23	1.19	1.21

D/F ICAL	Conc.					
Individual Native Standards	CS 0	CS 1	CS 2	CS 3	CS 4	CS 5
2378 TCDD	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
2378 TCDF	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12378 PeCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
12378 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
23478 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
234678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234789 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
OCDD	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
OCDF	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
Extraction Standards						
2378 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
2378 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
23478 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
234678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234789 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
OCDD 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
OCDF 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
Cleanup/Sampling standards						
2378 37Cl4		0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12347 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12346 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123469 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234689 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Alternate Standard						
1368 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1368 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Injection standards						
1234 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123467 HxCDD 13C12	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul

Working Standards

ES

2378 TCDD 13C12	10 pg/ul
2378 TCDF 13C12	10 pg/ul
12378 PeCDD 13C12	10 pg/ul
12378 PeCDF 13C12	10 pg/ul
23478 PeCDF 13C12	10 pg/ul
123478 HxCDD 13C12	10 pg/ul
123678 HxCDD 13C12	10 pg/ul
123789 HxCDD 13C12	10 pg/ul
123478 HxCDF 13C12	10 pg/ul
123678 HxCDF 13C12	10 pg/ul
123789 HxCDF 13C12	10 pg/ul
234678 HxCDF 13C12	10 pg/ul
1234678 HpCDD 13C12	10 pg/ul
1234678 HpCDF 13C12	10 pg/ul
1234789 HpCDF 13C12	10 pg/ul
OCDD 13C12	10 pg/ul
OCDF 13C12	10 pg/ul

Ax

2378 TCDD	1 pg/ul
2378 TCDF	1 pg/ul
12378 PeCDD	1 pg/ul
12378 PeCDF	1 pg/ul
23478 PeCDF	1 pg/ul
123478 HxCDD	1 pg/ul
123678 HxCDD	1 pg/ul
123789 HxCDD	1 pg/ul
123478 HxCDF	1 pg/ul
123678 HxCDF	1 pg/ul
123789 HxCDF	1 pg/ul
234678 HxCDF	1 pg/ul
1234678 HpCDD	1 pg/ul
1234678 HpCDF	1 pg/ul
1234789 HpCDF	1 pg/ul
OCDD	1 pg/ul
OCDF	1 pg/ul

CS/SS

2378 37Cl4	4 pg/ul
12347 PeCDD 13C12	10 pg/ul
12346 PeCDF 13C12	10 pg/ul
123469 HxCDF 13C12	10 pg/ul
1234689 HpCDF 13C12	10 pg/ul

AS

1368 TCDD 13C12	10 pg/ul
1368 TCDF 13C12	10 pg/ul

JS

1234 TCDD 13C12	10 pg/ul
1234 TCDF 13C12	10 pg/ul
123467 HxCDD 13C12	5 pg/ul

FS

1278 TCDD 13C12	100 pg/ul
12478 PeCDD 13C12	100 pg/ul
123468 HxCDD 13C12	100 pg/ul
1234679 HpCDD 13C12	100 pg/ul

TS

1378 TCDD 13C12	100 pg/ul

CS6
500 pg/ul
500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
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100 pg/ul

100 pg/ul
100 pg/ul

100 pg/ul
100 pg/ul
50 pg/ul

SGS Environmental Services — Run Log **Project: MM1_DF_12212015_14JUL2016**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: zb5-ms_60m

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
4	160714P13	2	SBS_160714_DF_PE	1.00	SIL 15-49-1	LKB	483-666	14-Jul-2016	14:22:37
5	160714P14	7	CS0_160714_DF_PC	1.00	SIL 15-105-2	LKB	220-317	14-Jul-2016	15:09:57
6	160714P15	8	CS1_160714_DF_PB	1.05	SIL 15-105-1	LKB	432-737	14-Jul-2016	16:12:53
7	160714P16	9	CS2_160714_DF_PB	1.00	SIL 15-104-3	LKB	281-247	14-Jul-2016	17:00:11
8	160714P17	10	CS3_160714_DF_PC	0.96	SIL 15-104-2	LKB	686-028	14-Jul-2016	17:49:22
9	160714P18	11	CS4_160714_DF_PB	0.98	SIL 15-104-1	LKB	345-926	14-Jul-2016	18:38:32
10	160714P19	12	CS5_160714_DF_PB	0.03	SIL 15-103-4	LKB	617-885	14-Jul-2016	19:27:43
11	160714P20	2	SBS_160714_DF_PF	1.00	SIL 15-49-1	LKB	334-191	14-Jul-2016	20:16:54
12	160714P21	13	CS6_160714_DF_PB	0.03	SIL 15-103-3	LKB	450-982	14-Jul-2016	21:06:05

REVIEWED
By Laura Boivin at 2:54 pm, Jul 15, 2016

APPROVED
By Tamara Morgan at 9:12 am, Jul 19, 2016

Project file: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\MM1_DF_12212015_14JUL2016.utp_prj, saved 15-Jul-2016 14:53
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933

Printed: 15-Jul-2016 14:53

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 15:09 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS0_160714_DF_PC	UTP: 15-Jul-2016 14:40:54 LKB	Checkcode: 220-317-GYK
Sample ID: SIL 15-105-2	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P14

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.47	2.15E+05	0.77	Y	1.04	0.96	-8%
12378-PeCDD	32.18	9.21E+05	1.43	Y	0.93	0.87	-7%
123478-HxCDD	36.17	7.94E+05	1.28	Y	0.97	0.92	-6%
123678-HxCDD	36.29	8.35E+05	1.12	Y	1.00	0.98	-1%
123789-HxCDD	36.58	8.45E+05	1.27	Y	0.92	0.88	-5%
1234678-HpCDD	39.65	7.16E+05	1.07	Y	0.96	0.89	-6%
OCDD	42.07	1.14E+06	0.87	Y	1.03	0.94	-8%
2378-TCDF	25.49	2.93E+05	0.68	Y	0.99	0.96	-3%
12378-PeCDF	30.65	1.26E+06	1.62	Y	0.94	0.89	-5%
23478-PeCDF	31.82	1.30E+06	1.61	Y	0.93	0.90	-4%
123478-HxCDF	35.19	1.12E+06	1.23	Y	1.19	1.12	-6%
123678-HxCDF	35.33	1.19E+06	1.22	Y	1.10	1.04	-5%
234678-HxCDF	35.99	1.05E+06	1.21	Y	1.11	1.00	-10%
123789-HxCDF	36.93	9.15E+05	1.34	Y	1.08	0.96	-11%
1234678-HpCDF	38.61	9.85E+05	1.05	Y	1.28	1.23	-4%
1234789-HpCDF	40.09	8.12E+05	1.05	Y	1.22	1.09	-10%
OCDF	42.23	1.41E+06	0.85	Y	1.01	0.94	-7%
ES 2378-TCDD	26.44	9.01E+07	0.78	Y	1.04	1.02	-1%
ES 12378-PeCDD	32.16	8.50E+07	1.57	Y	1.00	0.96	-3%
ES 123478-HxCDD	36.16	6.92E+07	1.24	Y	1.08	1.00	-7%
ES 123678-HxCDD	36.27	6.79E+07	1.24	Y	1.03	0.99	-5%
ES 123789-HxCDD	36.56	7.72E+07	1.25	Y	1.18	1.12	-5%
ES 1234678-HpCDD	39.63	6.40E+07	1.07	Y	0.97	0.93	-4%
ES OCDD	42.06	9.67E+07	0.90	Y	0.76	0.70	-7%
ES 2378-TCDF	25.47	1.22E+08	0.73	Y	1.06	1.02	-4%
ES 12378-PeCDF	30.63	1.12E+08	1.50	Y	0.99	0.94	-6%
ES 23478-PeCDF	31.8	1.16E+08	1.53	Y	1.02	0.97	-6%
ES 123478-HxCDF	35.17	7.97E+07	0.52	Y	1.20	1.16	-4%
ES 123678-HxCDF	35.31	9.15E+07	0.53	Y	1.40	1.33	-5%
ES 234678-HxCDF	35.97	8.45E+07	0.53	Y	1.27	1.23	-4%
ES 123789-HxCDF	36.92	7.63E+07	0.53	Y	1.16	1.11	-5%
ES 1234678-HpCDF	38.6	6.41E+07	0.45	Y	0.98	0.93	-5%
ES 1234789-HpCDF	40.08	5.93E+07	0.45	Y	0.90	0.86	-5%
ES OCDF	42.22	1.20E+08	0.92	Y	0.96	0.87	-9%

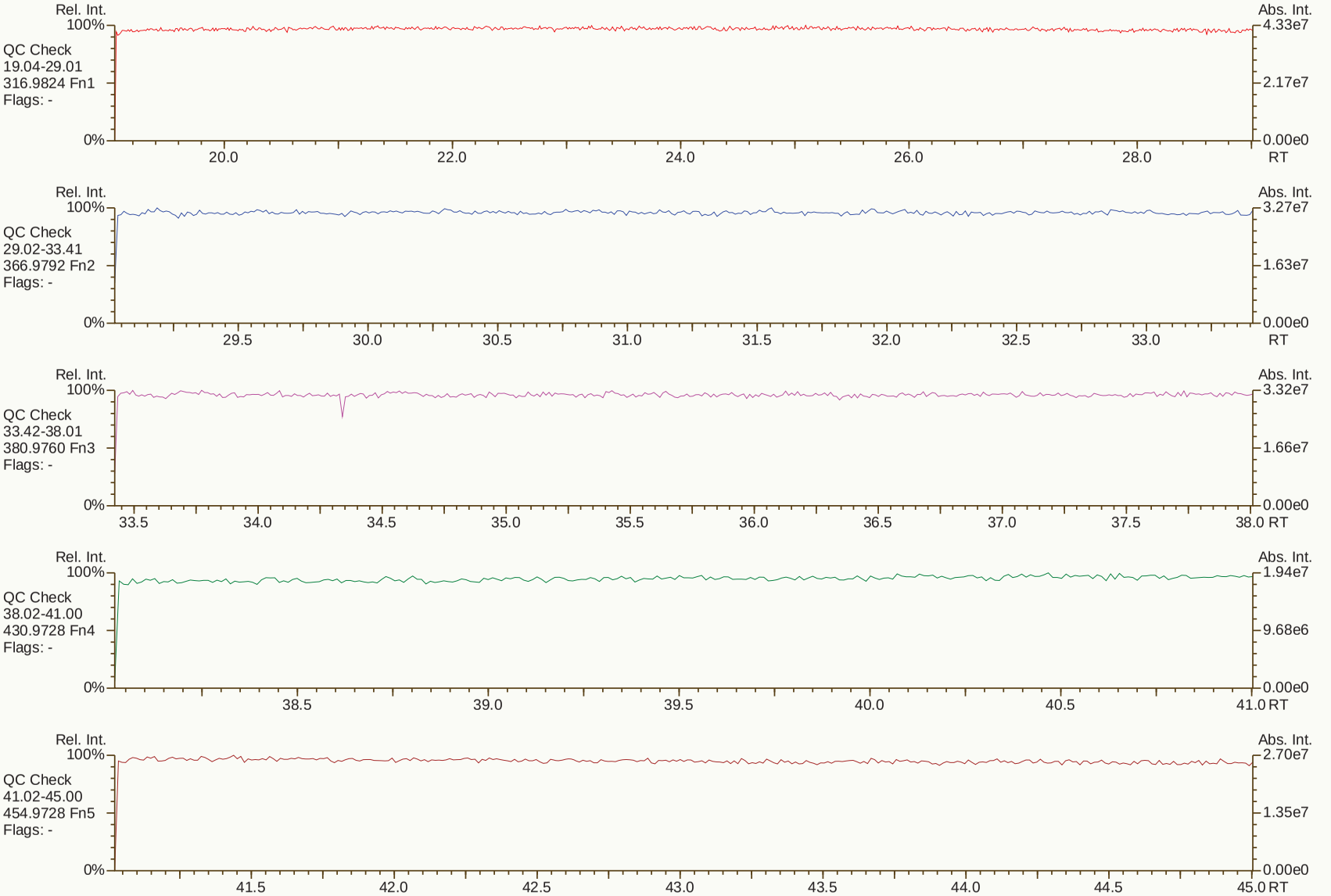
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 15:09 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS0_160714_DF_PC | **UTP: 15-Jul-2016 14:40:54 LKB** | **Checkcode: 220-317-GYK**

Sample ID: SIL 15-105-2 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P14**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	8.84E+07	0.80	Y	-	-	-
JS 1234-TCDF	23.95	1.20E+08	0.74	Y	-	-	-
JS 123467-HxCDD	36.46	3.45E+07	1.24	Y	-	-	-
CS 37Cl-2378-TCDD	NotFnd		n/a	-	1.05		
CS 12347-PeCDD	31.65	8.15E+07	1.63	Y	0.91	0.92	1%
CS 12346-PeCDF	30.07	1.14E+08	1.54	Y	0.98	0.95	-3%
CS 123469-HxCDF	35.62	8.75E+07	0.52	Y	1.25	1.27	2%
CS 1234689-HpCDF	39.06	6.03E+07	0.45	Y	0.85	0.88	3%
SS 37Cl-2378-TCDD	NotFnd		n/a	-	1.03		
SS 12347-PeCDD	31.65	8.15E+07	1.63	Y	0.92	0.96	4%
SS 12346-PeCDF	30.07	1.14E+08	1.54	Y	0.99	1.01	2%
SS 123469-HxCDF	35.62	8.75E+07	0.52	Y	0.89	0.96	7%
SS 1234689-HpCDF	39.06	6.03E+07	0.45	Y	0.87	0.94	8%
AS 1368-TCDD	22.30	9.11E+07	0.78	Y	1.02	1.03	1%
AS 1368-TCDF	20.16	1.69E+08	0.73	Y	1.41	1.41	0%
FS 1278-TCDD	26.80	1.20E+08	0.78	Y	1.31	1.33	2%
FS 12478-PeCDD	30.88	1.00E+08	1.61	Y	1.15	1.18	3%
FS 123468-HxCDD	35.10	9.87E+07	1.27	Y	1.31	1.43	9%
FS 1234679-HpCDD	38.90	8.34E+07	1.05	Y	1.24	1.30	5%
TS 1378-TCDD	24.61	1.13E+08	0.78	Y	1.23	1.26	2%
OCDD-a	NotFnd				0.06		
OCDF-a	NotFnd				0.06		

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

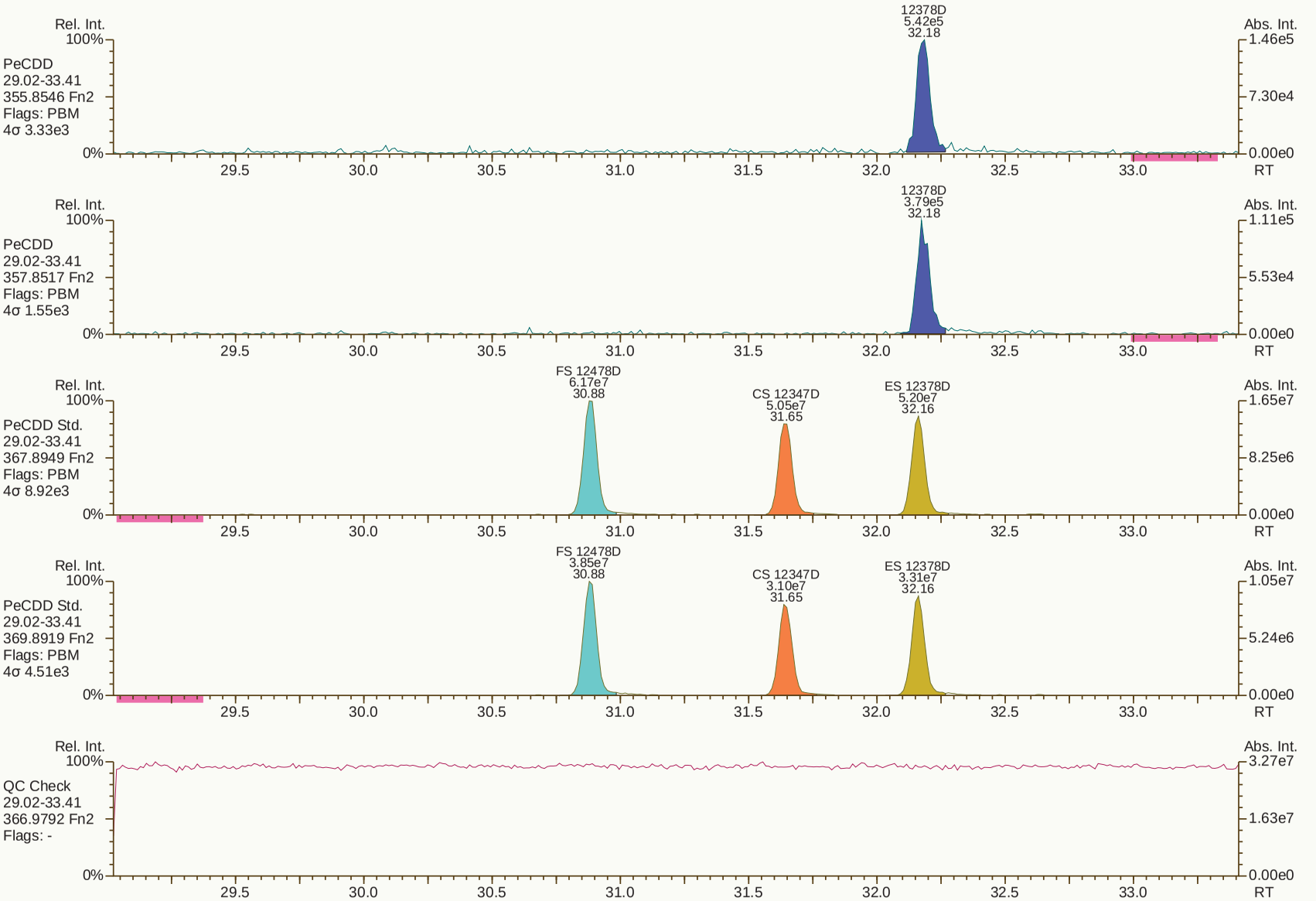


Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 220-317 | *PKD: n/a Printed: 15-Jul-2016 14:47 Page 1 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

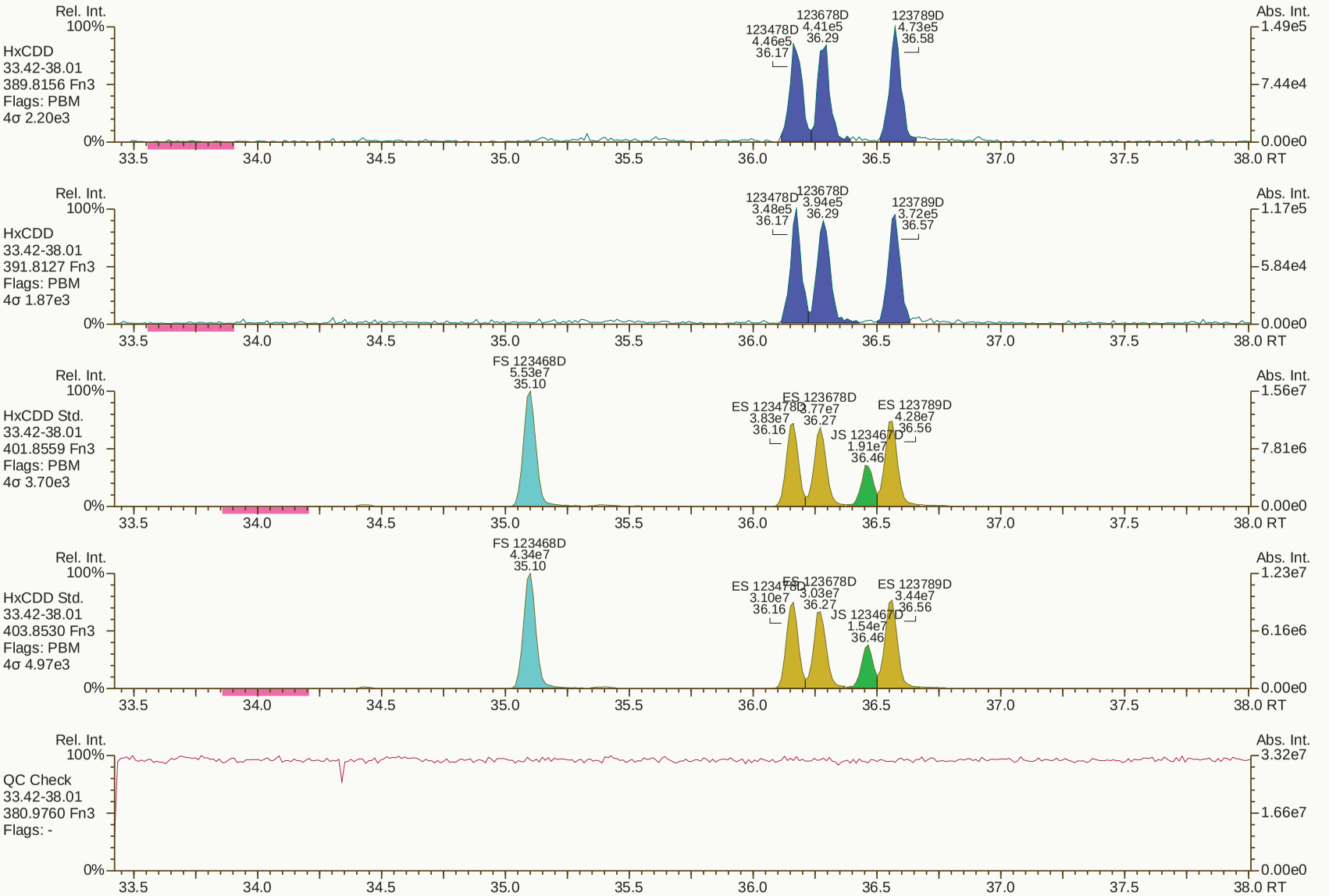
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1850, 3011, 4636 scc: 220-317 *Revised: 14-Jul-2016 15:56 (LKB) Printed: 15-Jul-2016 14:48 Page 2 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8608, 7657 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 3 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



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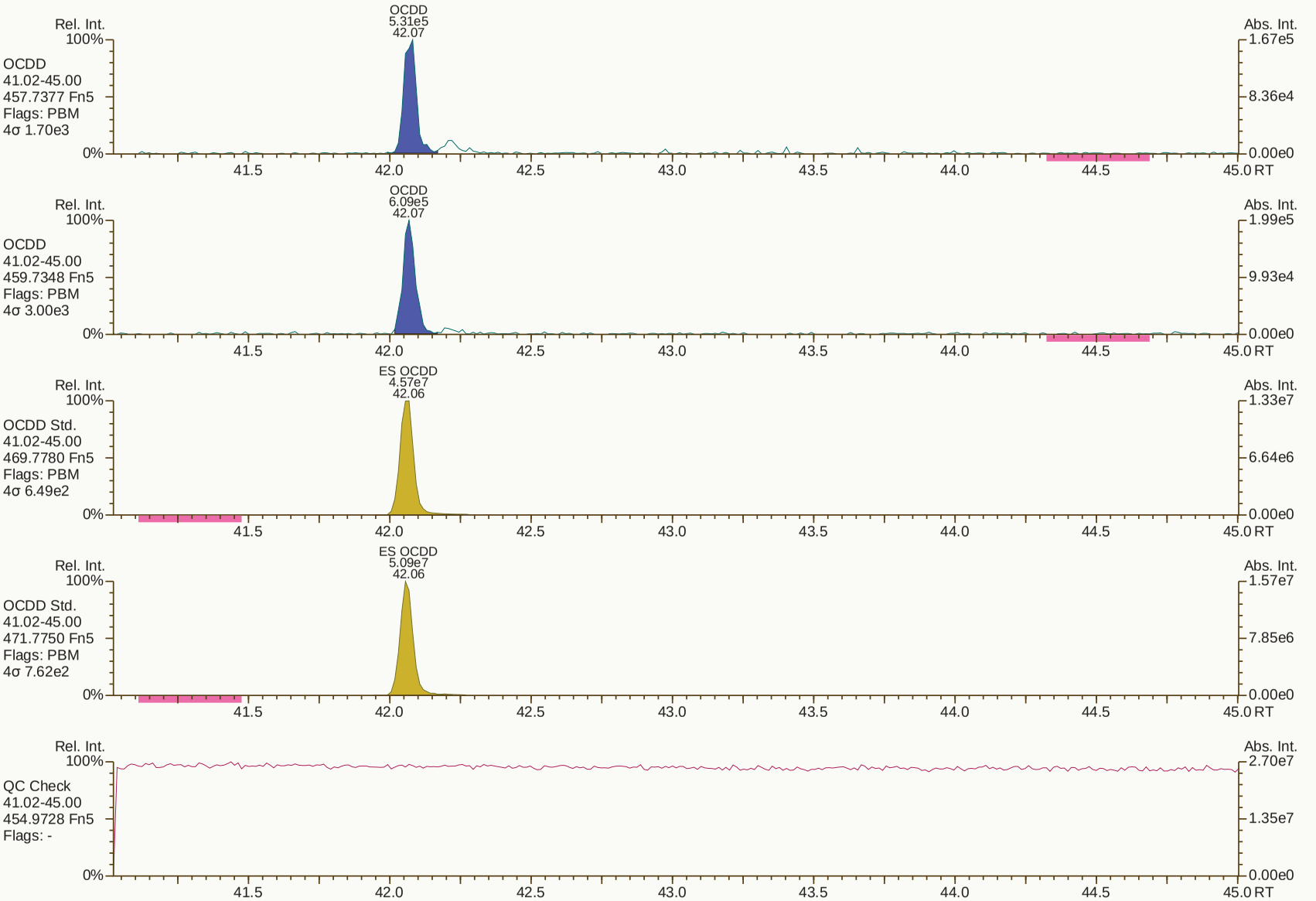
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6779, 8406 scc: 220-317 *PKD: 14-Jul-2016 15:54 Printed: 15-Jul-2016 14:48 Page 4 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2634, 8048 scc: 220-317 *Revised: 14-Jul-2016 15:56 (LKB) Printed: 15-Jul-2016 14:48 Page 5 of 12*

SGS ID: CS0_160714_DF_PC **Sample ID: SIL 15-105-2** **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9489, 6589 scc: 220-317 *PKD: 14-Jul-2016 15:55 Printed: 15-Jul-2016 14:48 Page 6 of 12*

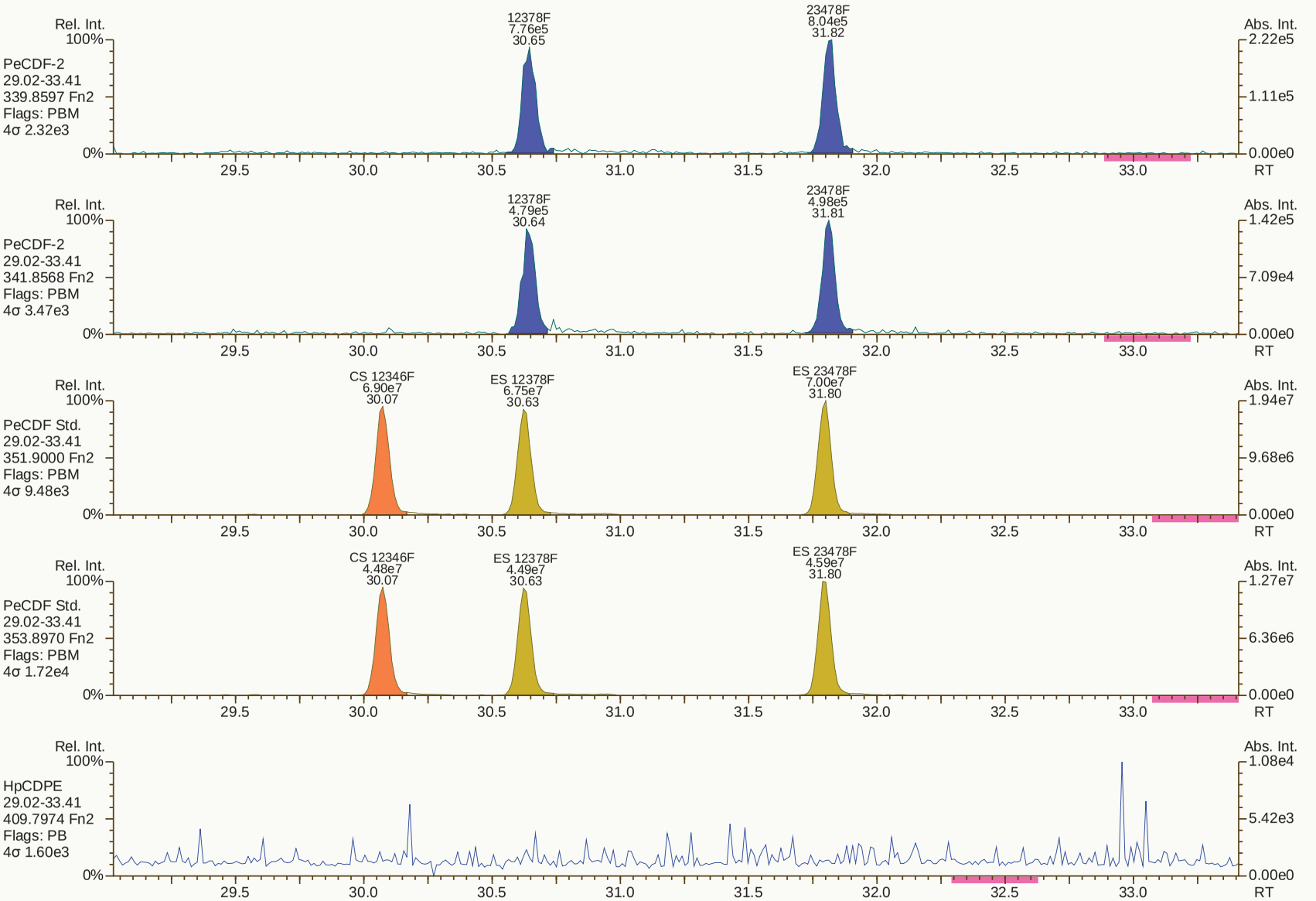
SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0524, 3311, 5528 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 7 of 12*

SGS ID: CS0_160714_DF_PC **Sample ID: SIL 15-105-2** **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** **User: LKB Datafile: 160714P14**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5619 scc: 220-317 *PKD: 14-Jul-2016 15:54 Printed: 15-Jul-2016 14:48 Page 8 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



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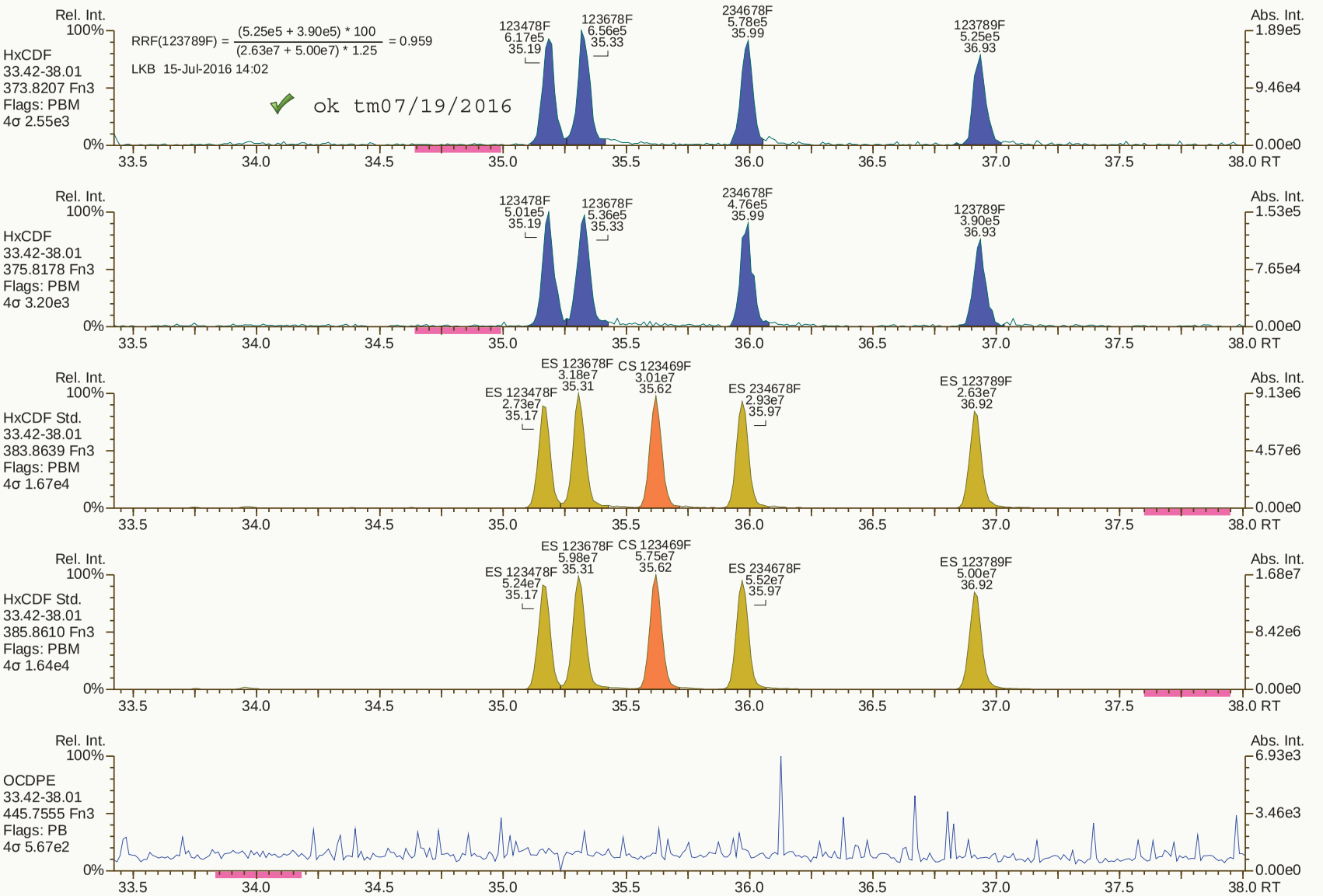
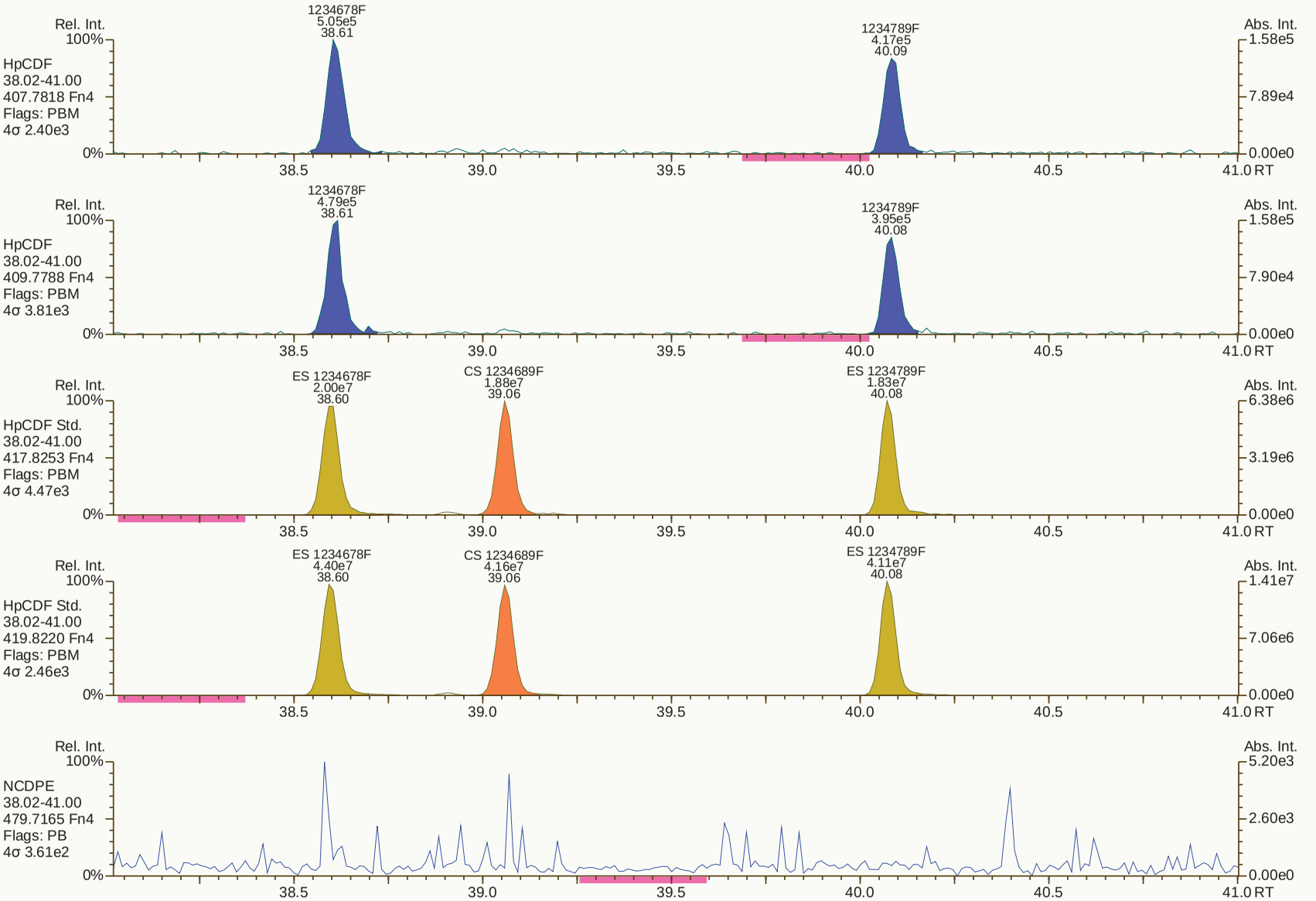
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2453, 3029, 8991 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 9 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0701, 5592, 2615 scc: 220-317 *PKD: 14-Jul-2016 15:55 Printed: 15-Jul-2016 14:48 Page 10 of 12*

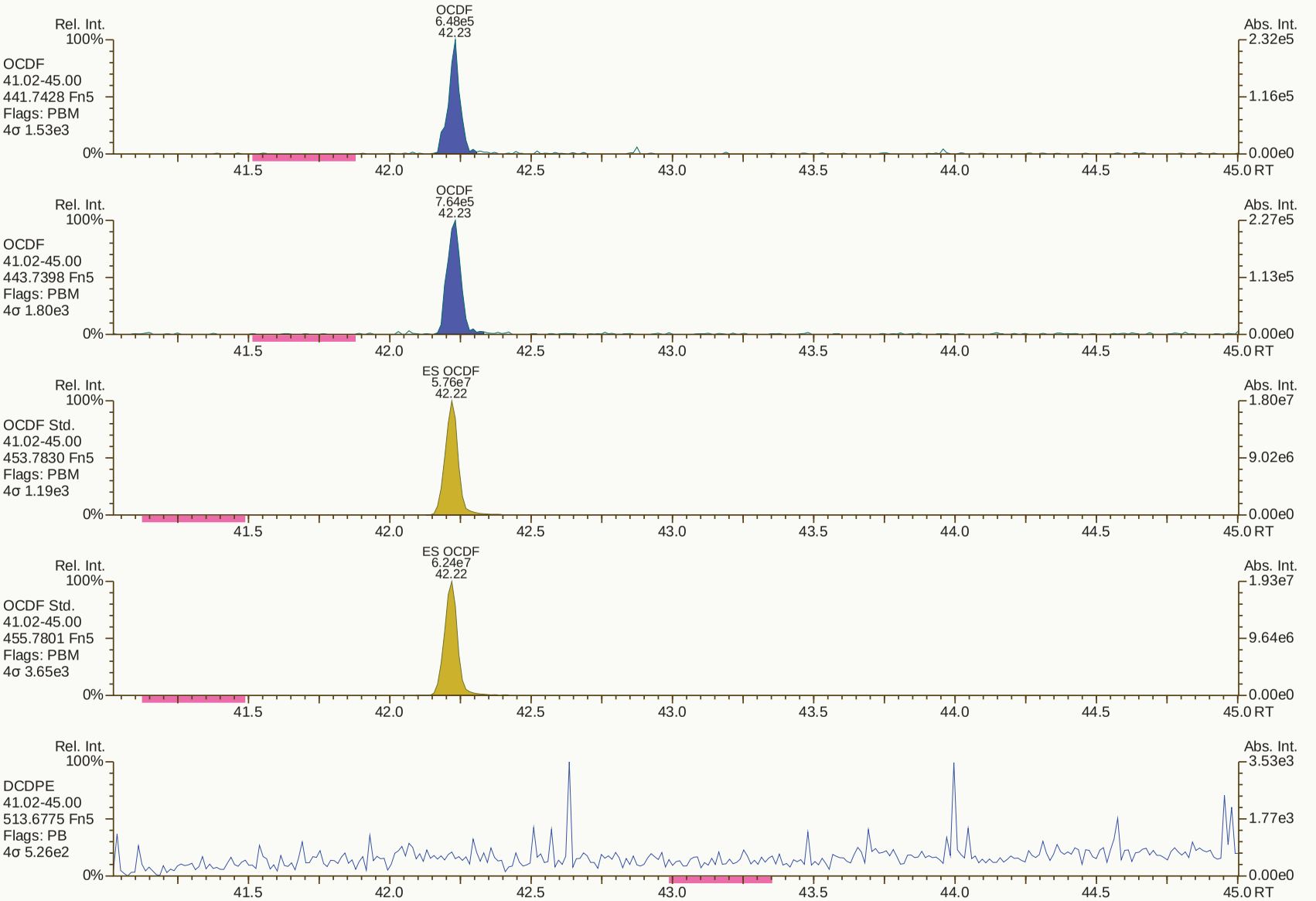
SGS ID: CS0_160714_DF_PC **Sample ID: SIL 15-105-2** **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2183, 1150, 7794 scc: 220-317 *PKD: 14-Jul-2016 15:55 Printed: 15-Jul-2016 14:48 Page 11 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**

Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3335, 6636, 0446 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 16:12 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS1_160714_DF_PB	UTP: 15-Jul-2016 14:40:54 LKB	Checkcode: 432-737-NGV
Sample ID: SIL 15-105-1	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P15

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.47	3.42E+05	0.76	Y	1.04	0.96	-7%
12378-PeCDD	32.18	1.44E+06	1.60	Y	0.93	0.86	-7%
123478-HxCDD	36.18	1.32E+06	1.17	Y	0.97	0.96	-1%
123678-HxCDD	36.29	1.28E+06	1.21	Y	1.00	0.94	-6%
123789-HxCDD	36.58	1.36E+06	1.18	Y	0.92	0.88	-4%
1234678-HpCDD	39.65	1.15E+06	1.08	Y	0.96	0.90	-5%
OCDD	42.07	1.86E+06	0.89	Y	1.03	0.97	-6%
2378-TCDF	25.50	4.67E+05	0.86	Y	0.99	0.96	-3%
12378-PeCDF	30.65	1.96E+06	1.58	Y	0.94	0.89	-6%
23478-PeCDF	31.82	1.96E+06	1.49	Y	0.93	0.86	-8%
123478-HxCDF	35.19	1.83E+06	1.27	Y	1.19	1.17	-2%
123678-HxCDF	35.33	1.88E+06	1.20	Y	1.10	1.03	-6%
234678-HxCDF	35.99	1.77E+06	1.25	Y	1.11	1.08	-2%
123789-HxCDF	36.94	1.51E+06	1.24	Y	1.08	1.01	-6%
1234678-HpCDF	38.61	1.56E+06	1.03	Y	1.28	1.24	-3%
1234789-HpCDF	40.09	1.33E+06	1.06	Y	1.22	1.14	-6%
OCDF	42.23	2.32E+06	0.91	Y	1.01	0.96	-5%
ES 2378-TCDD	26.44	7.10E+07	0.80	Y	1.04	1.03	0%
ES 12378-PeCDD	32.17	6.65E+07	1.60	Y	1.00	0.97	-3%
ES 123478-HxCDD	36.16	5.49E+07	1.27	Y	1.08	1.07	0%
ES 123678-HxCDD	36.27	5.47E+07	1.25	Y	1.03	1.07	4%
ES 123789-HxCDD	36.56	6.17E+07	1.23	Y	1.18	1.21	2%
ES 1234678-HpCDD	39.64	5.10E+07	1.04	Y	0.97	1.00	3%
ES OCDD	42.06	7.69E+07	0.91	Y	0.76	0.75	-1%
ES 2378-TCDF	25.47	9.78E+07	0.73	Y	1.06	1.07	1%
ES 12378-PeCDF	30.63	8.87E+07	1.47	Y	0.99	0.97	-2%
ES 23478-PeCDF	31.8	9.15E+07	1.52	Y	1.02	1.00	-2%
ES 123478-HxCDF	35.17	6.24E+07	0.52	Y	1.20	1.22	1%
ES 123678-HxCDF	35.31	7.28E+07	0.53	Y	1.40	1.43	2%
ES 234678-HxCDF	35.98	6.57E+07	0.52	Y	1.27	1.29	1%
ES 123789-HxCDF	36.92	5.95E+07	0.52	Y	1.16	1.17	0%
ES 1234678-HpCDF	38.6	5.01E+07	0.45	Y	0.98	0.98	0%
ES 1234789-HpCDF	40.08	4.67E+07	0.45	Y	0.90	0.91	1%
ES OCDF	42.22	9.63E+07	0.90	Y	0.96	0.94	-1%

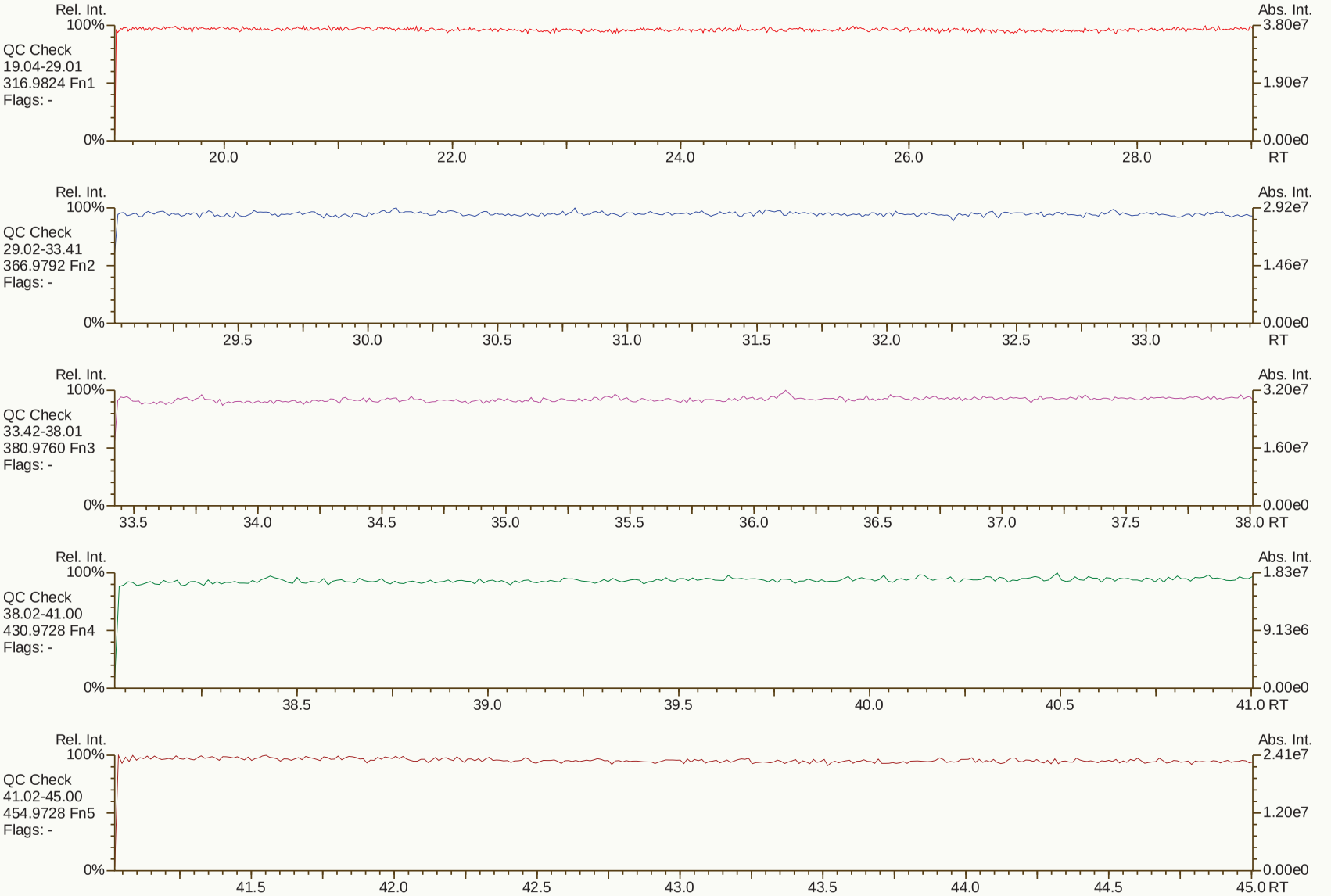
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 16:12 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS1_160714_DF_PB | **UTP: 15-Jul-2016 14:40:54 LKB** | **Checkcode: 432-737-NGV**

Sample ID: SIL 15-105-1 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P15**

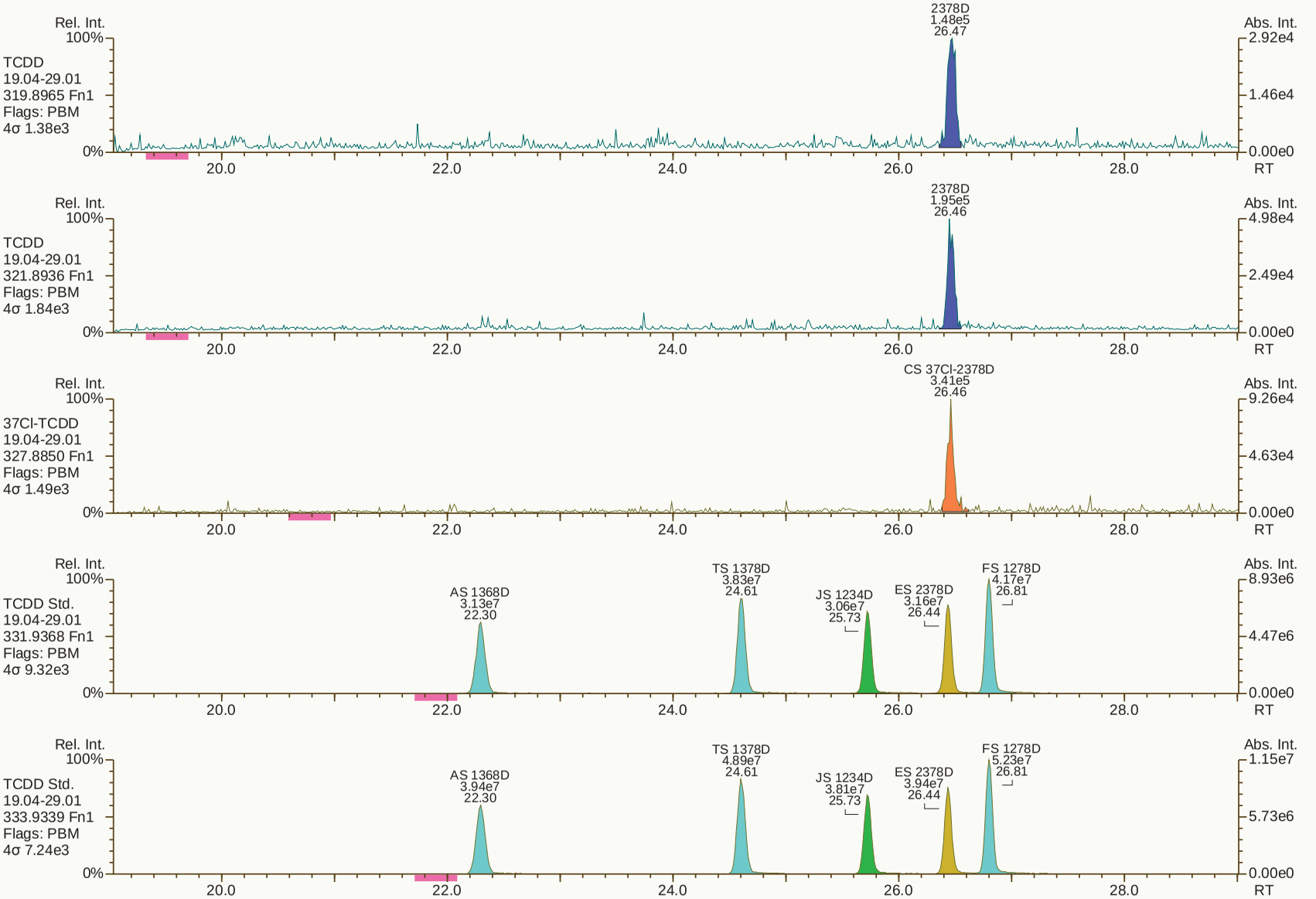
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.73	6.87E+07	0.80	Y	-	-	-
JS 1234-TCDF	23.96	9.15E+07	0.71	Y	-	-	-
JS 123467-HxCDD	36.46	2.55E+07	1.24	Y	-	-	-
CS 37Cl-2378-TCDD	26.46	3.41E+05	n/a	-	1.05	0.99	-6%
CS 12347-PeCDD	31.65	5.93E+07	1.61	Y	0.91	0.86	-5%
CS 12346-PeCDF	30.08	8.61E+07	1.50	Y	0.98	0.94	-4%
CS 123469-HxCDF	35.63	6.35E+07	0.53	Y	1.25	1.24	0%
CS 1234689-HpCDF	39.06	4.37E+07	0.44	Y	0.85	0.86	1%
SS 37Cl-2378-TCDD	26.46	3.41E+05	n/a	-	1.03	0.96	-7%
SS 12347-PeCDD	31.65	5.93E+07	1.61	Y	0.92	0.89	-3%
SS 12346-PeCDF	30.08	8.61E+07	1.50	Y	0.99	0.97	-2%
SS 123469-HxCDF	35.63	6.35E+07	0.53	Y	0.89	0.87	-2%
SS 1234689-HpCDF	39.06	4.37E+07	0.44	Y	0.87	0.87	0%
AS 1368-TCDD	22.30	7.07E+07	0.79	Y	1.02	1.03	1%
AS 1368-TCDF	20.16	1.34E+08	0.71	Y	1.41	1.47	4%
FS 1278-TCDD	26.81	9.40E+07	0.80	Y	1.31	1.32	1%
FS 12478-PeCDD	30.89	7.94E+07	1.58	Y	1.15	1.19	4%
FS 123468-HxCDD	35.10	7.46E+07	1.24	Y	1.31	1.36	4%
FS 1234679-HpCDD	38.91	6.41E+07	1.04	Y	1.24	1.26	1%
TS 1378-TCDD	24.61	8.71E+07	0.78	Y	1.23	1.23	-1%
OCDD-a	42.07	9.13E+04	3.92	N	0.06	0.05	-20%
OCDF-a	42.22	1.23E+05	3.18	N	0.06	0.05	-15%

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**



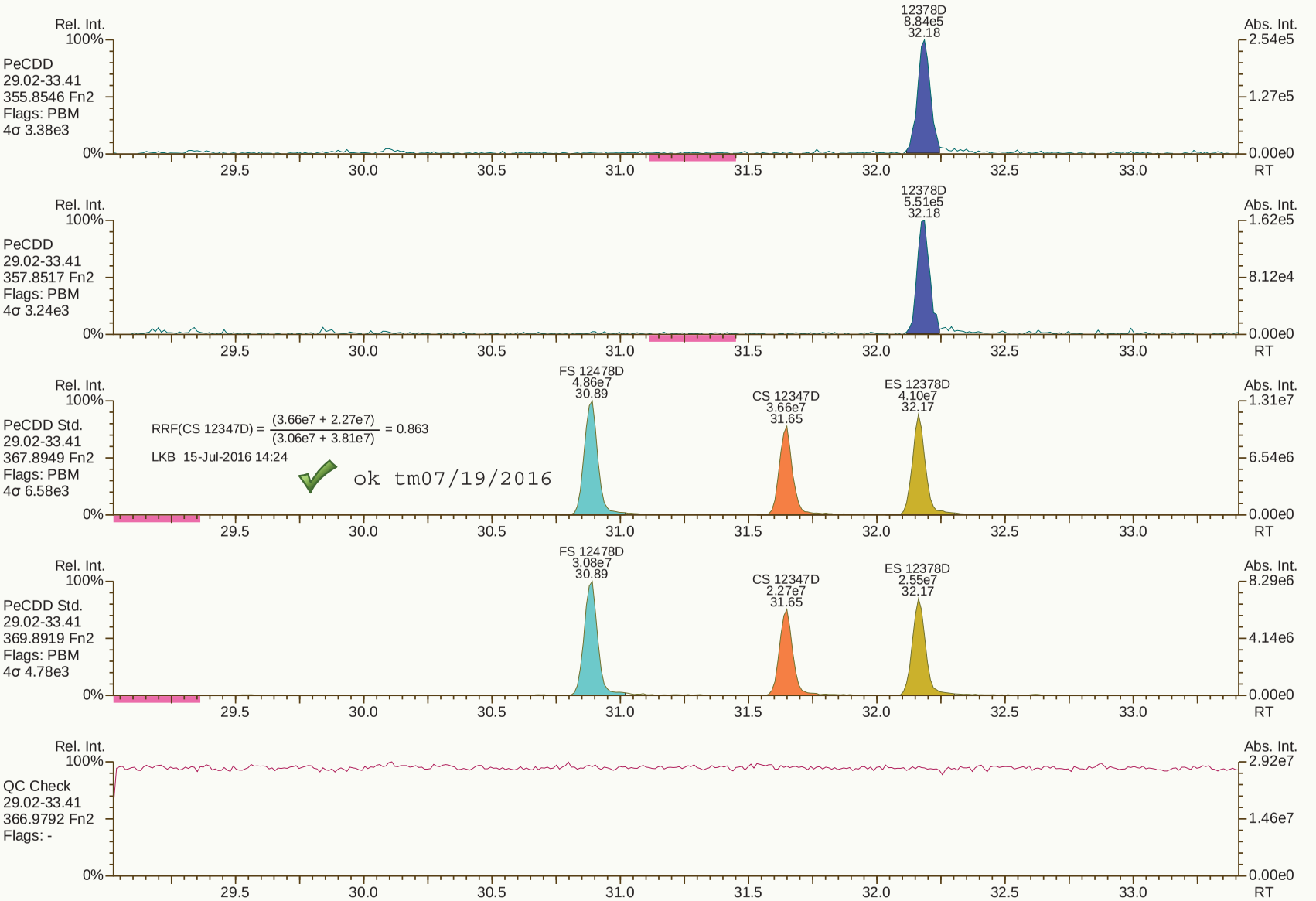
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 432-737 *PKD: n/a Printed: 15-Jul-2016 14:48 Page 1 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



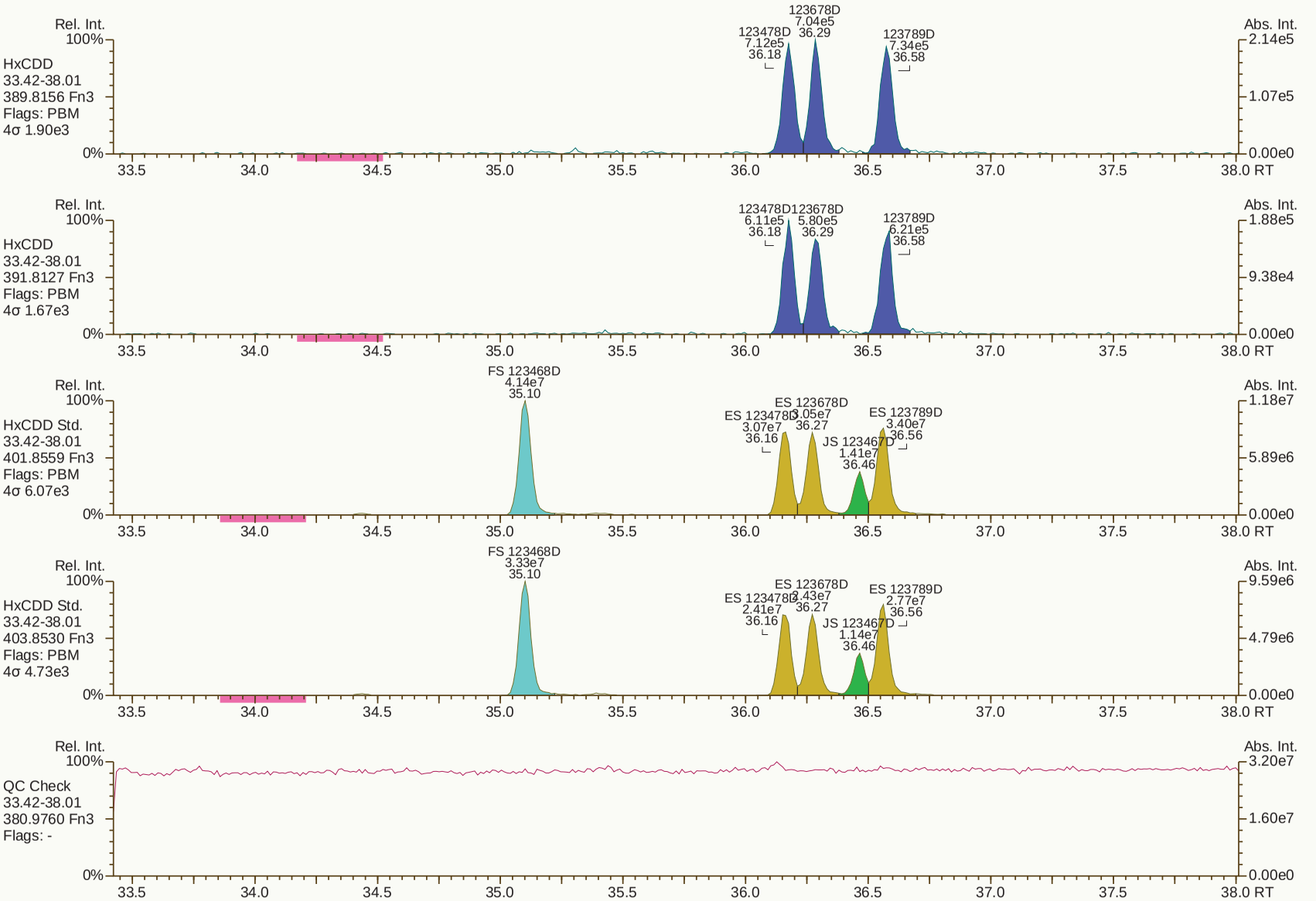
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9055, 7983, 2615 scc: 432-737 *PKD: 14-Jul-2016 17:18 Printed: 15-Jul-2016 14:48 Page 2 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



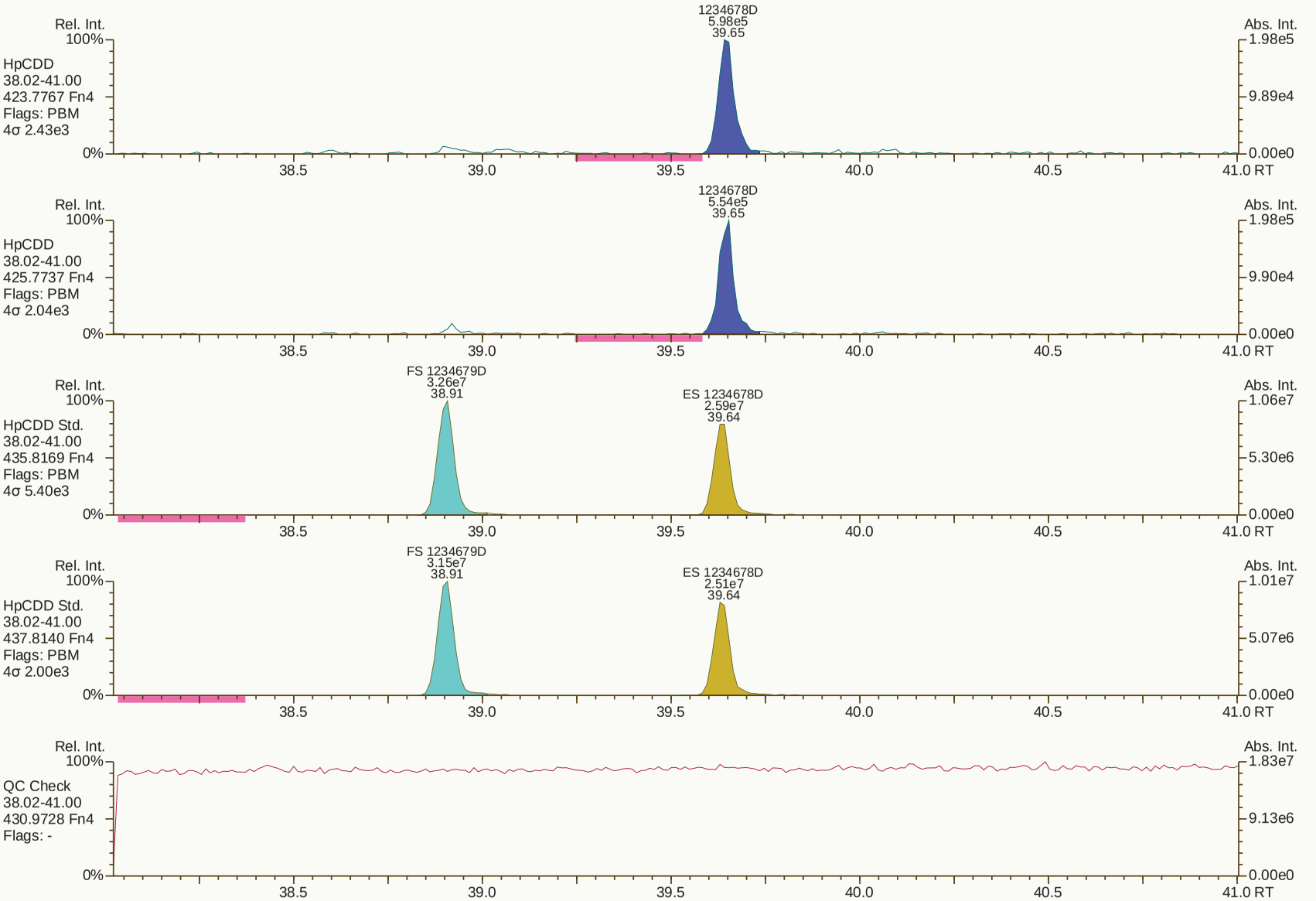
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8643, 2907 scc: 432-737 *PKD: 14-Jul-2016 17:18 Printed: 15-Jul-2016 14:48 Page 3 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7350, 7596 scc: 432-737 *PKD: 14-Jul-2016 17:18 Printed: 15-Jul-2016 14:48 Page 4 of 12*

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4013, 8728 scc: 432-737 *Revised: 14-Jul-2016 17:18 (LKB) Printed: 15-Jul-2016 14:48 Page 5 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0051, 6837 scc: 432-737 *Revised: 14-Jul-2016 17:18 (LKB) Printed: 15-Jul-2016 14:48 Page 6 of 12*

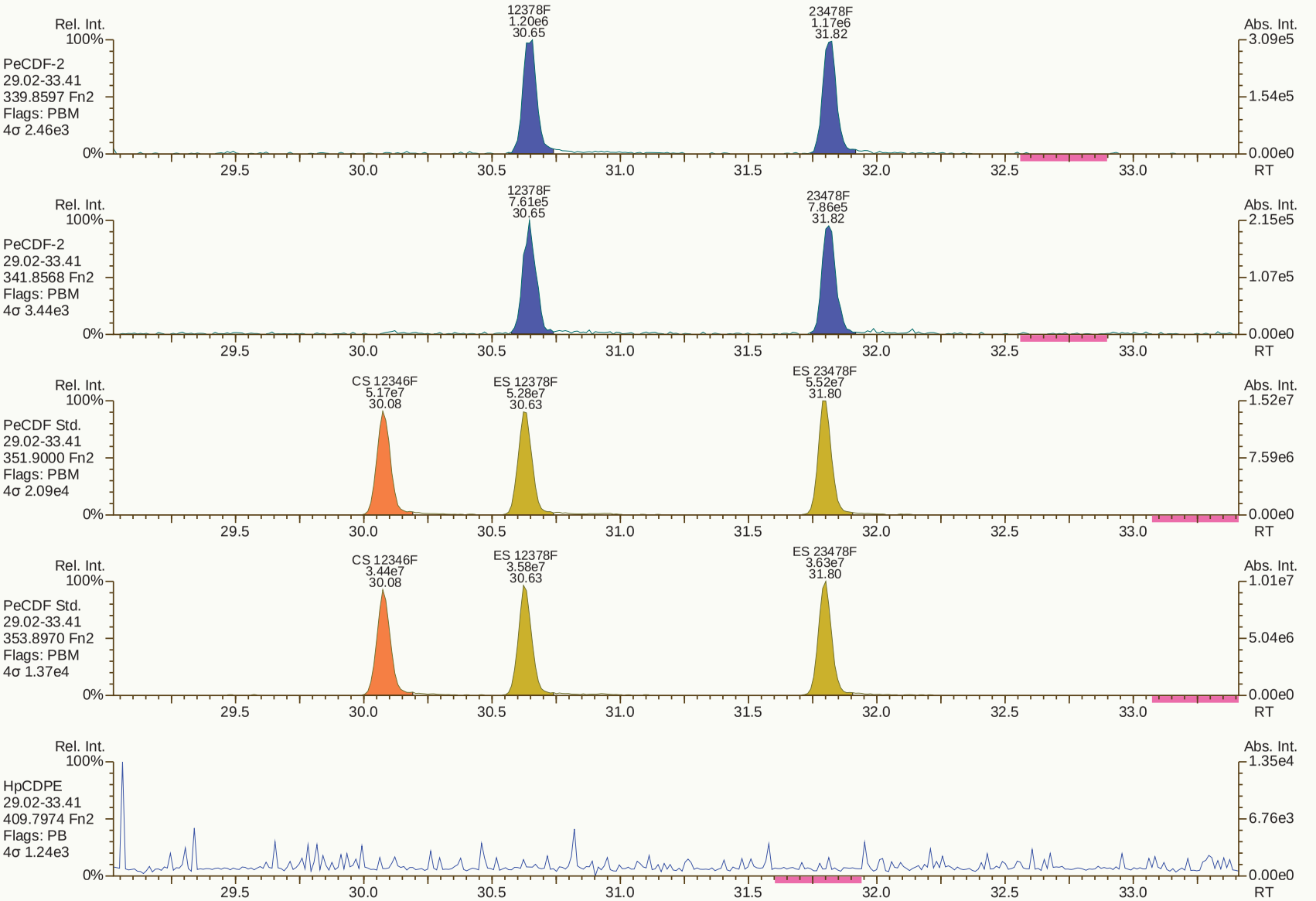
SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4427, 9842, 8036 scc: 432-737 *Revised: 14-Jul-2016 17:18 (LKB) Printed: 15-Jul-2016 14:48 Page 7 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**

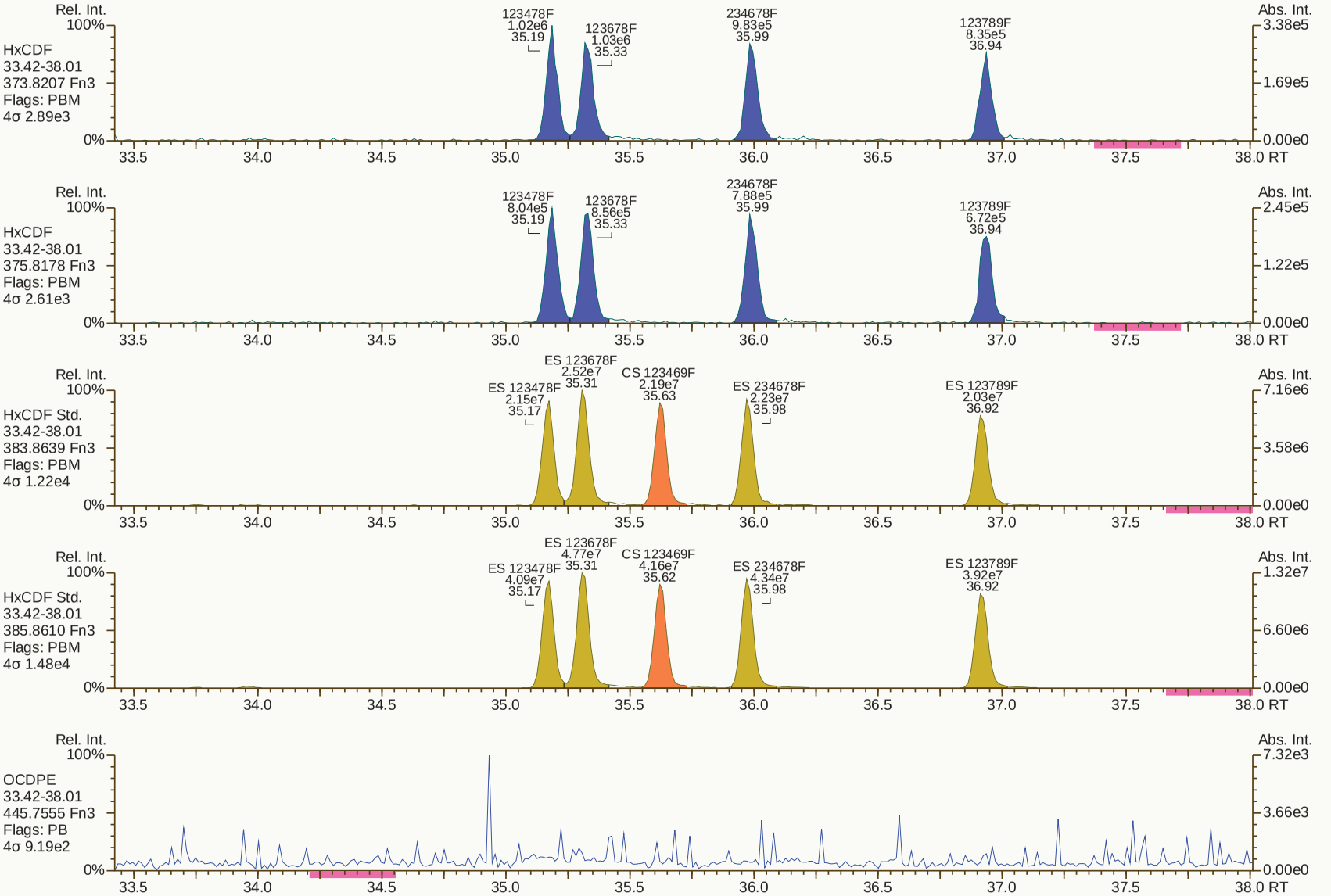
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8034 scc: 432-737 *Revised: 14-Jul-2016 17:17 (LKB) Printed: 15-Jul-2016 14:48 Page 8 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



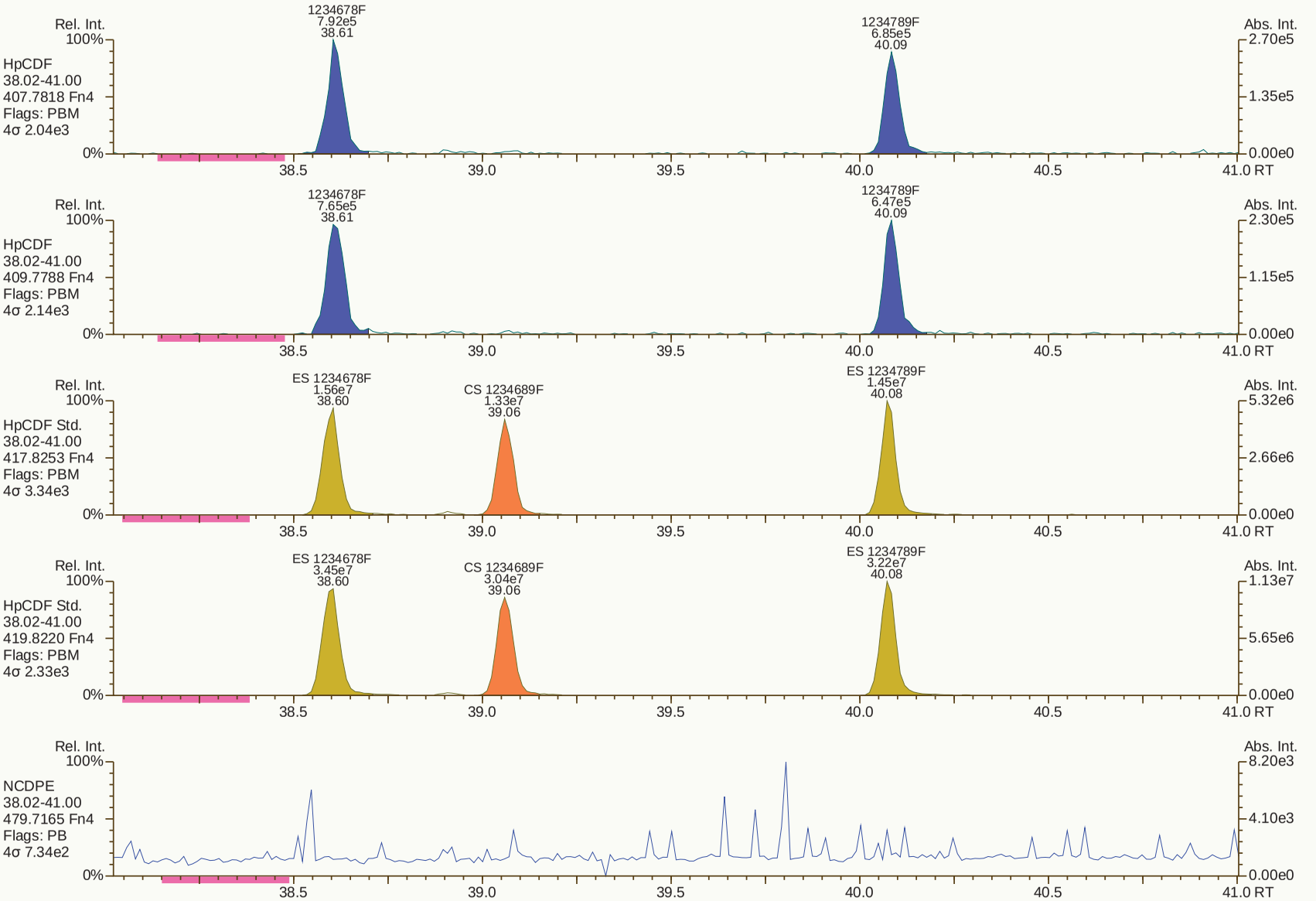
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2789, 5228, 3898 scc: 432-737 *Revised: 14-Jul-2016 17:19 (LKB) Printed: 15-Jul-2016 14:48 Page 9 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0774, 9530, 6331 scc: 432-737 *PKD: 14-Jul-2016 17:19 Printed: 15-Jul-2016 14:48 Page 10 of 12*

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5506, 6962, 4929 scc: 432-737 *PKD: 14-Jul-2016 17:19 Printed: 15-Jul-2016 14:48 Page 11 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5396, 5374, 6527 scc: 432-737 *PKD: 14-Jul-2016 17:19 Printed: 15-Jul-2016 14:48 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 17:00 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS2_160714_DF_PB	UTP: 15-Jul-2016 14:40:55 LKB	Checkcode: 281-247-LHF
Sample ID: SIL 15-104-3	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P16

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.45	1.62E+06	0.77	Y	1.04	1.01	-3%
12378-PeCDD	32.18	6.87E+06	1.54	Y	0.93	0.92	-2%
123478-HxCDD	36.17	6.05E+06	1.21	Y	0.97	0.94	-4%
123678-HxCDD	36.28	5.77E+06	1.24	Y	1.00	0.97	-3%
123789-HxCDD	36.57	6.13E+06	1.22	Y	0.92	0.88	-4%
1234678-HpCDD	39.64	5.10E+06	1.05	Y	0.96	0.93	-3%
OCDD	42.06	8.82E+06	0.90	Y	1.03	1.04	1%
2378-TCDF	25.49	2.18E+06	0.78	Y	0.99	0.98	-1%
12378-PeCDF	30.64	9.18E+06	1.52	Y	0.94	0.95	0%
23478-PeCDF	31.81	9.41E+06	1.47	Y	0.93	0.92	-2%
123478-HxCDF	35.18	8.17E+06	1.23	Y	1.19	1.17	-2%
123678-HxCDF	35.32	8.80E+06	1.20	Y	1.10	1.08	-2%
234678-HxCDF	35.98	8.09E+06	1.21	Y	1.11	1.10	0%
123789-HxCDF	36.93	7.13E+06	1.23	Y	1.08	1.08	0%
1234678-HpCDF	38.60	7.05E+06	1.02	Y	1.28	1.26	-2%
1234789-HpCDF	40.08	6.37E+06	1.02	Y	1.22	1.24	2%
OCDF	42.22	1.07E+07	0.90	Y	1.01	1.01	0%
ES 2378-TCDD	26.43	8.00E+07	0.77	Y	1.04	1.02	-2%
ES 12378-PeCDD	32.16	7.50E+07	1.60	Y	1.00	0.95	-4%
ES 123478-HxCDD	36.15	6.44E+07	1.24	Y	1.08	1.09	1%
ES 123678-HxCDD	36.27	5.97E+07	1.26	Y	1.03	1.01	-2%
ES 123789-HxCDD	36.55	6.97E+07	1.28	Y	1.18	1.18	0%
ES 1234678-HpCDD	39.63	5.51E+07	1.06	Y	0.97	0.93	-4%
ES OCDD	42.05	8.51E+07	0.89	Y	0.76	0.72	-5%
ES 2378-TCDF	25.46	1.11E+08	0.73	Y	1.06	1.05	-1%
ES 12378-PeCDF	30.62	9.72E+07	1.50	Y	0.99	0.92	-7%
ES 23478-PeCDF	31.79	1.03E+08	1.51	Y	1.02	0.97	-5%
ES 123478-HxCDF	35.16	6.99E+07	0.52	Y	1.20	1.18	-2%
ES 123678-HxCDF	35.3	8.17E+07	0.53	Y	1.40	1.38	-1%
ES 234678-HxCDF	35.96	7.34E+07	0.53	Y	1.27	1.24	-2%
ES 123789-HxCDF	36.91	6.63E+07	0.51	Y	1.16	1.12	-3%
ES 1234678-HpCDF	38.59	5.60E+07	0.45	Y	0.98	0.95	-3%
ES 1234789-HpCDF	40.07	5.12E+07	0.45	Y	0.90	0.87	-4%
ES OCDF	42.21	1.06E+08	0.90	Y	0.96	0.90	-6%

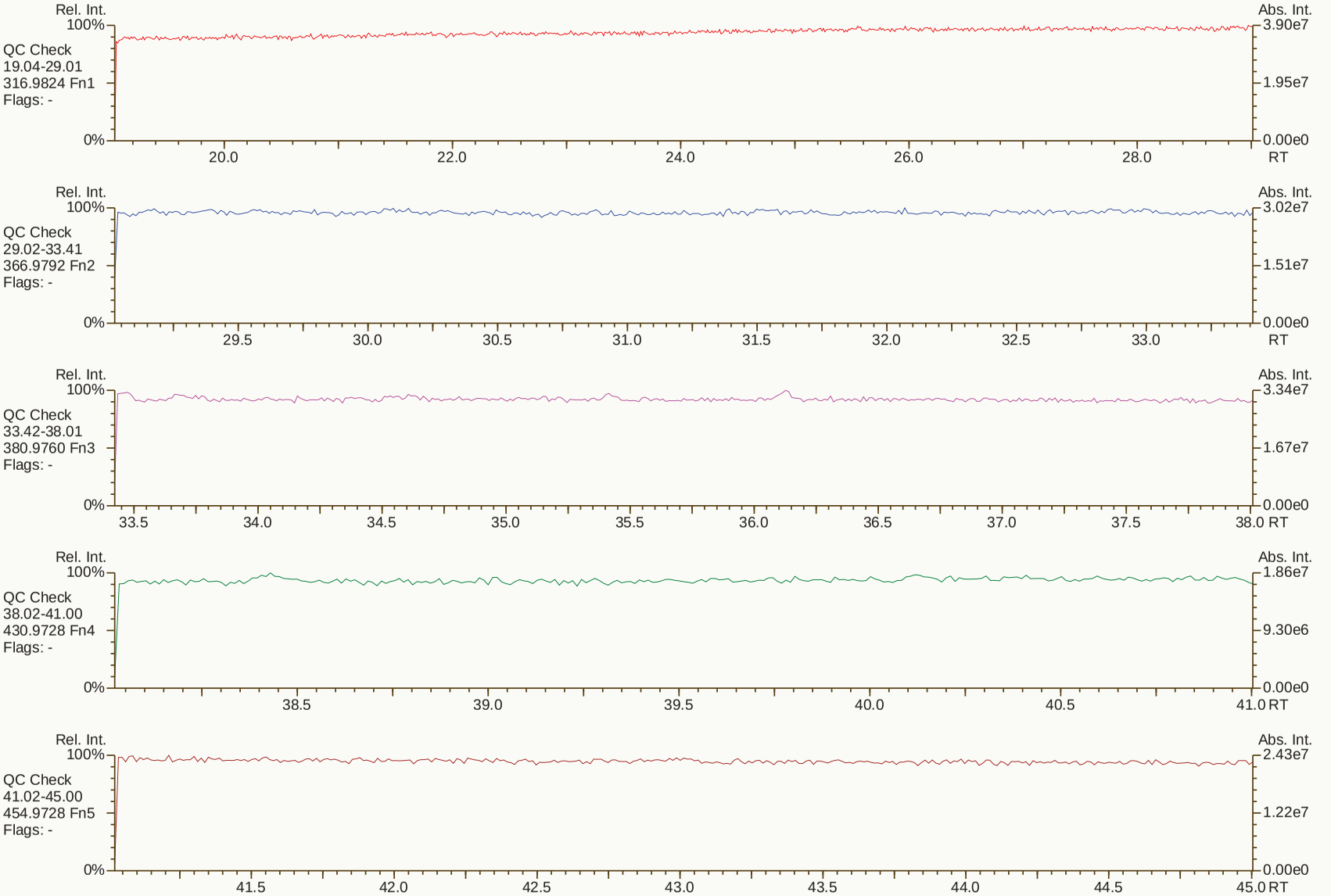
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 17:00 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS2_160714_DF_PB | **UTP: 15-Jul-2016 14:40:55 LKB** | **Checkcode: 281-247-LHF**

Sample ID: SIL 15-104-3 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P16**

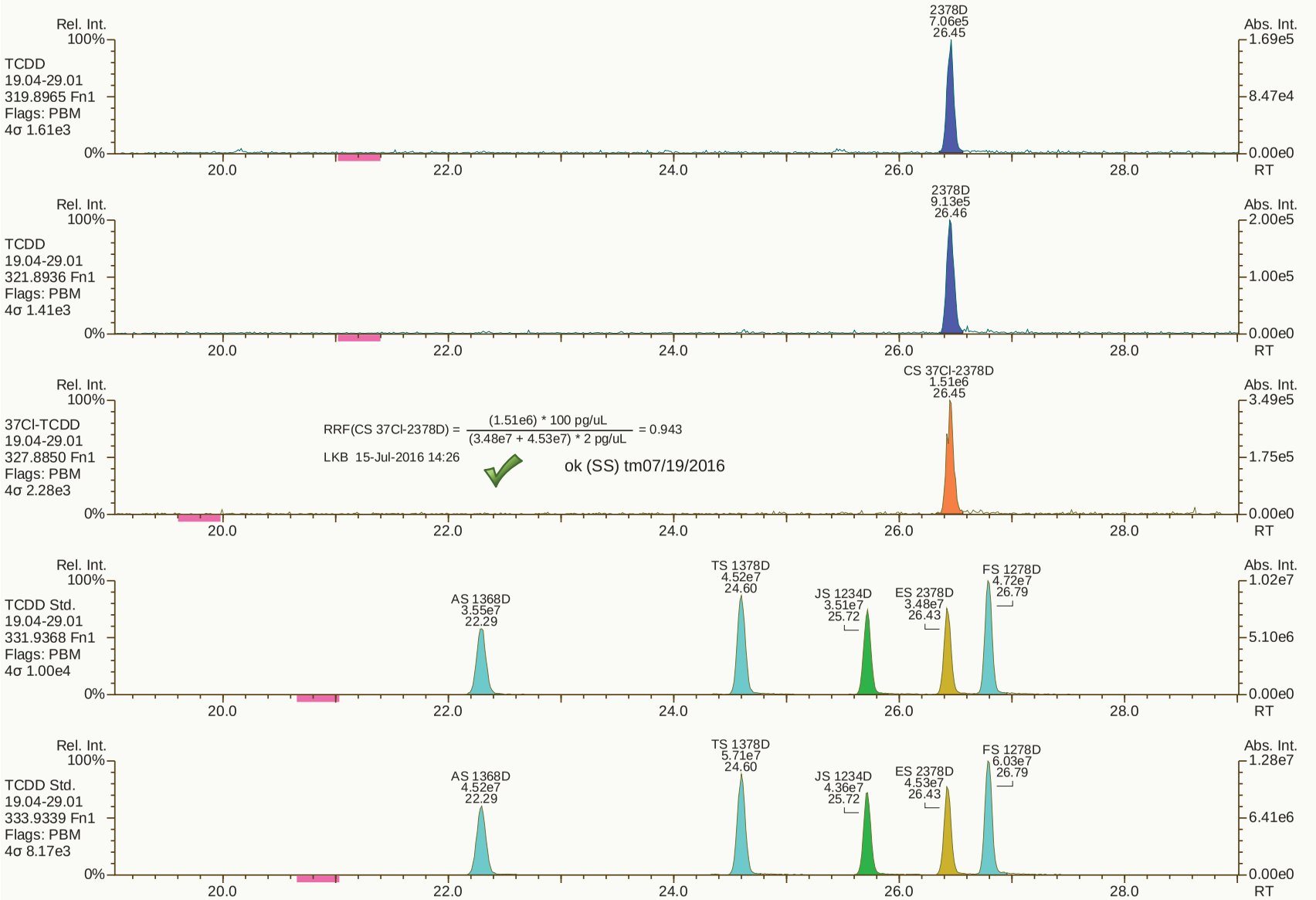
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	7.87E+07	0.81	Y	-	-	-
JS 1234-TCDF	23.95	1.05E+08	0.72	Y	-	-	-
JS 123467-HxCDD	36.45	2.95E+07	1.27	Y	-	-	-
CS 37Cl-2378-TCDD	26.45	1.51E+06	n/a	-	1.05	0.96	-9%
CS 12347-PeCDD	31.64	7.21E+07	1.61	Y	0.91	0.92	0%
CS 12346-PeCDF	30.07	1.05E+08	1.50	Y	0.98	1.00	2%
CS 123469-HxCDF	35.62	7.69E+07	0.55	Y	1.25	1.30	4%
CS 1234689-HpCDF	39.05	5.04E+07	0.45	Y	0.85	0.85	1%
SS 37Cl-2378-TCDD	26.45	1.51E+06	n/a	-	1.03	0.94	-8%
SS 12347-PeCDD	31.64	7.21E+07	1.61	Y	0.92	0.96	5%
SS 12346-PeCDF	30.07	1.05E+08	1.50	Y	0.99	1.08	9%
SS 123469-HxCDF	35.62	7.69E+07	0.55	Y	0.89	0.94	6%
SS 1234689-HpCDF	39.05	5.04E+07	0.45	Y	0.87	0.90	4%
AS 1368-TCDD	22.29	8.07E+07	0.79	Y	1.02	1.03	1%
AS 1368-TCDF	20.16	1.47E+08	0.71	Y	1.41	1.40	-1%
FS 1278-TCDD	26.79	1.07E+08	0.78	Y	1.31	1.34	3%
FS 12478-PeCDD	30.88	9.05E+07	1.63	Y	1.15	1.21	5%
FS 123468-HxCDD	35.09	8.50E+07	1.26	Y	1.31	1.32	1%
FS 1234679-HpCDD	38.90	7.27E+07	1.03	Y	1.24	1.32	6%
TS 1378-TCDD	24.60	1.02E+08	0.79	Y	1.23	1.28	4%
OCDD-a	42.06	4.36E+05	2.33	Y	0.06	0.05	-14%
OCDF-a	42.22	6.53E+05	2.51	Y	0.06	0.06	3%

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 281-247 | *PKD: n/a Printed: 15-Jul-2016 14:48 Page 1 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



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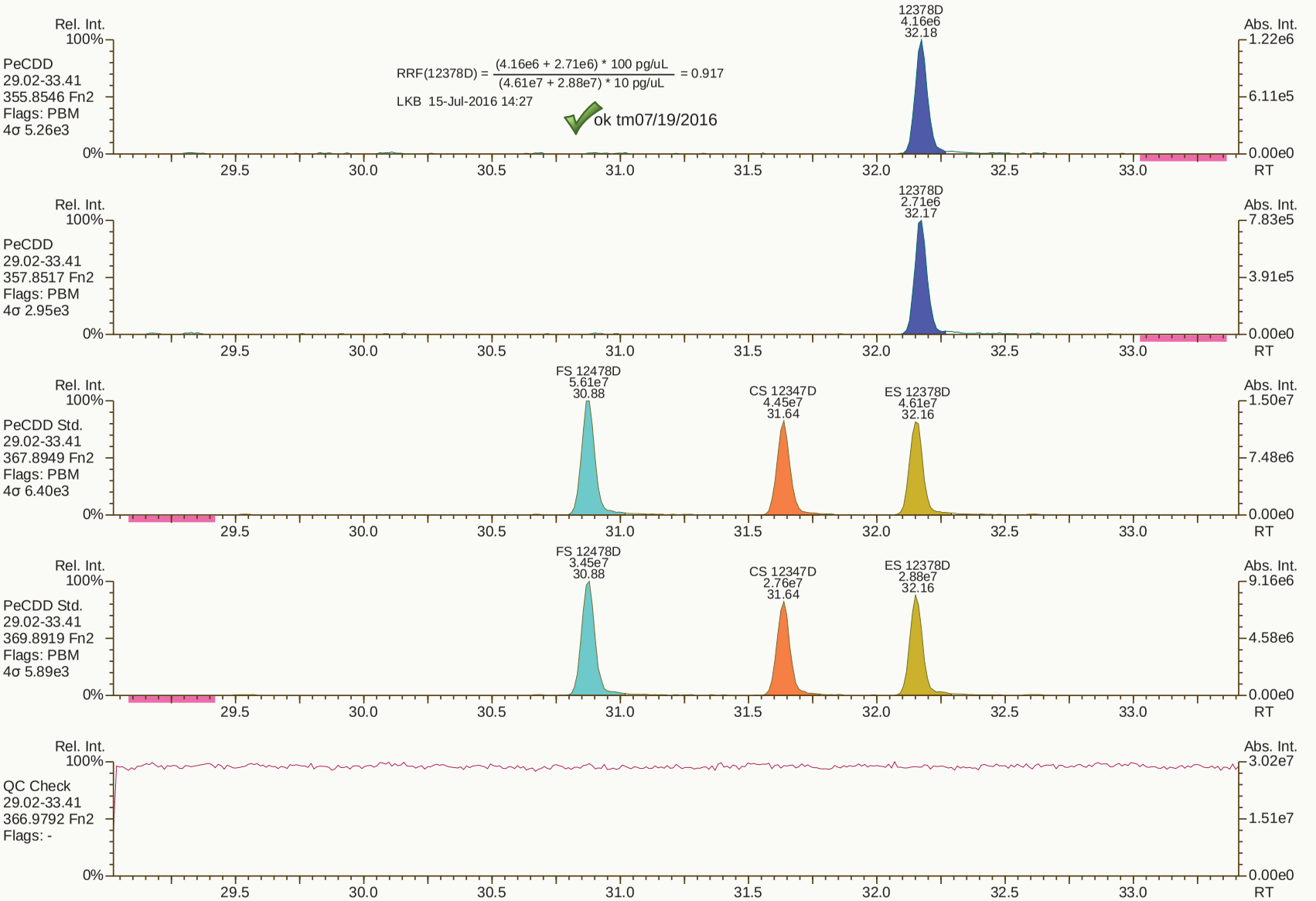
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1328, 2823, 5182 scc: 281-247 *PKD: 15-Jul-2016 09:57 Printed: 15-Jul-2016 14:48 Page 2 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



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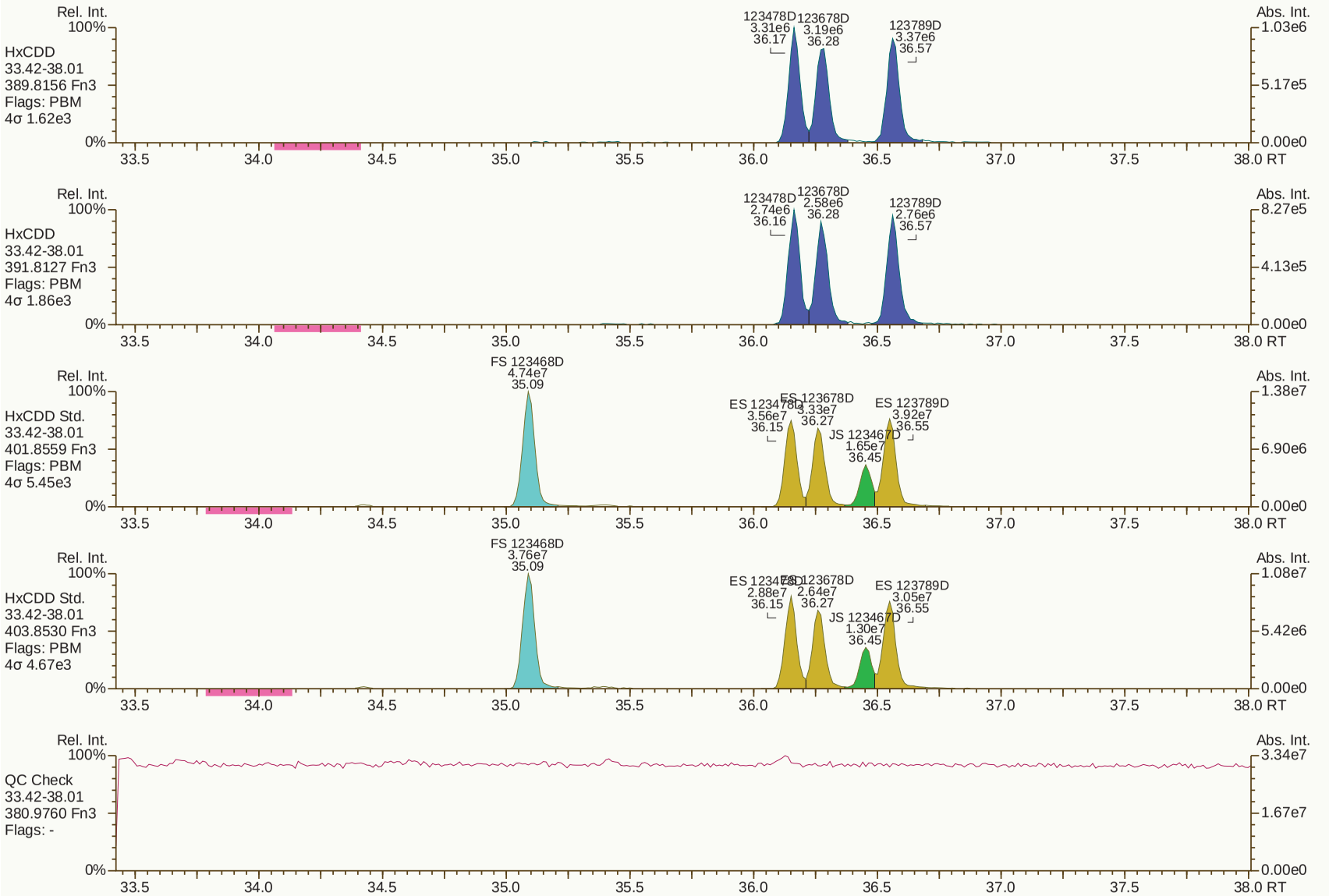
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7434, 6774 scc: 281-247 *PKD: 15-Jul-2016 09:58 Printed: 15-Jul-2016 14:48 Page 3 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



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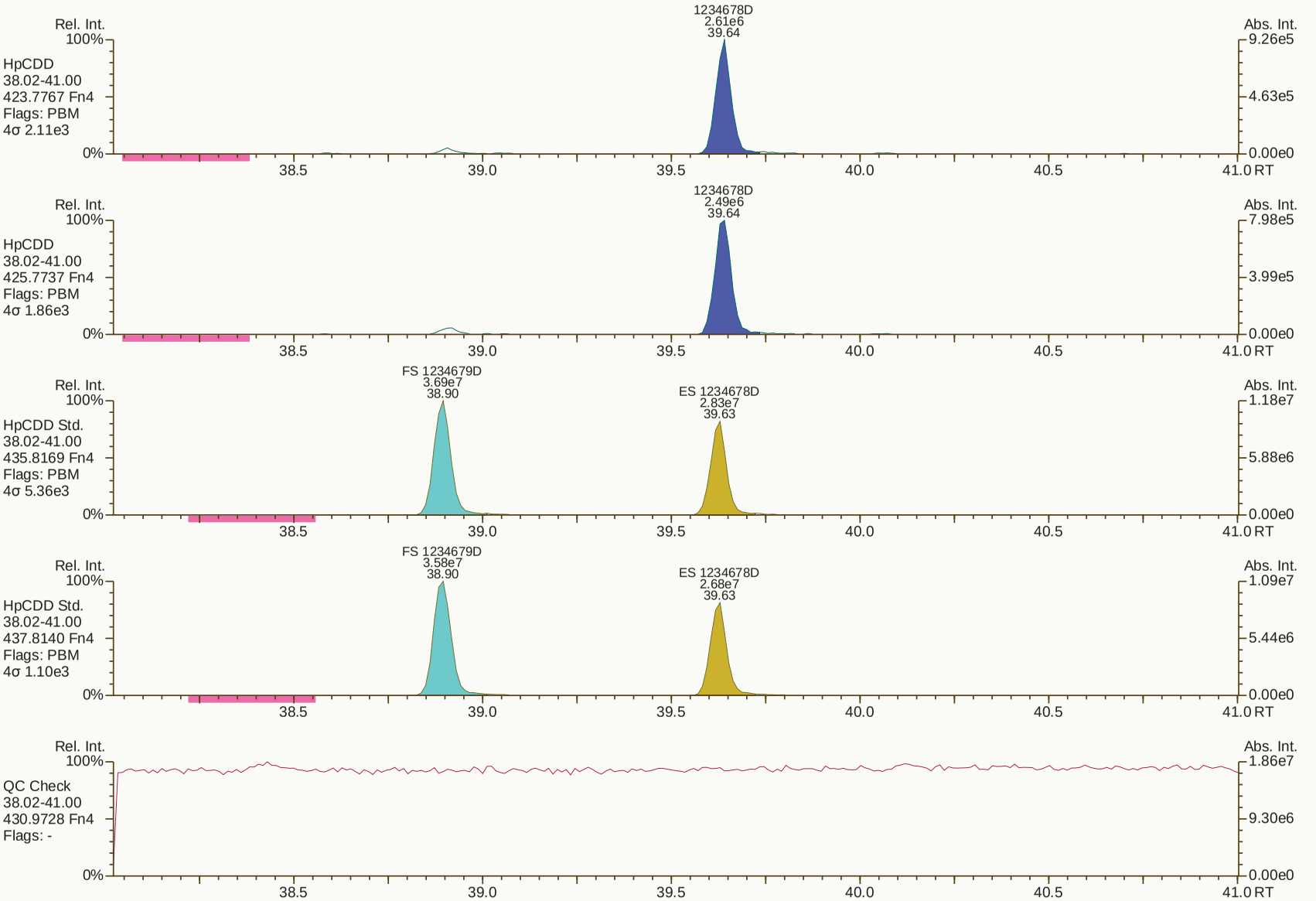
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6493, 9963 scc: 281-247 *PKD: 15-Jul-2016 09:57 Printed: 15-Jul-2016 14:48 Page 4 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5659, 1160 scc: 281-247 *PKD: 15-Jul-2016 09:58 Printed: 15-Jul-2016 14:48 Page 5 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7408, 5193 scc: 281-247 *Revised: 15-Jul-2016 09:58 (LKB) Printed: 15-Jul-2016 14:48 Page 6 of 12*

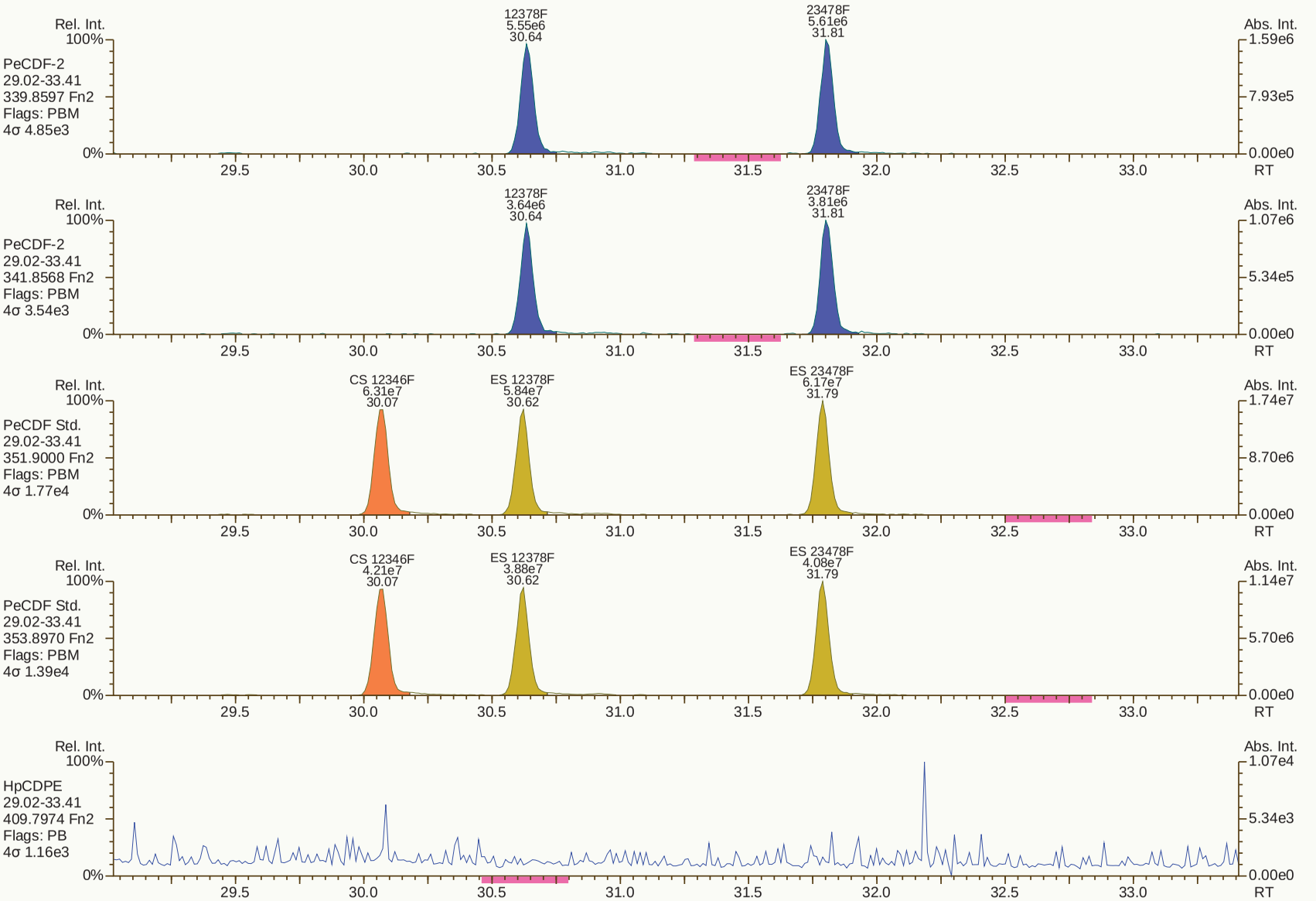
SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8132, 1253, 4701 scc: 281-247 *Revised: 15-Jul-2016 09:58 (LKB) Printed: 15-Jul-2016 14:48 Page 7 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**

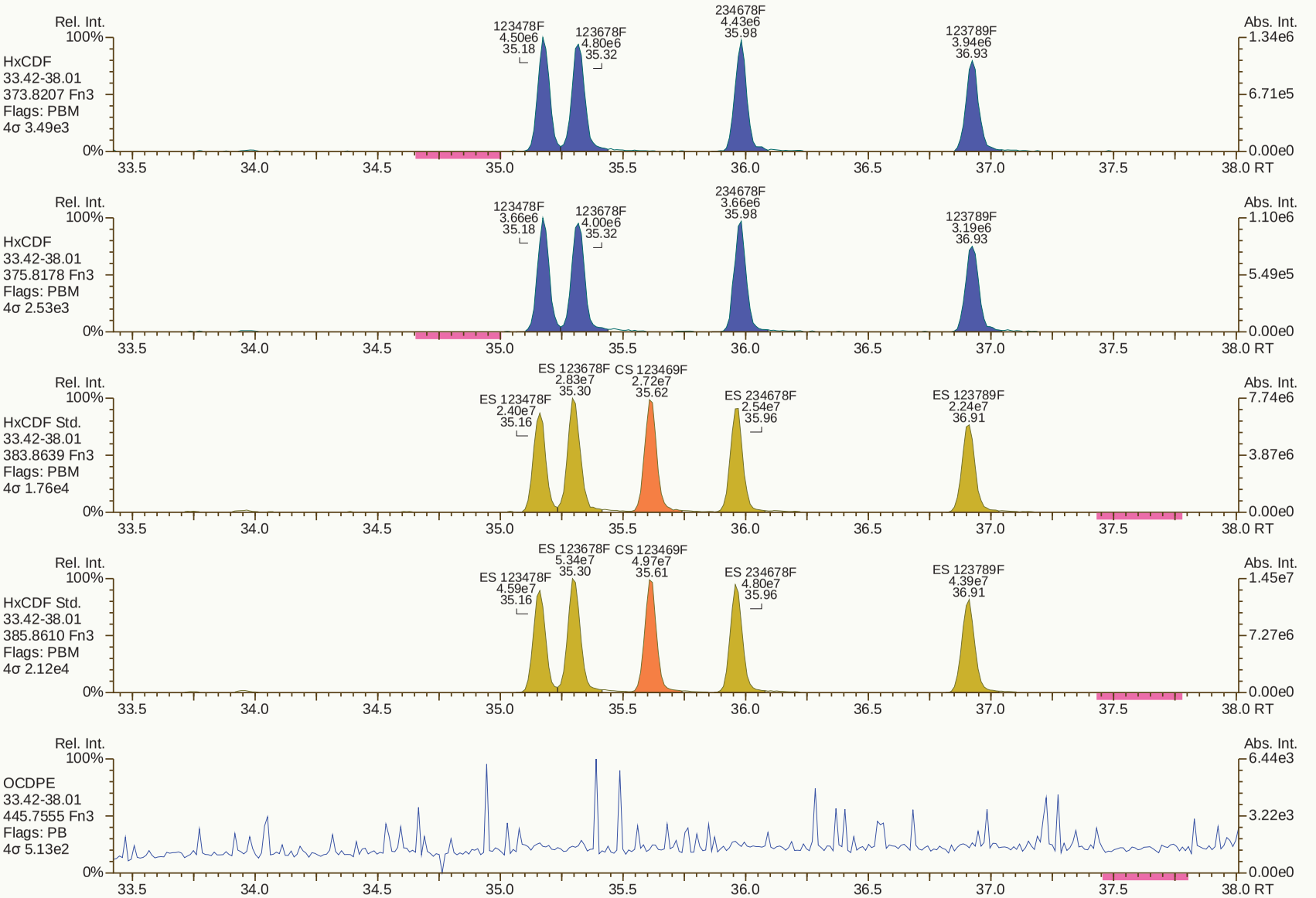
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3169 scc: 281-247 *Revised: 15-Jul-2016 09:56 (LKB) Printed: 15-Jul-2016 14:48 Page 8 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5563, 1611, 1999 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 9 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**



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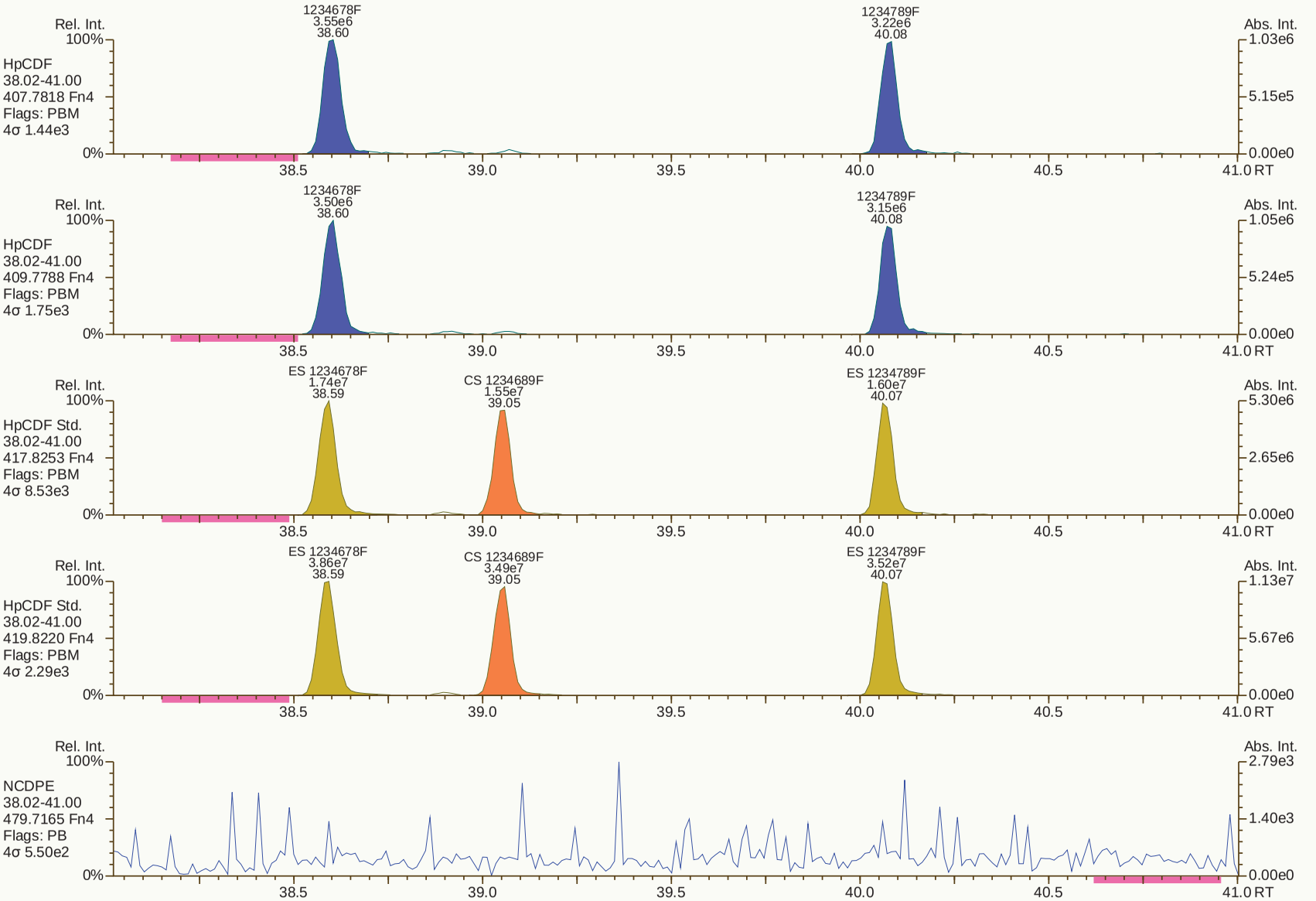
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2768, 2943, 3643 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 10 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5111, 6871, 1668 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 11 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8867, 5381, 1874 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 17:49 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS3_160714_DF_PC	UTP: 15-Jul-2016 14:40:56 LKB	Checkcode: 686-028-CSW
Sample ID: SIL 15-104-2	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P17

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.46	9.48E+06	0.80	Y	1.04	1.03	-1%
12378-PeCDD	32.18	3.98E+07	1.56	Y	0.93	0.92	-2%
123478-HxCDD	36.17	3.48E+07	1.25	Y	0.97	0.94	-4%
123678-HxCDD	36.28	3.47E+07	1.27	Y	1.00	0.98	-2%
123789-HxCDD	36.57	3.67E+07	1.23	Y	0.92	0.91	-1%
1234678-HpCDD	39.64	3.14E+07	1.05	Y	0.96	0.94	-1%
OCDD	42.07	5.20E+07	0.88	Y	1.03	1.00	-3%
2378-TCDF	25.49	1.24E+07	0.79	Y	0.99	0.96	-3%
12378-PeCDF	30.64	5.50E+07	1.56	Y	0.94	0.91	-4%
23478-PeCDF	31.81	5.52E+07	1.53	Y	0.93	0.91	-2%
123478-HxCDF	35.18	4.79E+07	1.23	Y	1.19	1.15	-4%
123678-HxCDF	35.32	5.28E+07	1.24	Y	1.10	1.08	-2%
234678-HxCDF	35.98	4.77E+07	1.22	Y	1.11	1.09	-2%
123789-HxCDF	36.93	4.18E+07	1.24	Y	1.08	1.06	-2%
1234678-HpCDF	38.61	4.22E+07	1.02	Y	1.28	1.24	-3%
1234789-HpCDF	40.08	3.68E+07	1.03	Y	1.22	1.19	-2%
OCDF	42.22	6.38E+07	0.89	Y	1.01	0.99	-2%
ES 2378-TCDD	26.43	9.21E+07	0.78	Y	1.04	1.01	-3%
ES 12378-PeCDD	32.16	8.68E+07	1.60	Y	1.00	0.95	-4%
ES 123478-HxCDD	36.15	7.40E+07	1.28	Y	1.08	1.01	-6%
ES 123678-HxCDD	36.27	7.09E+07	1.26	Y	1.03	0.97	-7%
ES 123789-HxCDD	36.55	8.03E+07	1.29	Y	1.18	1.09	-7%
ES 1234678-HpCDD	39.63	6.67E+07	1.06	Y	0.97	0.91	-6%
ES OCDD	42.06	1.04E+08	0.89	Y	0.76	0.71	-6%
ES 2378-TCDF	25.47	1.29E+08	0.74	Y	1.06	1.04	-2%
ES 12378-PeCDF	30.62	1.21E+08	1.54	Y	0.99	0.98	-1%
ES 23478-PeCDF	31.79	1.21E+08	1.51	Y	1.02	0.98	-4%
ES 123478-HxCDF	35.16	8.35E+07	0.52	Y	1.20	1.14	-6%
ES 123678-HxCDF	35.31	9.76E+07	0.53	Y	1.40	1.33	-5%
ES 234678-HxCDF	35.97	8.78E+07	0.52	Y	1.27	1.20	-6%
ES 123789-HxCDF	36.91	7.89E+07	0.52	Y	1.16	1.07	-7%
ES 1234678-HpCDF	38.59	6.80E+07	0.46	Y	0.98	0.93	-5%
ES 1234789-HpCDF	40.07	6.17E+07	0.46	Y	0.90	0.84	-7%
ES OCDF	42.21	1.29E+08	0.90	Y	0.96	0.88	-8%

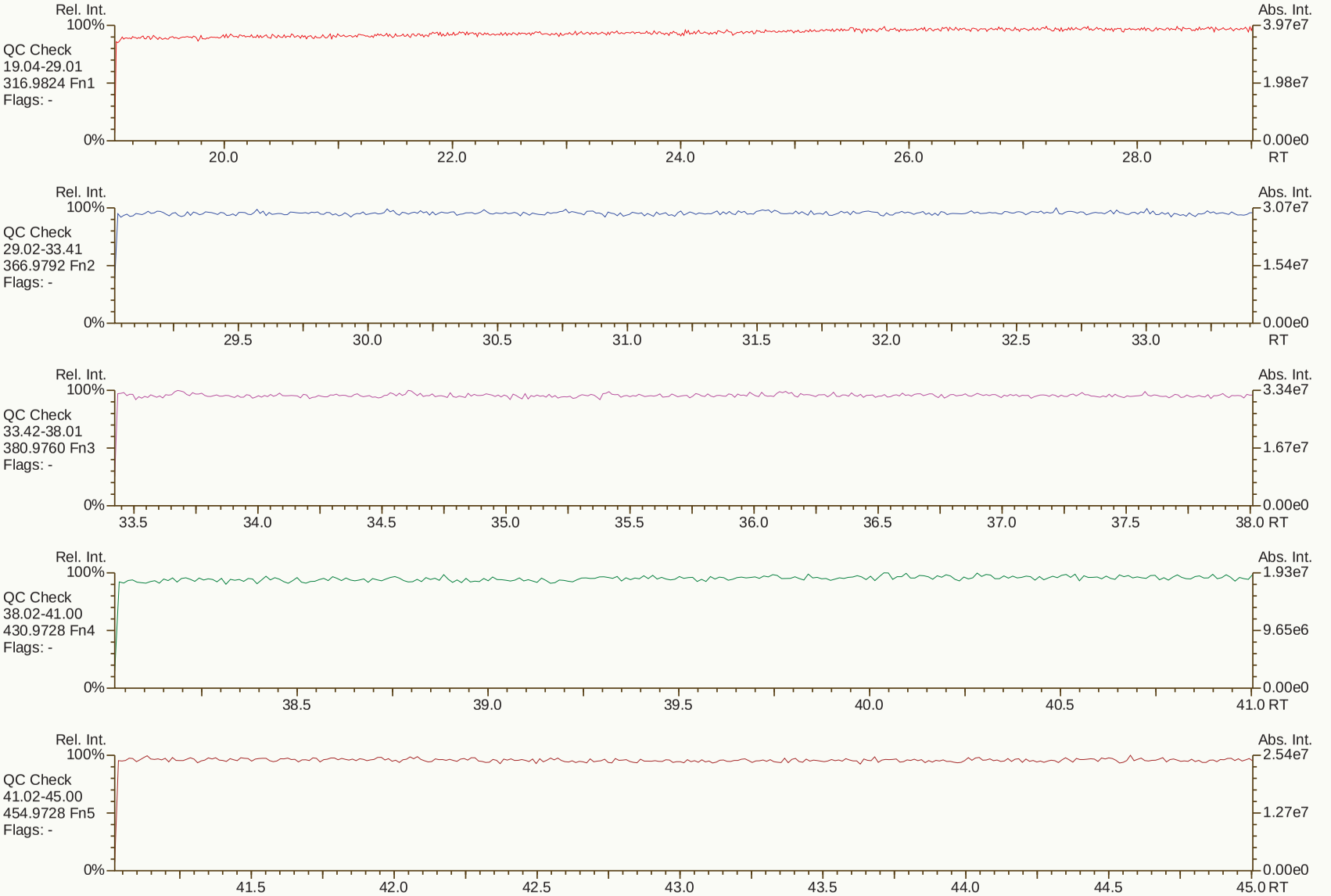
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 17:49 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_160714_DF_PC | **UTP: 15-Jul-2016 14:40:56 LKB** | **Checkcode: 686-028-CSW**

Sample ID: SIL 15-104-2 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P17**

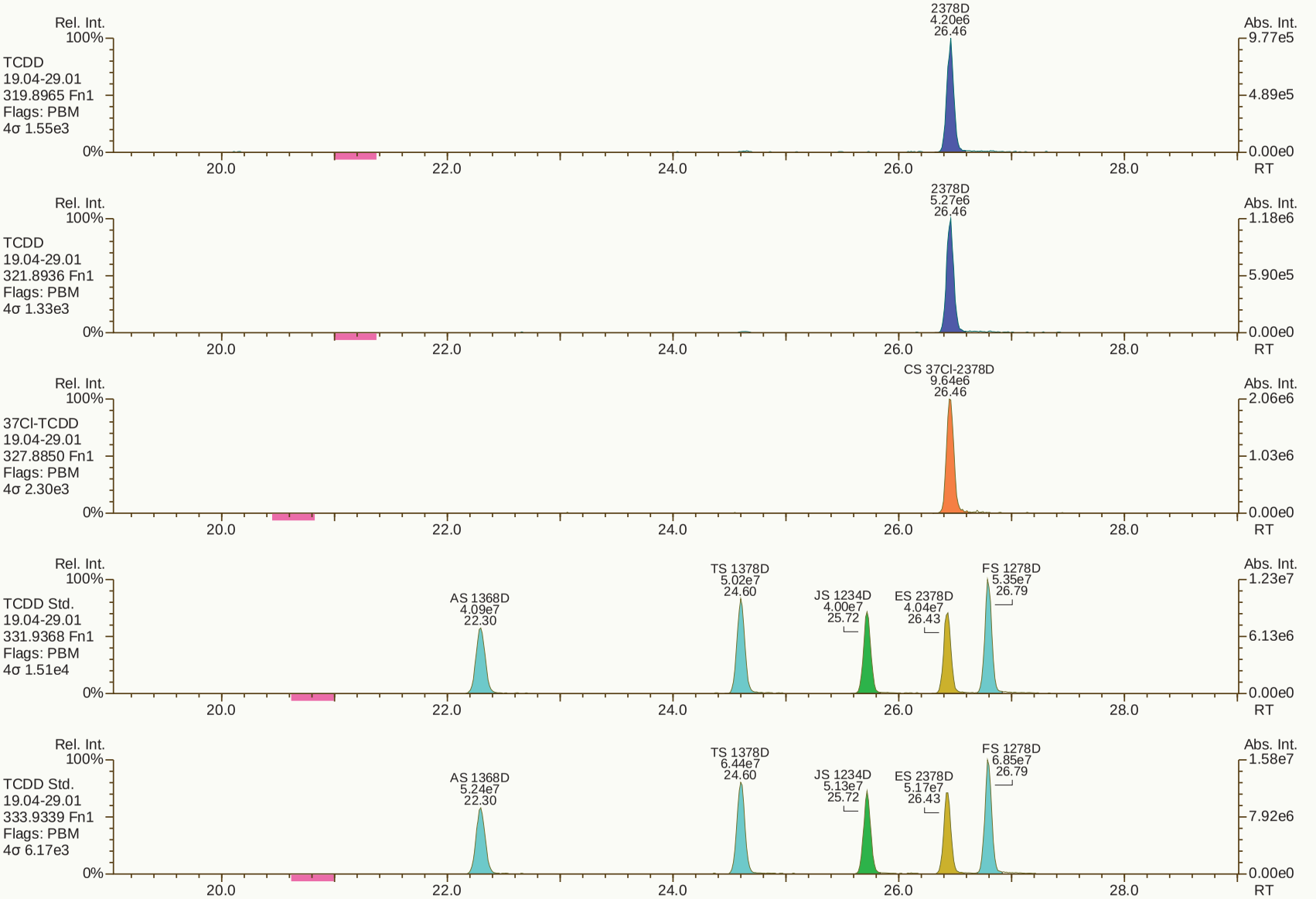
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	9.13E+07	0.78	Y	-	-	-
JS 1234-TCDF	23.95	1.24E+08	0.72	Y	-	-	-
JS 123467-HxCDD	36.46	3.67E+07	1.28	Y	-	-	-
CS 37Cl-2378-TCDD	26.46	9.64E+06	n/a	-	1.05	1.06	0%
CS 12347-PeCDD	31.64	8.05E+07	1.57	Y	0.91	0.88	-3%
CS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.98	0.94	-3%
CS 123469-HxCDF	35.62	8.59E+07	0.52	Y	1.25	1.17	-6%
CS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.85	0.80	-5%
SS 37Cl-2378-TCDD	26.46	9.64E+06	n/a	-	1.03	1.05	2%
SS 12347-PeCDD	31.64	8.05E+07	1.57	Y	0.92	0.93	1%
SS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.99	0.97	-2%
SS 123469-HxCDF	35.62	8.59E+07	0.52	Y	0.89	0.88	-1%
SS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.87	0.87	0%
AS 1368-TCDD	22.30	9.33E+07	0.78	Y	1.02	1.02	0%
AS 1368-TCDF	20.16	1.73E+08	0.73	Y	1.41	1.39	-1%
FS 1278-TCDD	26.79	1.22E+08	0.78	Y	1.31	1.32	1%
FS 12478-PeCDD	30.88	1.01E+08	1.62	Y	1.15	1.17	2%
FS 123468-HxCDD	35.09	9.91E+07	1.26	Y	1.31	1.34	2%
FS 1234679-HpCDD	38.90	8.55E+07	1.04	Y	1.24	1.28	3%
TS 1378-TCDD	24.60	1.15E+08	0.78	Y	1.23	1.24	1%
OCDD-a	42.06	3.03E+06	2.34	Y	0.06	0.06	-2%
OCDF-a	42.22	3.69E+06	2.80	Y	0.06	0.06	-4%

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



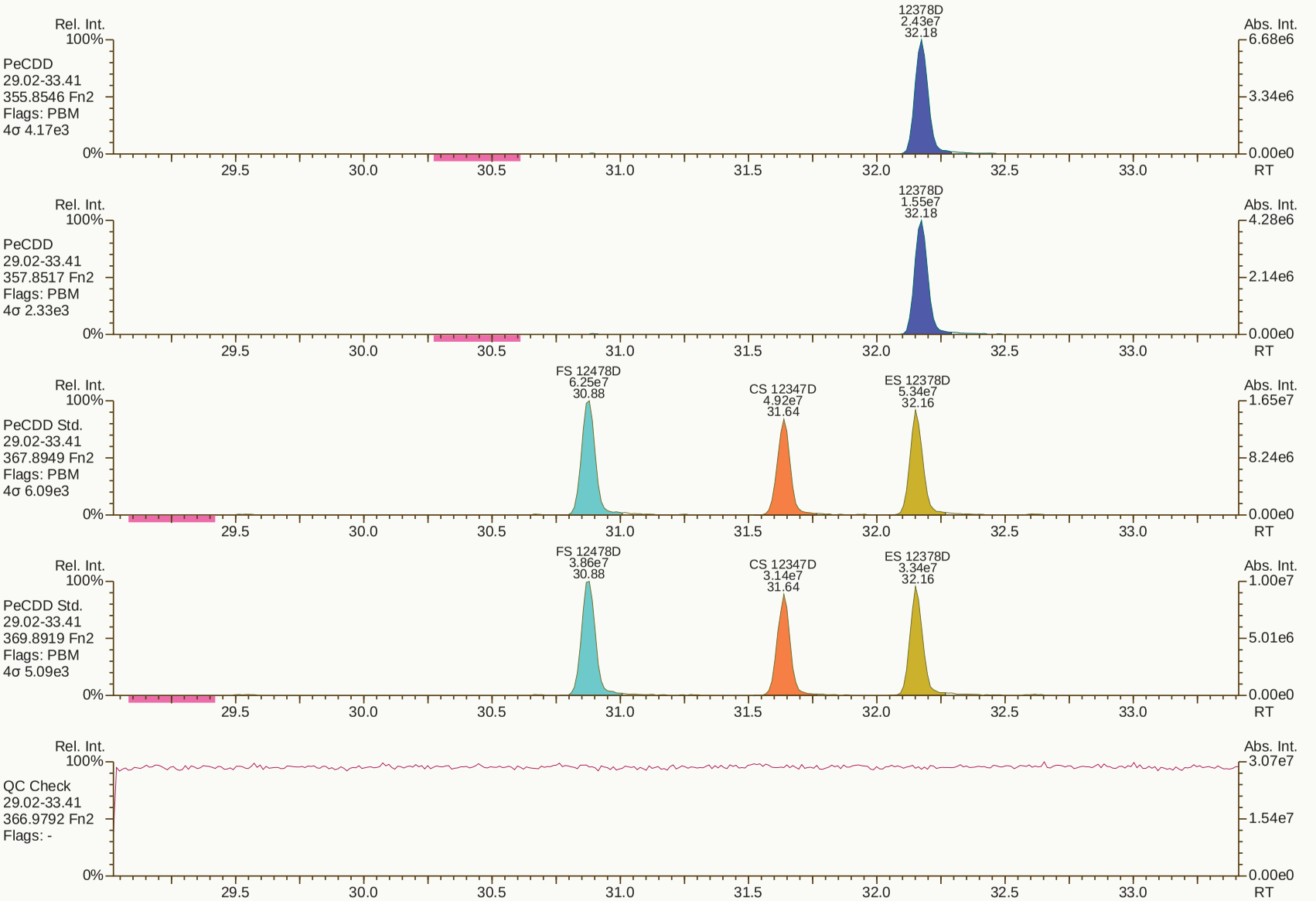
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 686-028 | *PKD: n/a Printed: 15-Jul-2016 14:49 Page 1 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



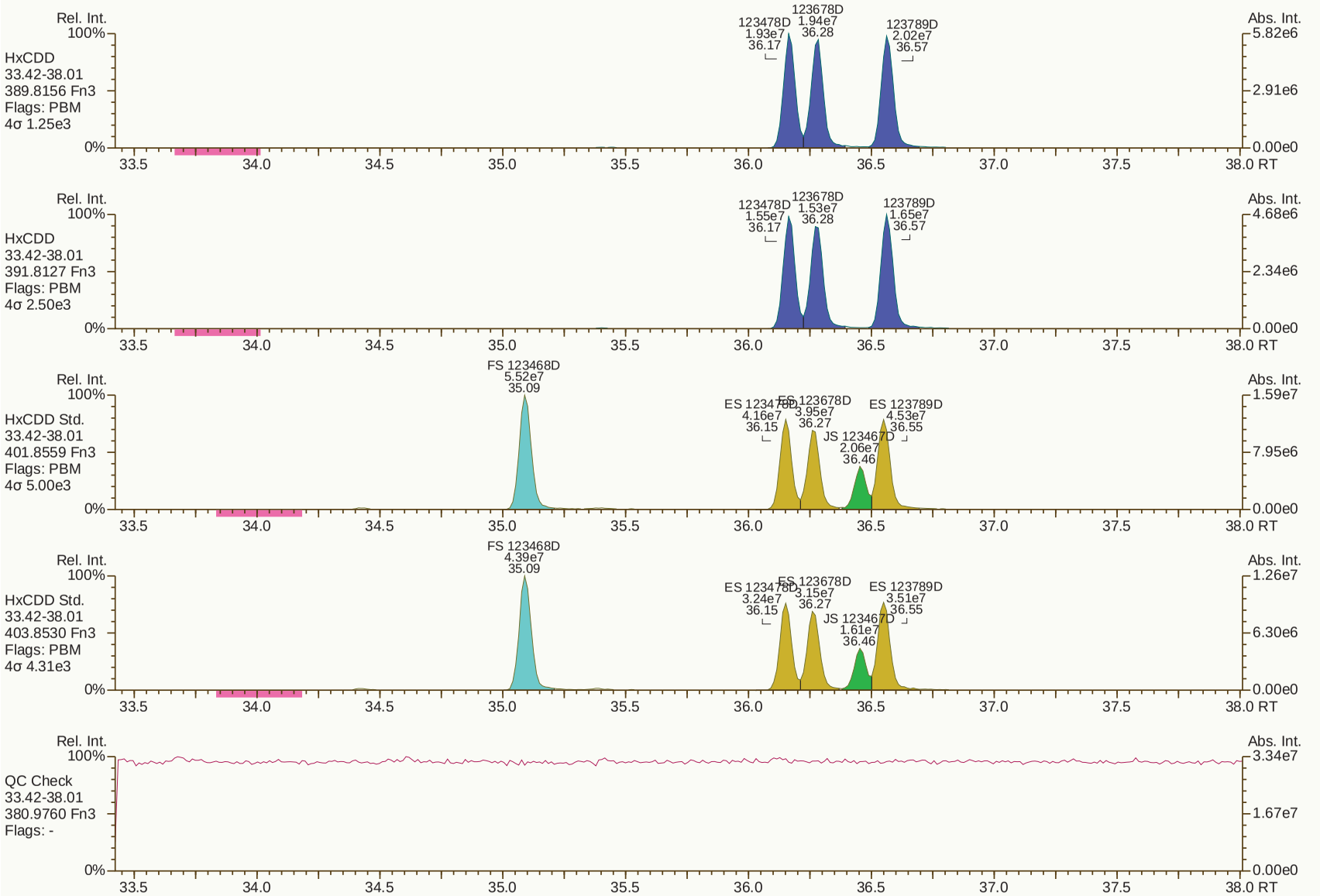
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9077, 4622, 1223 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 2 of 12*

SGS ID: CS3_160714_DF_PC **Sample ID: SIL 15-104-2** **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: LKB Datafile: 160714P17**



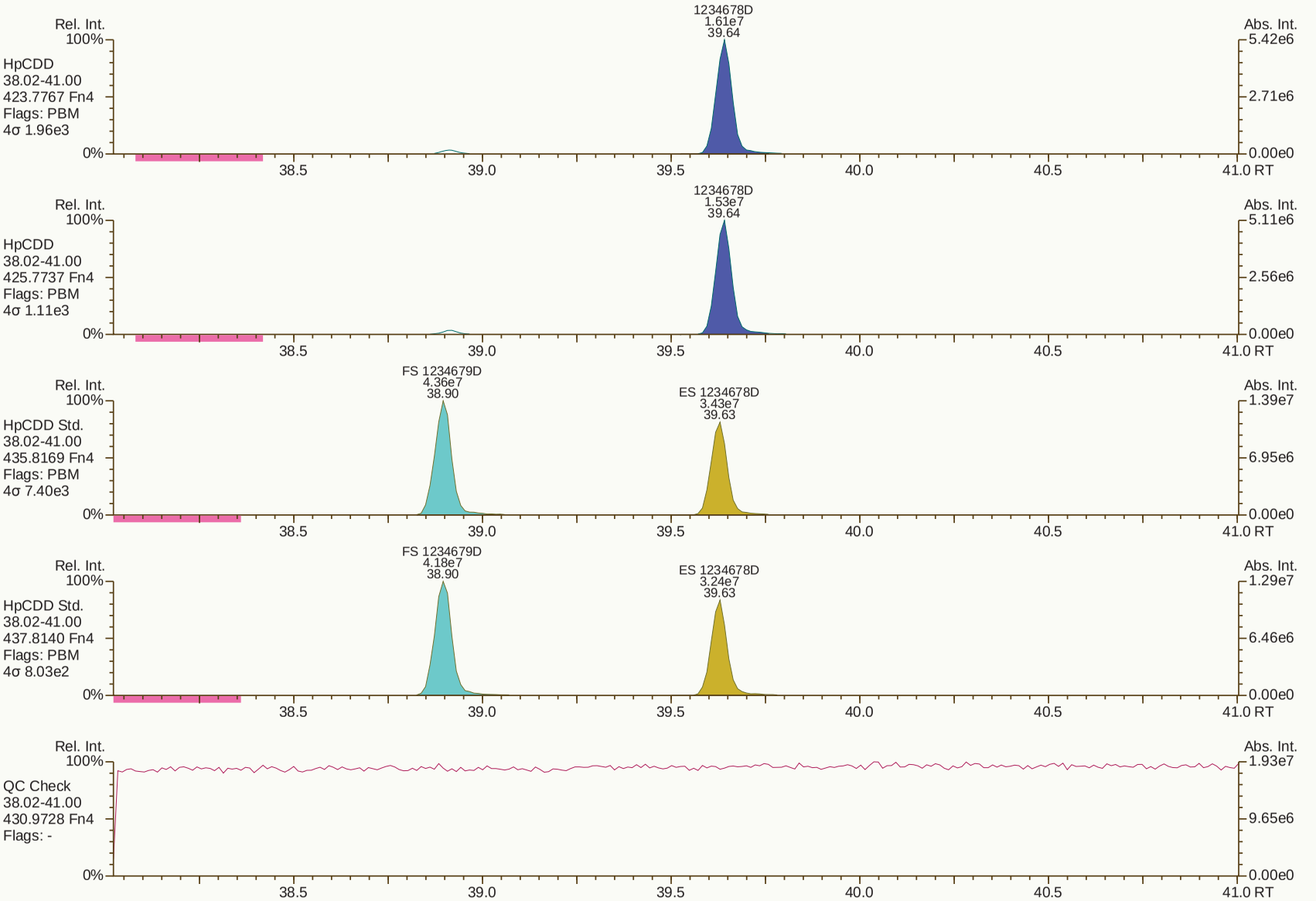
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9970, 1744 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 3 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2345, 2479 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 4 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4646, 3956 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 5 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0893, 0066 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 6 of 12*

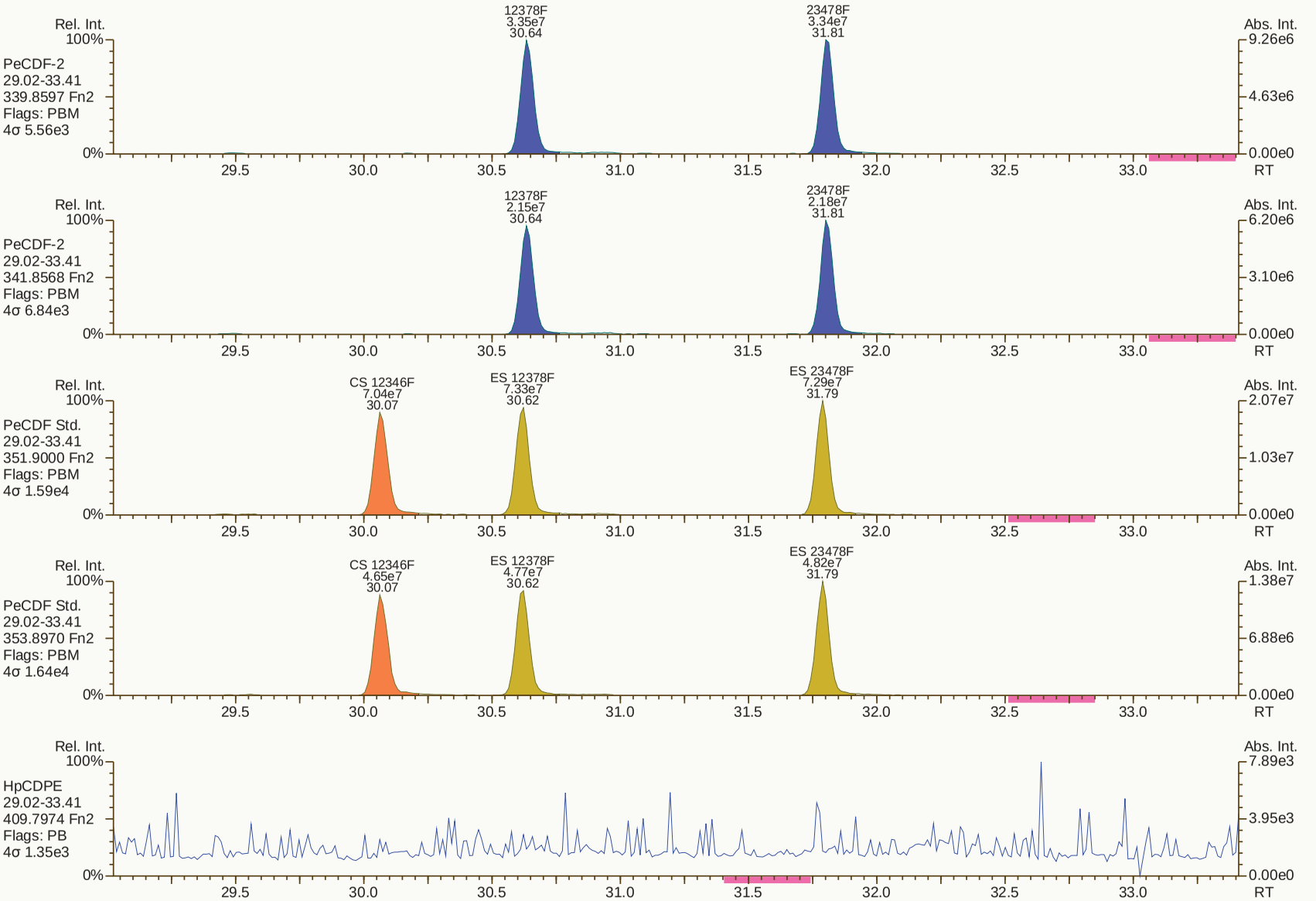
SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2088, 8662, 6355 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 7 of 12*

SGS ID: CS3_160714_DF_PC **Sample ID: SIL 15-104-2** **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: LKB Datafile: 160714P17**

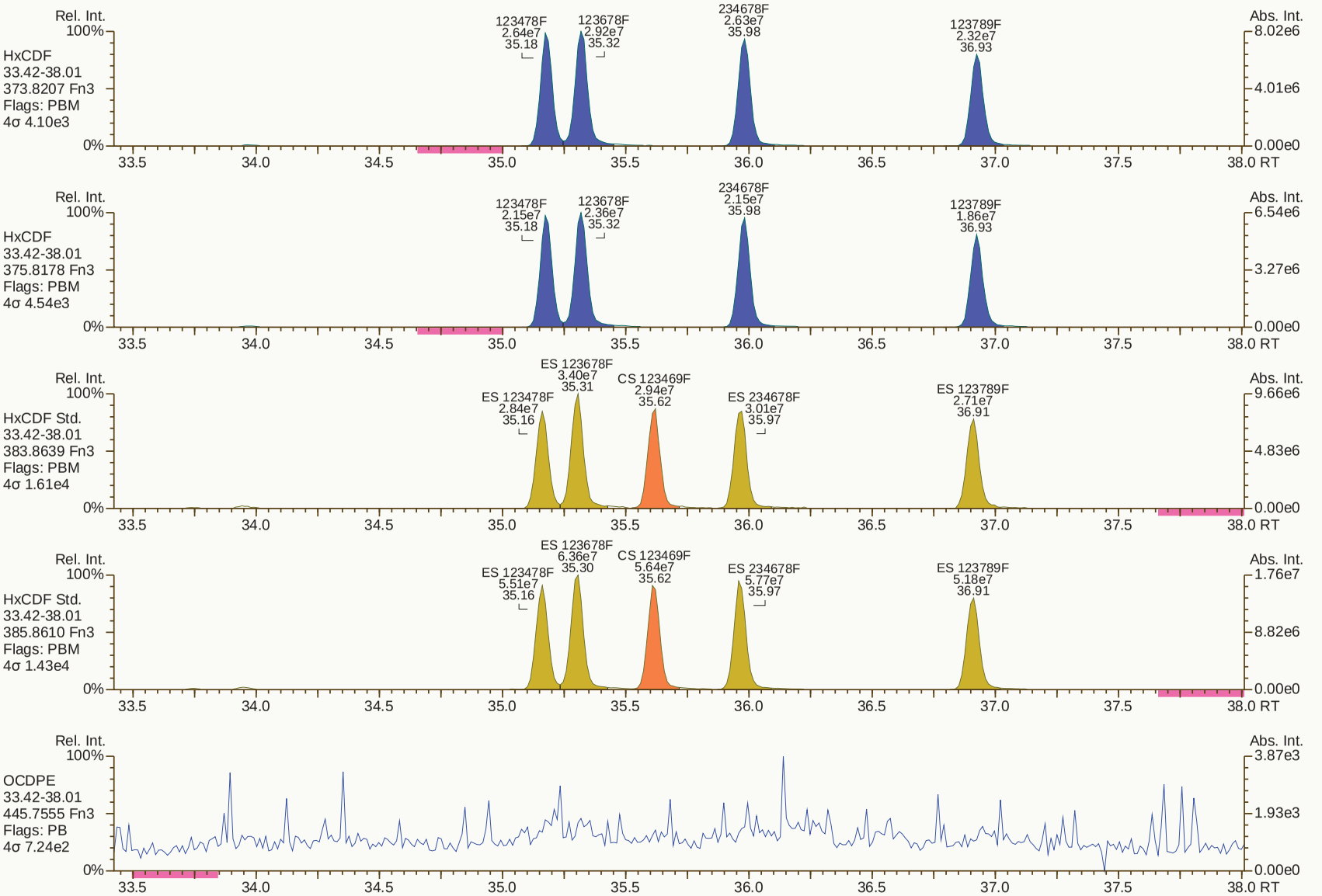
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5967 scc: 686-028 *Revised: 15-Jul-2016 10:01 (LKB) Printed: 15-Jul-2016 14:49 Page 8 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



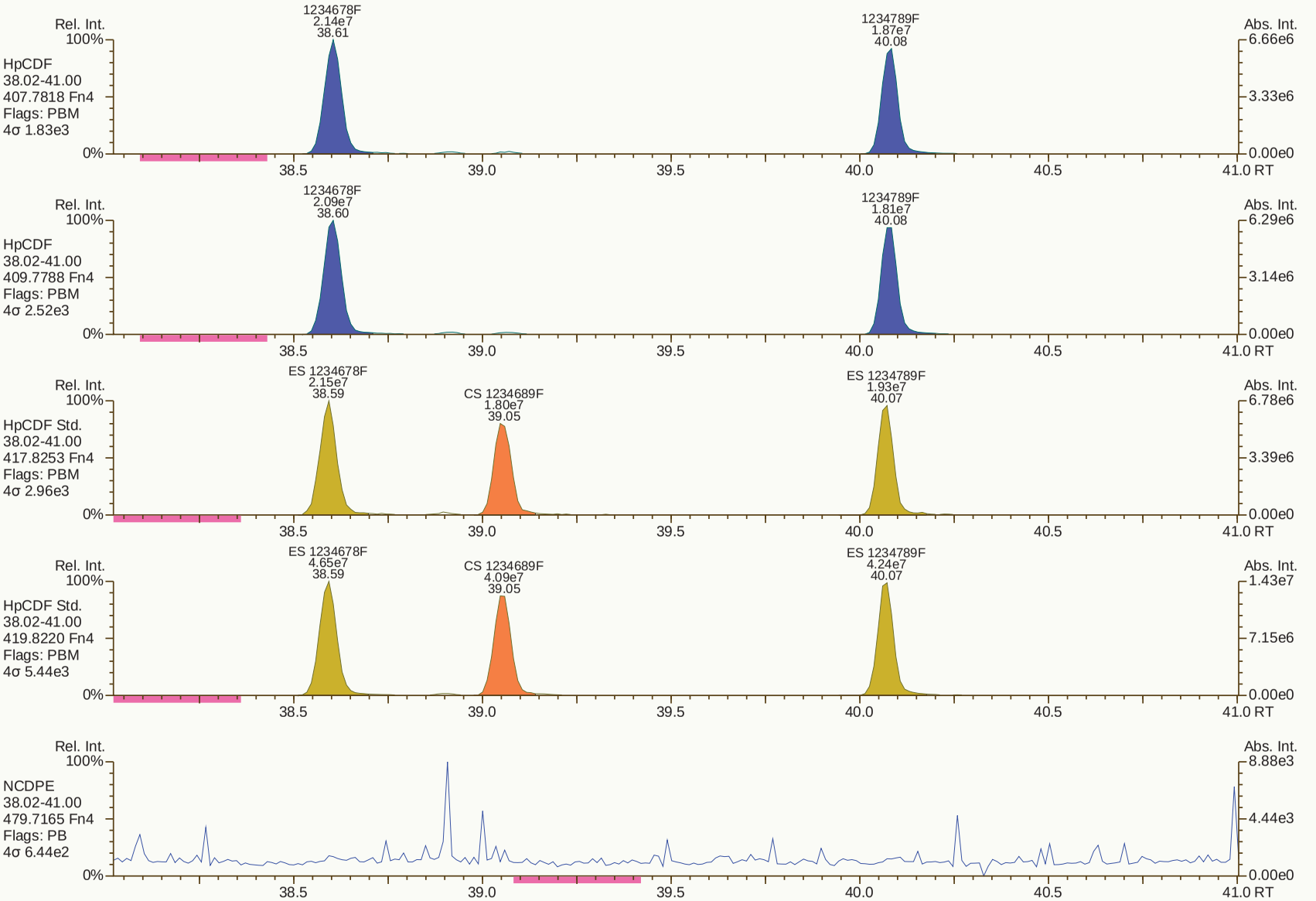
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3395, 5432, 6377 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 9 of 12*

SGS ID: CS3_160714_DF_PC **Sample ID: SIL 15-104-2** **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2405, 2569, 0843 scc: 686-028 *Revised: 15-Jul-2016 10:03 (LKB) Printed: 15-Jul-2016 14:49 Page 10 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



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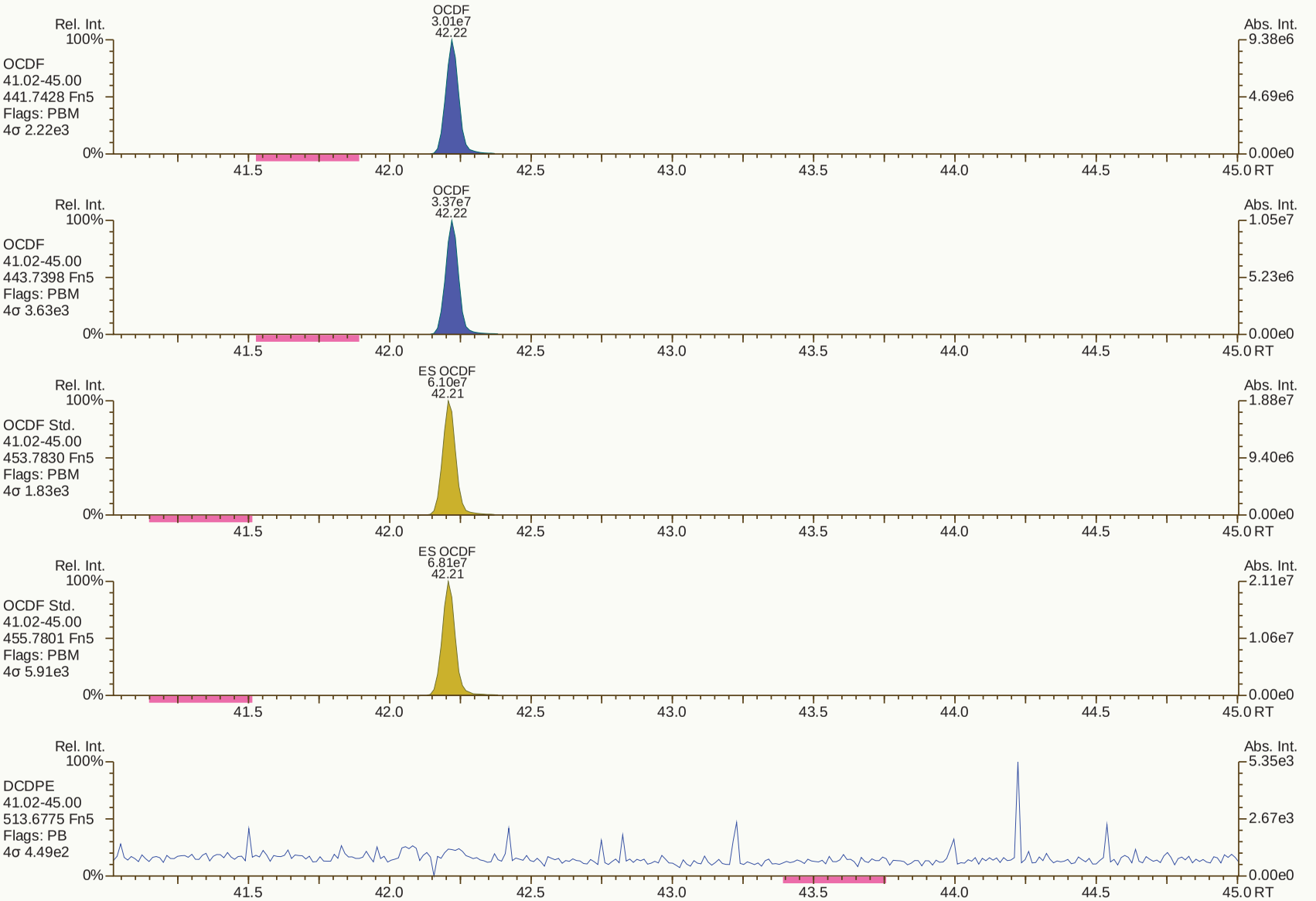
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8024, 1743, 7082 scc: 686-028 *Revised: 15-Jul-2016 14:30 (LKB) Printed: 15-Jul-2016 14:49 Page 11 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6899, 8207, 5571 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 18:38 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS4_160714_DF_PB	UTP: 15-Jul-2016 14:40:56 LKB	Checkcode: 345-926-ZBZ
Sample ID: SIL 15-104-1	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P18

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.46	4.00E+07	0.77	Y	1.04	1.11	7%
12378-PeCDD	32.18	1.72E+08	1.55	Y	0.93	0.98	6%
123478-HxCDD	36.17	1.52E+08	1.24	Y	0.97	1.03	5%
123678-HxCDD	36.28	1.46E+08	1.25	Y	1.00	1.05	6%
123789-HxCDD	36.57	1.58E+08	1.25	Y	0.92	0.96	5%
1234678-HpCDD	39.64	1.34E+08	1.04	Y	0.96	1.01	6%
OCDD	42.06	2.31E+08	0.89	Y	1.03	1.09	6%
2378-TCDF	25.49	5.10E+07	0.77	Y	0.99	1.03	4%
12378-PeCDF	30.64	2.29E+08	1.55	Y	0.94	0.99	5%
23478-PeCDF	31.81	2.37E+08	1.54	Y	0.93	0.99	6%
123478-HxCDF	35.18	2.06E+08	1.23	Y	1.19	1.25	5%
123678-HxCDF	35.32	2.20E+08	1.23	Y	1.10	1.17	6%
234678-HxCDF	35.98	2.04E+08	1.23	Y	1.11	1.18	7%
123789-HxCDF	36.93	1.84E+08	1.24	Y	1.08	1.15	7%
1234678-HpCDF	38.60	1.79E+08	1.02	Y	1.28	1.35	6%
1234789-HpCDF	40.08	1.60E+08	1.02	Y	1.22	1.29	6%
OCDF	42.22	2.86E+08	0.90	Y	1.01	1.08	7%
ES 2378-TCDD	26.43	8.99E+07	0.79	Y	1.04	1.01	-2%
ES 12378-PeCDD	32.16	8.72E+07	1.61	Y	1.00	0.98	-2%
ES 123478-HxCDD	36.15	7.43E+07	1.29	Y	1.08	1.11	4%
ES 123678-HxCDD	36.26	6.95E+07	1.26	Y	1.03	1.04	1%
ES 123789-HxCDD	36.55	8.21E+07	1.27	Y	1.18	1.23	4%
ES 1234678-HpCDD	39.63	6.60E+07	1.05	Y	0.97	0.99	2%
ES OCDD	42.05	1.05E+08	0.91	Y	0.76	0.79	5%
ES 2378-TCDF	25.47	1.24E+08	0.73	Y	1.06	1.05	-2%
ES 12378-PeCDF	30.62	1.16E+08	1.51	Y	0.99	0.98	-2%
ES 23478-PeCDF	31.79	1.20E+08	1.56	Y	1.02	1.01	-1%
ES 123478-HxCDF	35.16	8.23E+07	0.53	Y	1.20	1.24	3%
ES 123678-HxCDF	35.3	9.46E+07	0.54	Y	1.40	1.42	1%
ES 234678-HxCDF	35.96	8.63E+07	0.52	Y	1.27	1.30	2%
ES 123789-HxCDF	36.91	7.95E+07	0.54	Y	1.16	1.19	3%
ES 1234678-HpCDF	38.59	6.62E+07	0.45	Y	0.98	0.99	2%
ES 1234789-HpCDF	40.07	6.17E+07	0.45	Y	0.90	0.93	3%
ES OCDF	42.21	1.33E+08	0.90	Y	0.96	1.00	4%

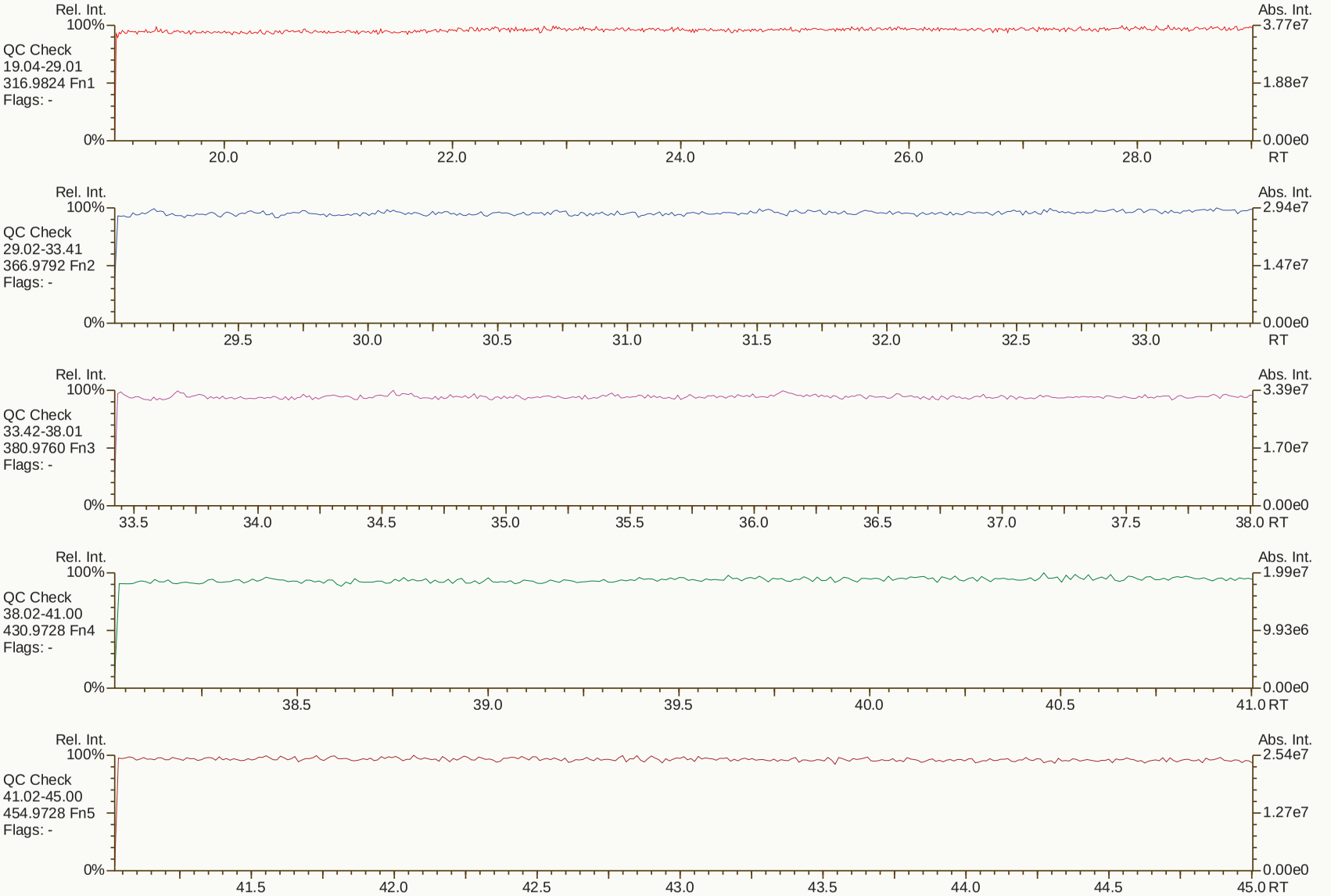
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 18:38 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS4_160714_DF_PB | **UTP: 15-Jul-2016 14:40:56 LKB** | **Checkcode: 345-926-ZBZ**

Sample ID: SIL 15-104-1 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P18**

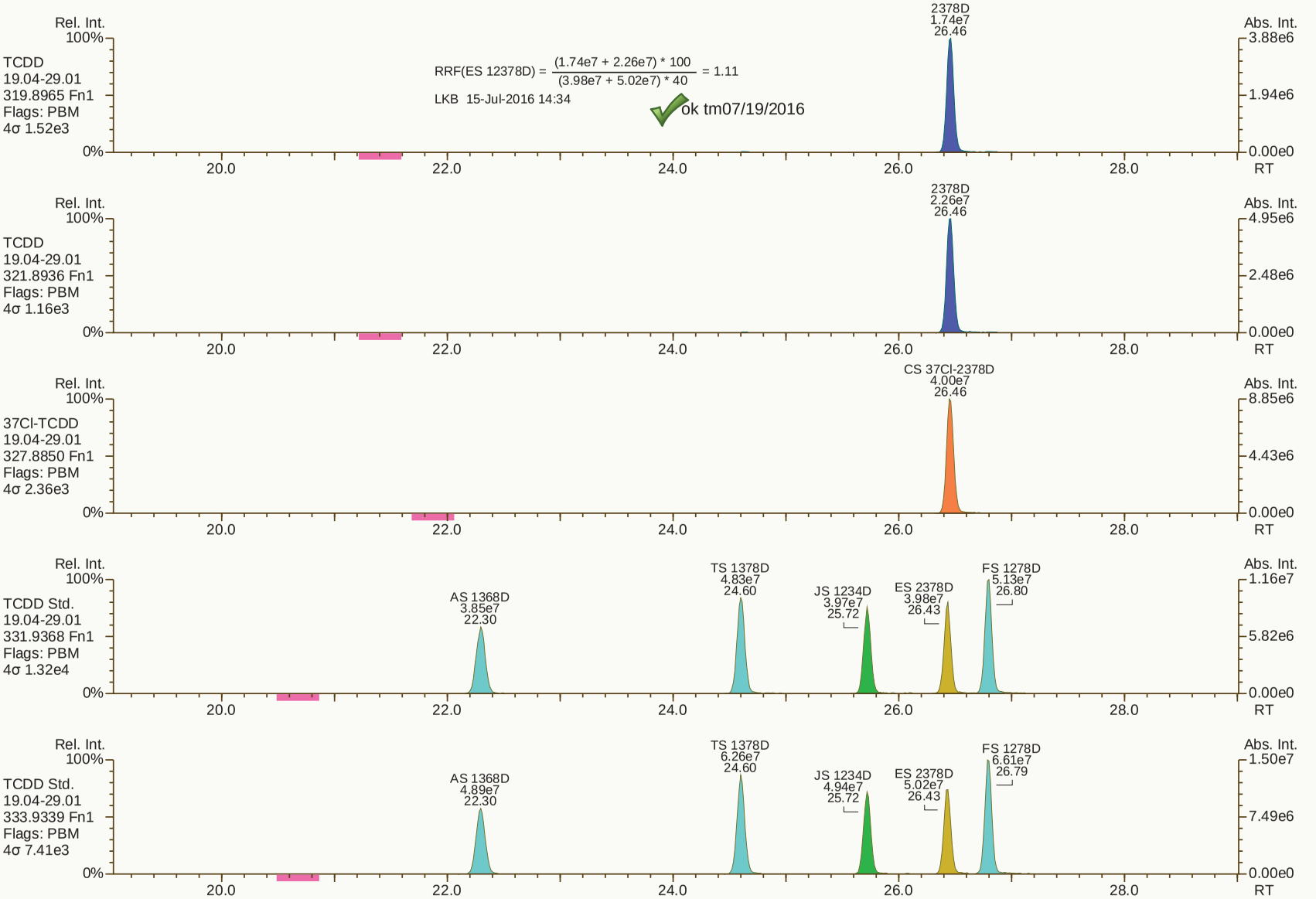
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	8.91E+07	0.80	Y	-	-	-
JS 1234-TCDF	23.95	1.19E+08	0.72	Y	-	-	-
JS 123467-HxCDD	36.45	3.33E+07	1.31	Y	-	-	-
CS 37Cl-2378-TCDD	26.46	4.00E+07	n/a	-	1.05	1.12	6%
CS 12347-PeCDD	31.64	8.05E+07	1.60	Y	0.91	0.90	-1%
CS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.98	0.98	1%
CS 123469-HxCDF	35.61	8.66E+07	0.53	Y	1.25	1.30	4%
CS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.85	0.88	4%
SS 37Cl-2378-TCDD	26.46	4.00E+07	n/a	-	1.03	1.11	8%
SS 12347-PeCDD	31.64	8.05E+07	1.60	Y	0.92	0.92	1%
SS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.99	1.01	2%
SS 123469-HxCDF	35.61	8.66E+07	0.53	Y	0.89	0.92	3%
SS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.87	0.89	2%
AS 1368-TCDD	22.30	8.74E+07	0.79	Y	1.02	0.98	-4%
AS 1368-TCDF	20.16	1.63E+08	0.72	Y	1.41	1.37	-3%
FS 1278-TCDD	26.80	1.17E+08	0.78	Y	1.31	1.31	0%
FS 12478-PeCDD	30.88	9.91E+07	1.58	Y	1.15	1.14	-1%
FS 123468-HxCDD	35.09	9.82E+07	1.23	Y	1.31	1.32	1%
FS 1234679-HpCDD	38.90	8.40E+07	1.05	Y	1.24	1.27	3%
TS 1378-TCDD	24.60	1.11E+08	0.77	Y	1.23	1.23	0%
OCDD-a	42.06	1.39E+07	2.59	Y	0.06	0.07	11%
OCDF-a	42.22	1.66E+07	2.57	Y	0.06	0.06	4%

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 345-926 | *PKD: n/a Printed: 15-Jul-2016 14:49 Page 1 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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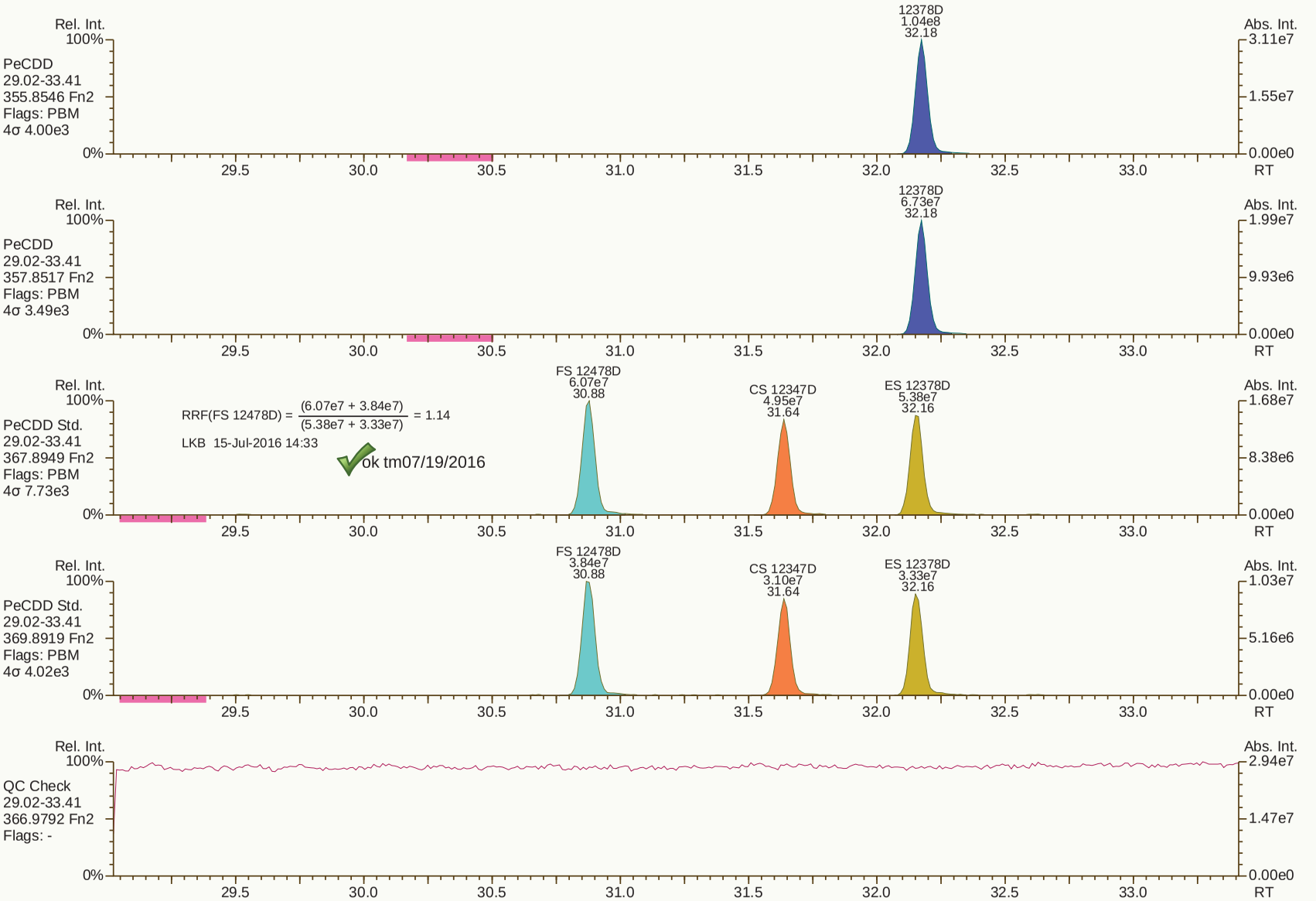
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0922, 6502, 0512 scc: 345-926 *Revised: 15-Jul-2016 14:31 (LKB) Printed: 15-Jul-2016 14:49 Page 2 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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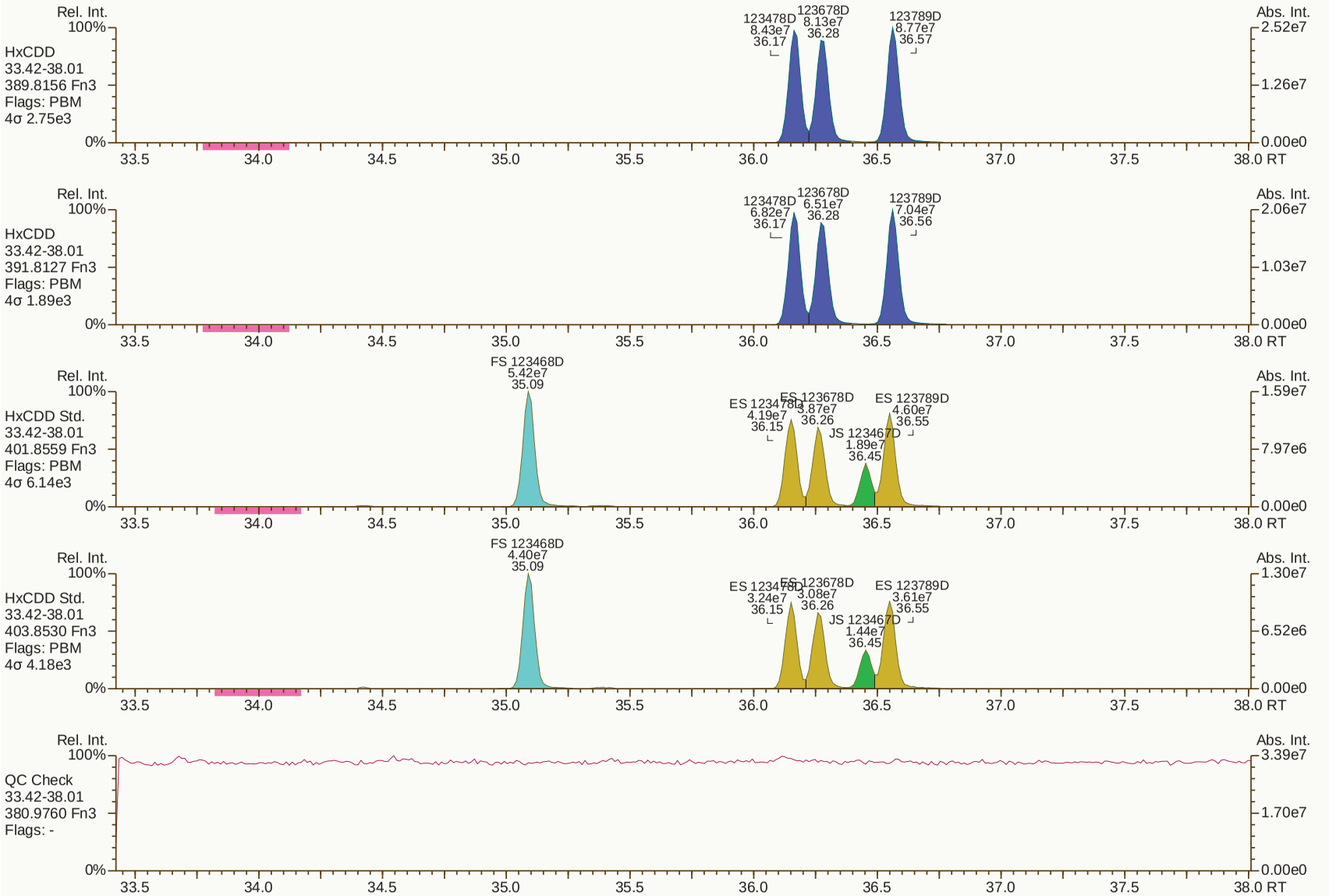
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7547, 3552 scc: 345-926 *Revised: 15-Jul-2016 13:52 (LKB) Printed: 15-Jul-2016 14:49 Page 3 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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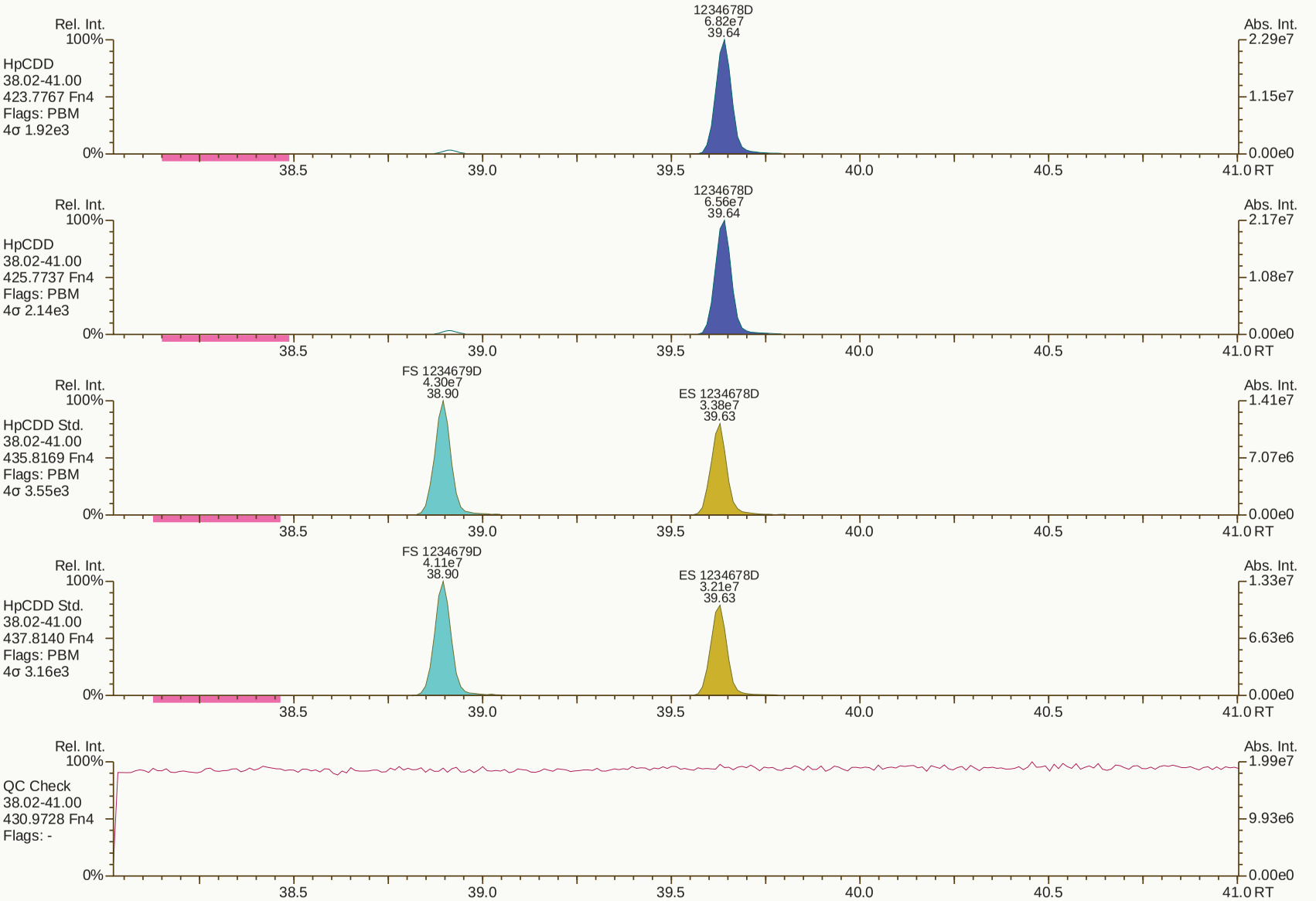
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4229, 8057 scc: 345-926 *PKD: 15-Jul-2016 10:13 Printed: 15-Jul-2016 14:49 Page 4 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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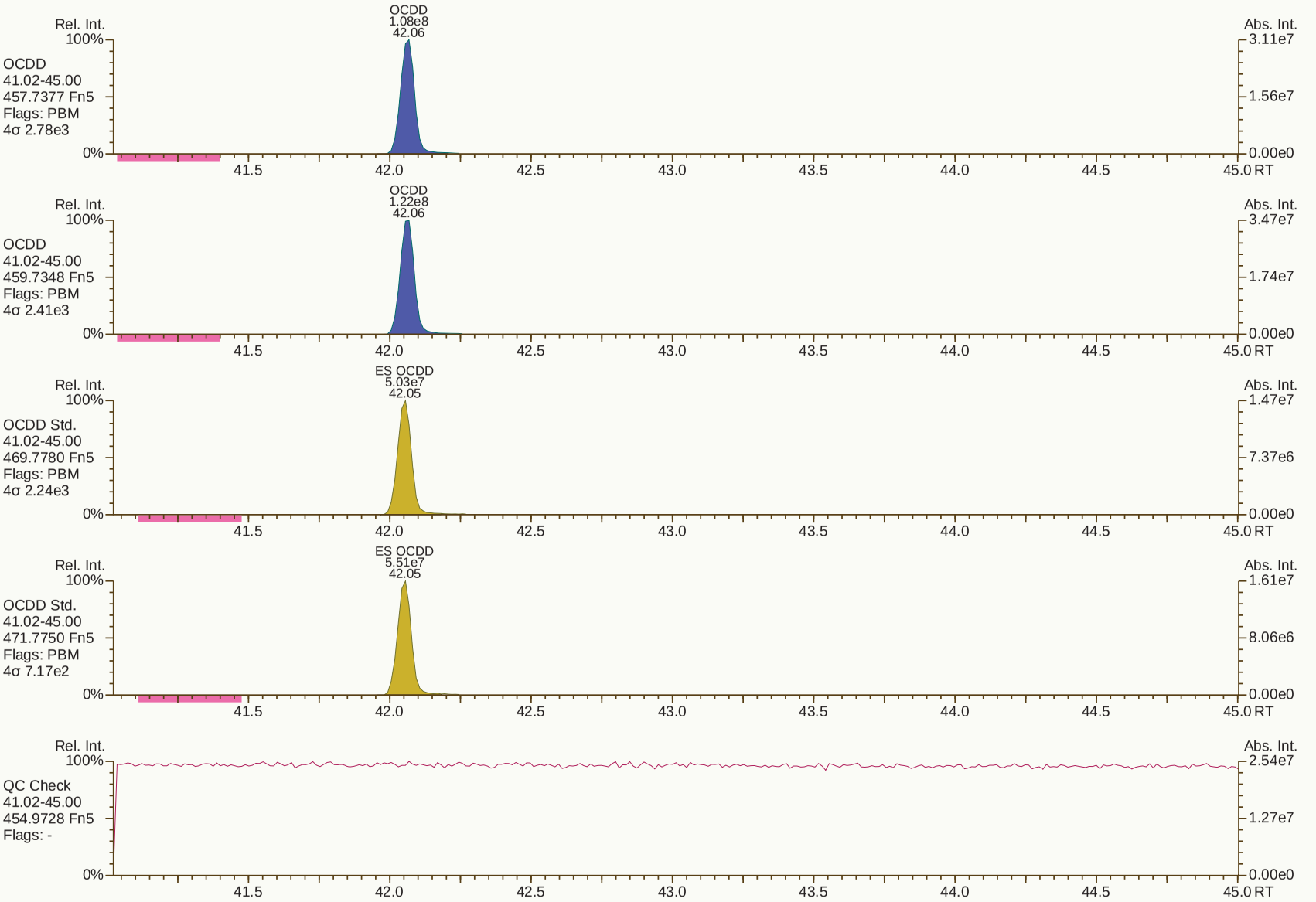
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4140, 7541 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 5 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5066, 8723 scc: 345-926 *PKD: 15-Jul-2016 13:52 Printed: 15-Jul-2016 14:49 Page 6 of 12*

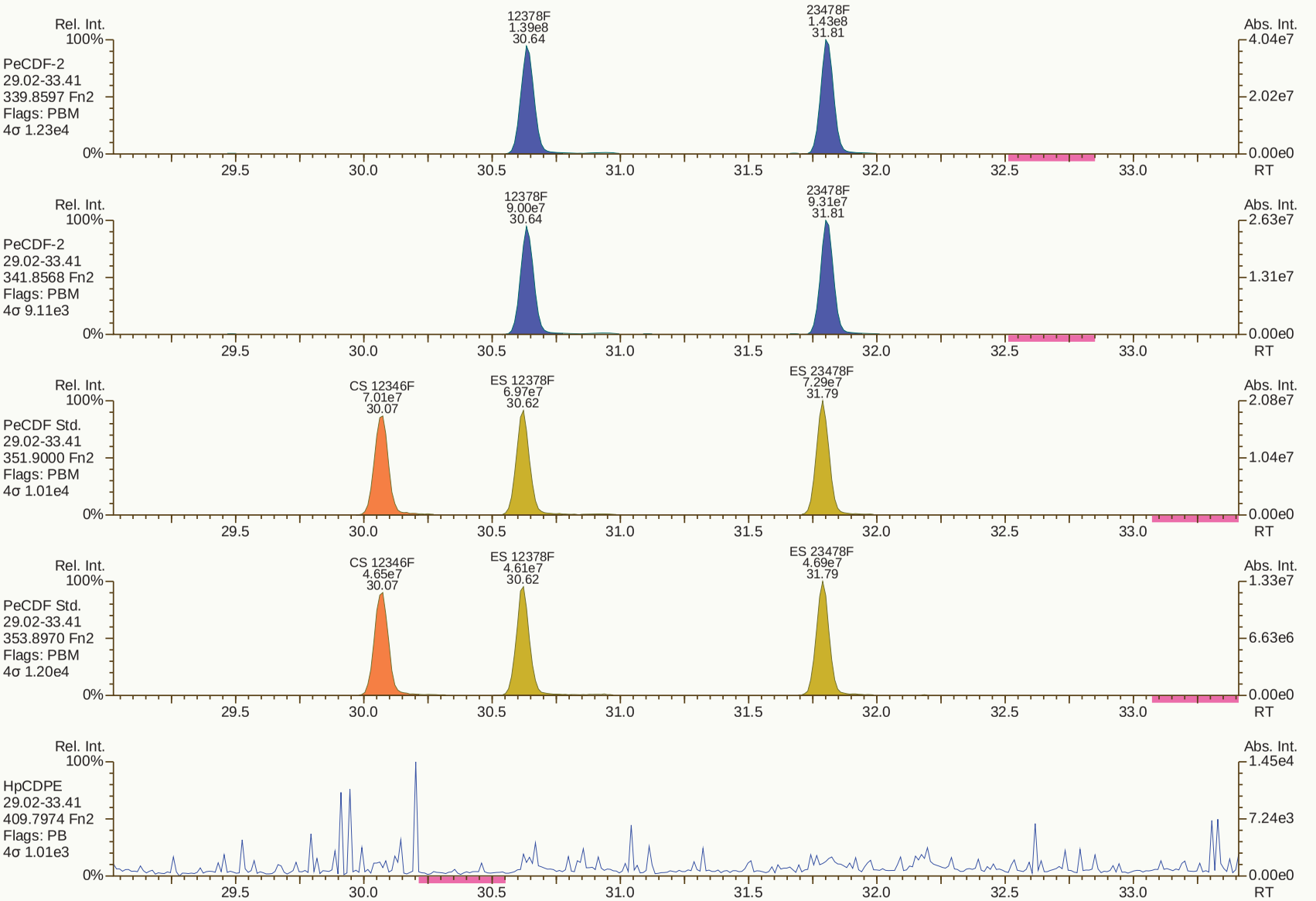
SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6357, 0780, 6150 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 7 of 12*

SGS ID: CS4_160714_DF_PB **Sample ID: SIL 15-104-1** **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** **User: LKB Datafile: 160714P18**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7788 scc: 345-926 *Revised: 15-Jul-2016 10:12 (LKB) Printed: 15-Jul-2016 14:49 Page 8 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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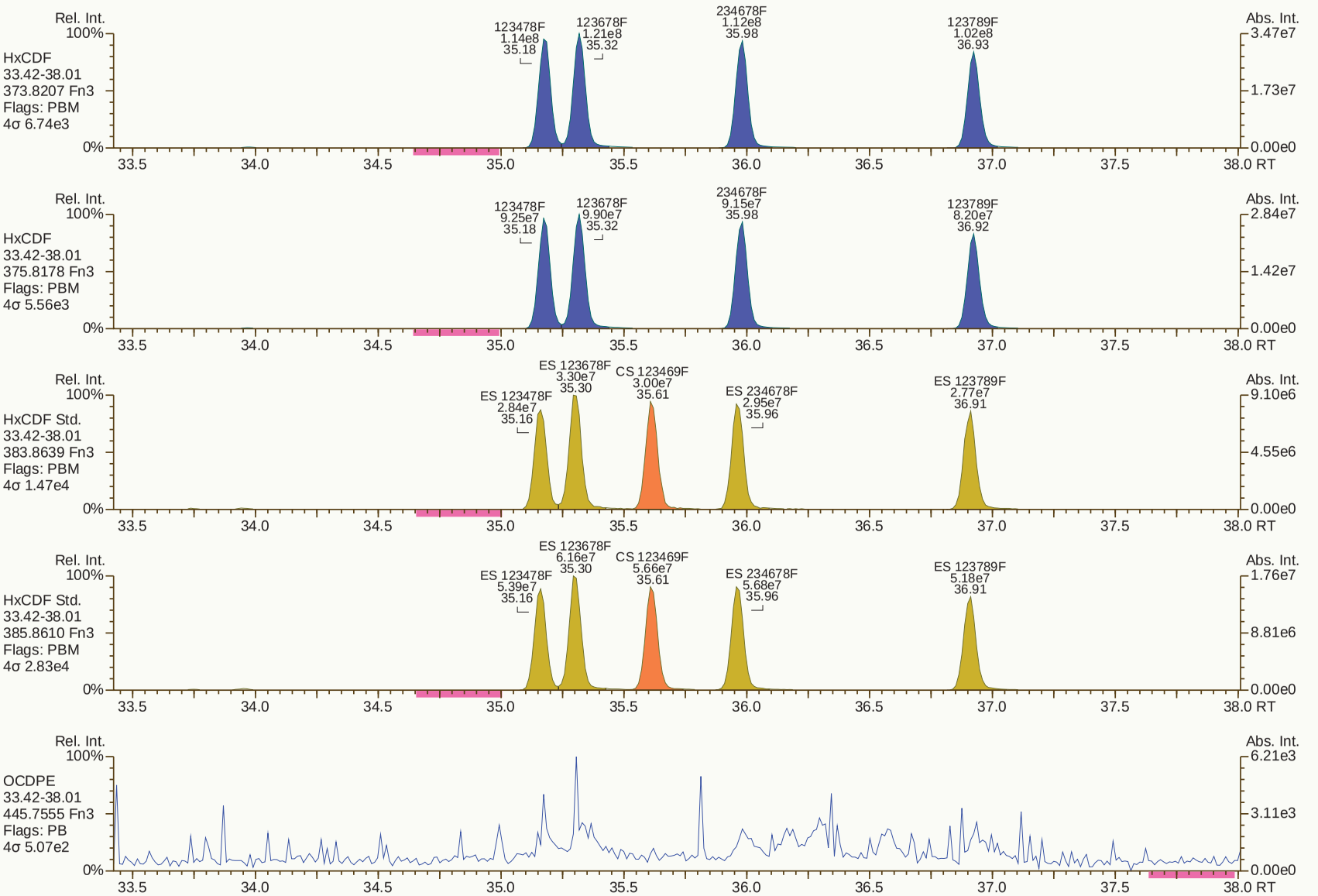
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2049, 0534, 9259 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 9 of 12*

SGS ID: CS4_160714_DF_PB **Sample ID: SIL 15-104-1** **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** **User: LKB Datafile: 160714P18**



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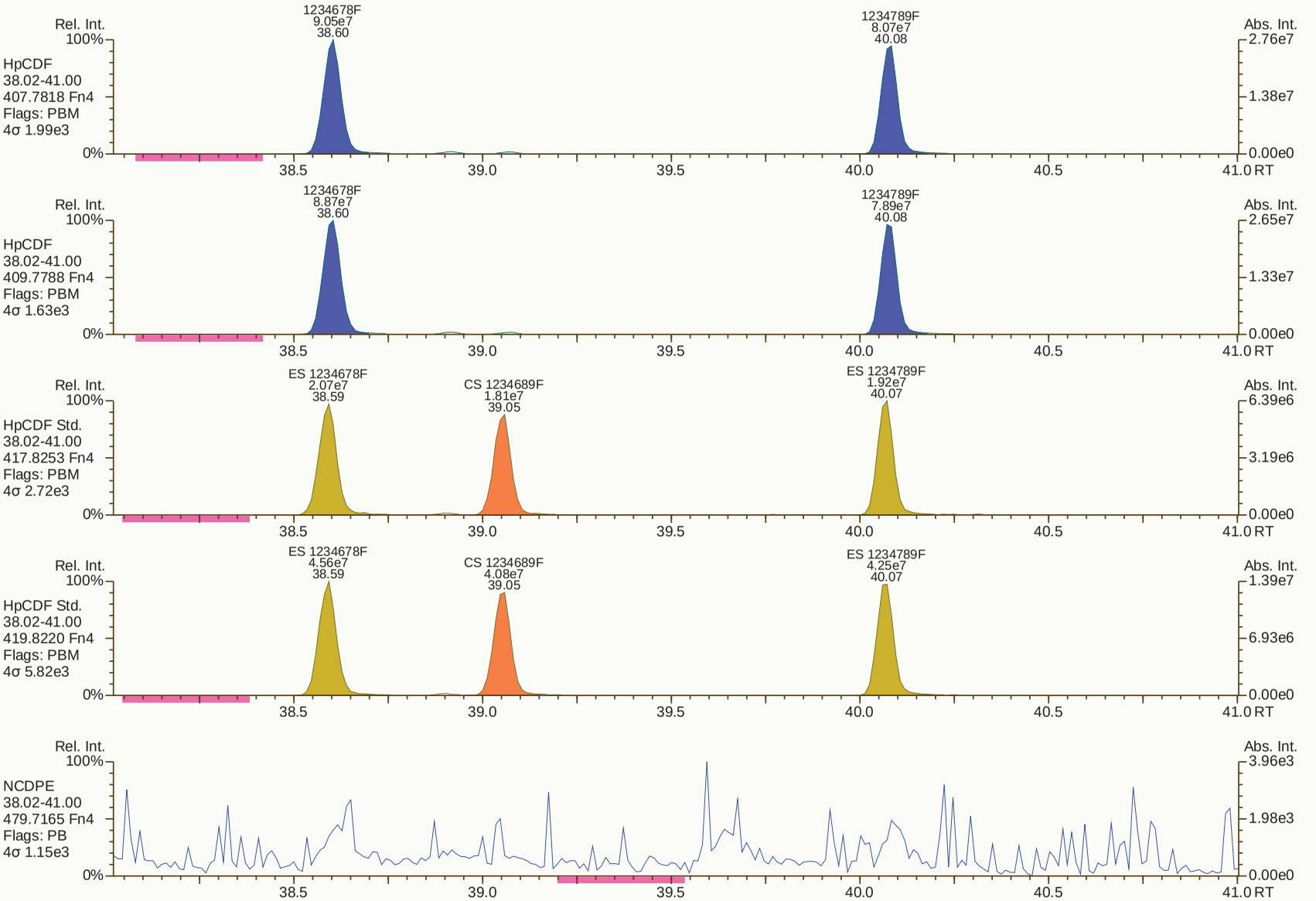
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1210, 9898, 5387 scc: 345-926 *Revised: 15-Jul-2016 10:16 (LKB) Printed: 15-Jul-2016 14:49 Page 10 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8668, 7842, 3833 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 11 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4354, 1847, 8891 scc: 345-926 *PKD: 15-Jul-2016 10:17 Printed: 15-Jul-2016 14:49 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 19:27 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS5_160714_DF_PB | **UTP: 15-Jul-2016 14:40:57 LKB** | **Checkcode: 617-885-RCZ**

Sample ID: SIL 15-103-4 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P19**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.46	1.57E+08	0.78	Y	1.04	1.10	6%
12378-PeCDD	32.18	6.81E+08	1.55	Y	0.93	0.99	6%
123478-HxCDD	36.17	5.98E+08	1.24	Y	0.97	1.03	5%
123678-HxCDD	36.28	5.91E+08	1.24	Y	1.00	1.02	2%
123789-HxCDD	36.57	6.18E+08	1.24	Y	0.92	0.95	3%
1234678-HpCDD	39.65	5.32E+08	1.04	Y	0.96	1.00	4%
OCDD	42.07	9.12E+08	0.89	Y	1.03	1.08	5%
2378-TCDF	25.49	1.99E+08	0.77	Y	0.99	1.02	3%
12378-PeCDF	30.65	9.21E+08	1.55	Y	0.94	1.01	7%
23478-PeCDF	31.81	9.37E+08	1.53	Y	0.93	0.98	5%
123478-HxCDF	35.18	8.23E+08	1.23	Y	1.19	1.25	5%
123678-HxCDF	35.33	8.95E+08	1.22	Y	1.10	1.16	5%
234678-HxCDF	35.99	8.03E+08	1.23	Y	1.11	1.15	4%
123789-HxCDF	36.93	7.35E+08	1.24	Y	1.08	1.15	6%
1234678-HpCDF	38.61	7.09E+08	1.02	Y	1.28	1.32	3%
1234789-HpCDF	40.08	6.34E+08	1.02	Y	1.22	1.28	5%
OCDF	42.23	1.13E+09	0.90	Y	1.01	1.04	3%
ES 2378-TCDD	26.43	7.13E+07	0.79	Y	1.04	1.05	2%
ES 12378-PeCDD	32.16	6.90E+07	1.58	Y	1.00	1.02	2%
ES 123478-HxCDD	36.16	5.83E+07	1.23	Y	1.08	1.06	-1%
ES 123678-HxCDD	36.27	5.79E+07	1.25	Y	1.03	1.05	2%
ES 123789-HxCDD	36.56	6.51E+07	1.27	Y	1.18	1.18	0%
ES 1234678-HpCDD	39.63	5.35E+07	1.04	Y	0.97	0.97	0%
ES OCDD	42.06	8.45E+07	0.91	Y	0.76	0.77	1%
ES 2378-TCDF	25.46	9.72E+07	0.73	Y	1.06	1.07	1%
ES 12378-PeCDF	30.63	9.14E+07	1.51	Y	0.99	1.01	2%
ES 23478-PeCDF	31.8	9.54E+07	1.53	Y	1.02	1.05	3%
ES 123478-HxCDF	35.17	6.56E+07	0.53	Y	1.20	1.19	-1%
ES 123678-HxCDF	35.31	7.72E+07	0.53	Y	1.40	1.40	0%
ES 234678-HxCDF	35.97	6.98E+07	0.52	Y	1.27	1.27	0%
ES 123789-HxCDF	36.92	6.42E+07	0.52	Y	1.16	1.17	1%
ES 1234678-HpCDF	38.6	5.38E+07	0.44	Y	0.98	0.98	0%
ES 1234789-HpCDF	40.07	4.94E+07	0.45	Y	0.90	0.90	0%
ES OCDF	42.22	1.09E+08	0.90	Y	0.96	0.99	3%

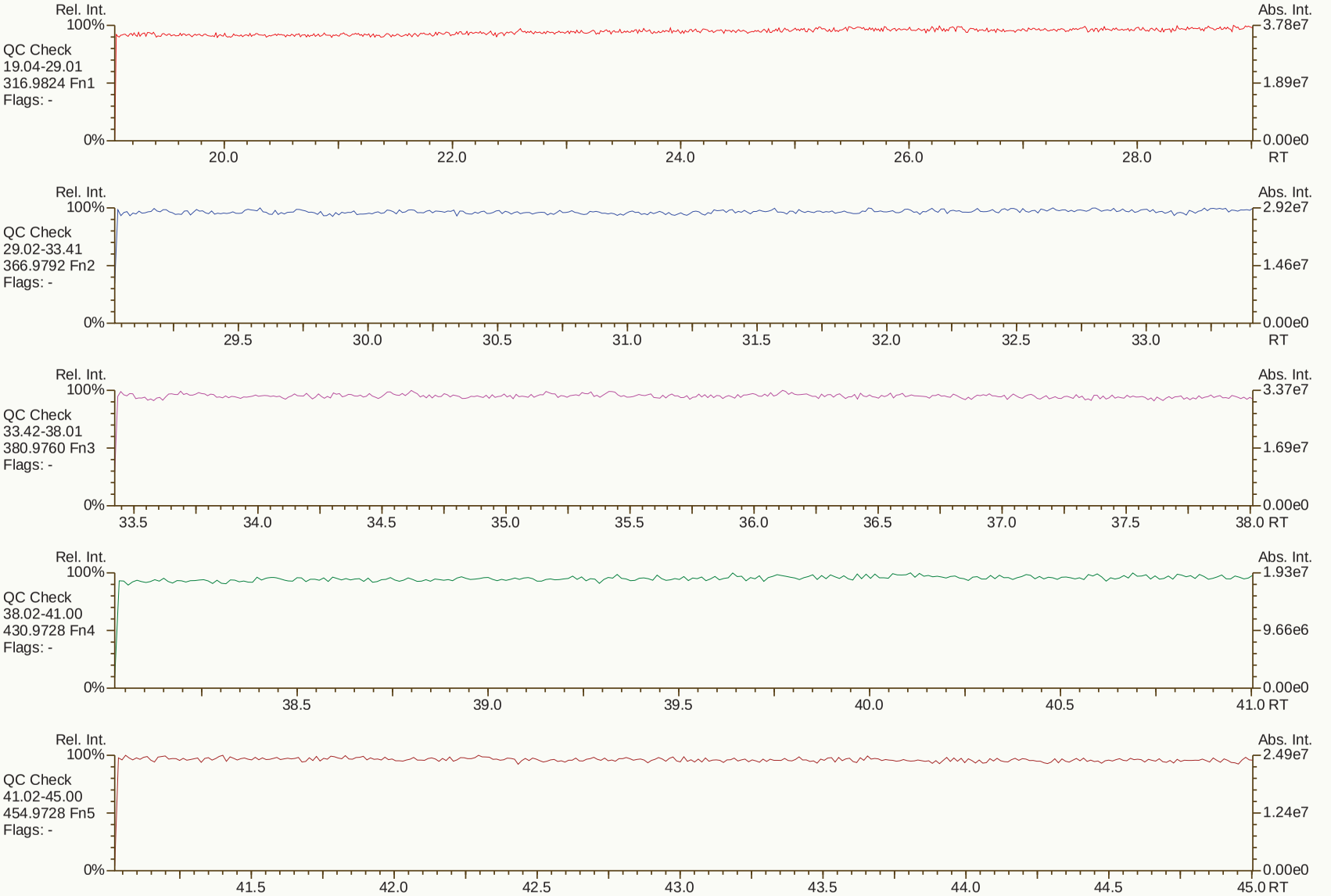
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 19:27 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS5_160714_DF_PB | **UTP: 15-Jul-2016 14:40:57 LKB** | **Checkcode: 617-885-RCZ**

Sample ID: SIL 15-103-4 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P19**

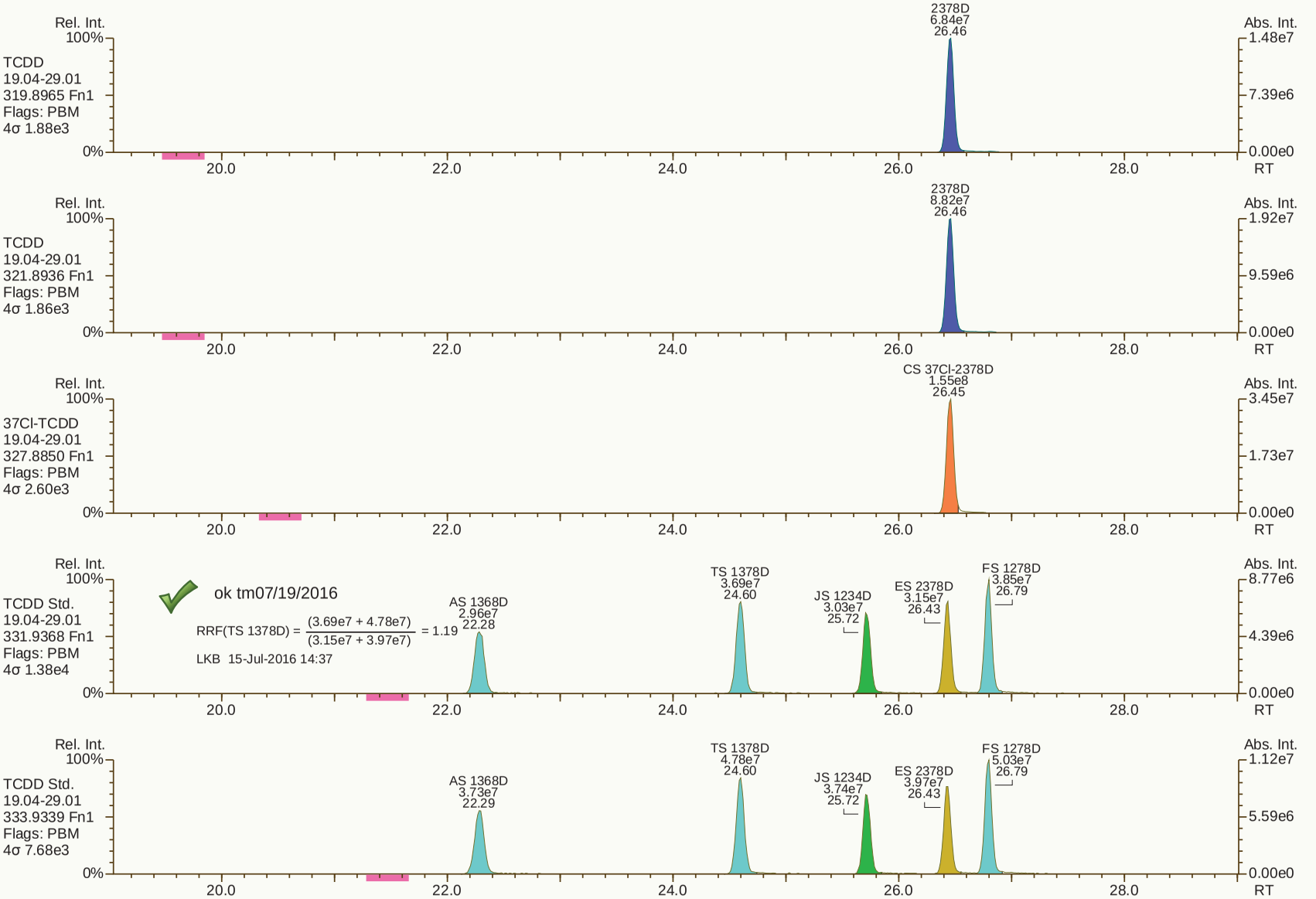
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	6.77E+07	0.81	Y	-	-	-
JS 1234-TCDF	23.94	9.09E+07	0.73	Y	-	-	-
JS 123467-HxCDD	36.46	2.75E+07	1.25	Y	-	-	-
CS 37Cl-2378-TCDD	26.45	1.55E+08	n/a	-	1.05	1.14	8%
CS 12347-PeCDD	31.64	6.23E+07	1.60	Y	0.91	0.92	1%
CS 12346-PeCDF	30.08	8.95E+07	1.50	Y	0.98	0.99	1%
CS 123469-HxCDF	35.62	6.75E+07	0.52	Y	1.25	1.23	-2%
CS 1234689-HpCDF	39.06	4.54E+07	0.45	Y	0.85	0.82	-3%
SS 37Cl-2378-TCDD	26.45	1.55E+08	n/a	-	1.03	1.09	6%
SS 12347-PeCDD	31.64	6.23E+07	1.60	Y	0.92	0.90	-2%
SS 12346-PeCDF	30.08	8.95E+07	1.50	Y	0.99	0.98	-1%
SS 123469-HxCDF	35.62	6.75E+07	0.52	Y	0.89	0.87	-2%
SS 1234689-HpCDF	39.06	4.54E+07	0.45	Y	0.87	0.84	-3%
AS 1368-TCDD	22.28	6.69E+07	0.79	Y	1.02	0.99	-3%
AS 1368-TCDF	20.15	1.25E+08	0.71	Y	1.41	1.37	-3%
FS 1278-TCDD	26.79	8.89E+07	0.77	Y	1.31	1.25	-5%
FS 12478-PeCDD	30.88	7.39E+07	1.59	Y	1.15	1.07	-7%
FS 123468-HxCDD	35.10	7.30E+07	1.24	Y	1.31	1.25	-5%
FS 1234679-HpCDD	38.90	6.15E+07	1.07	Y	1.24	1.15	-8%
TS 1378-TCDD	24.60	8.47E+07	0.77	Y	1.23	1.19	-4%
OCDD-a	42.07	5.64E+07	2.49	Y	0.06	0.07	12%
OCDF-a	42.22	6.87E+07	2.56	Y	0.06	0.06	6%

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 617-885 | *PKD: n/a Printed: 15-Jul-2016 14:49 Page 1 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



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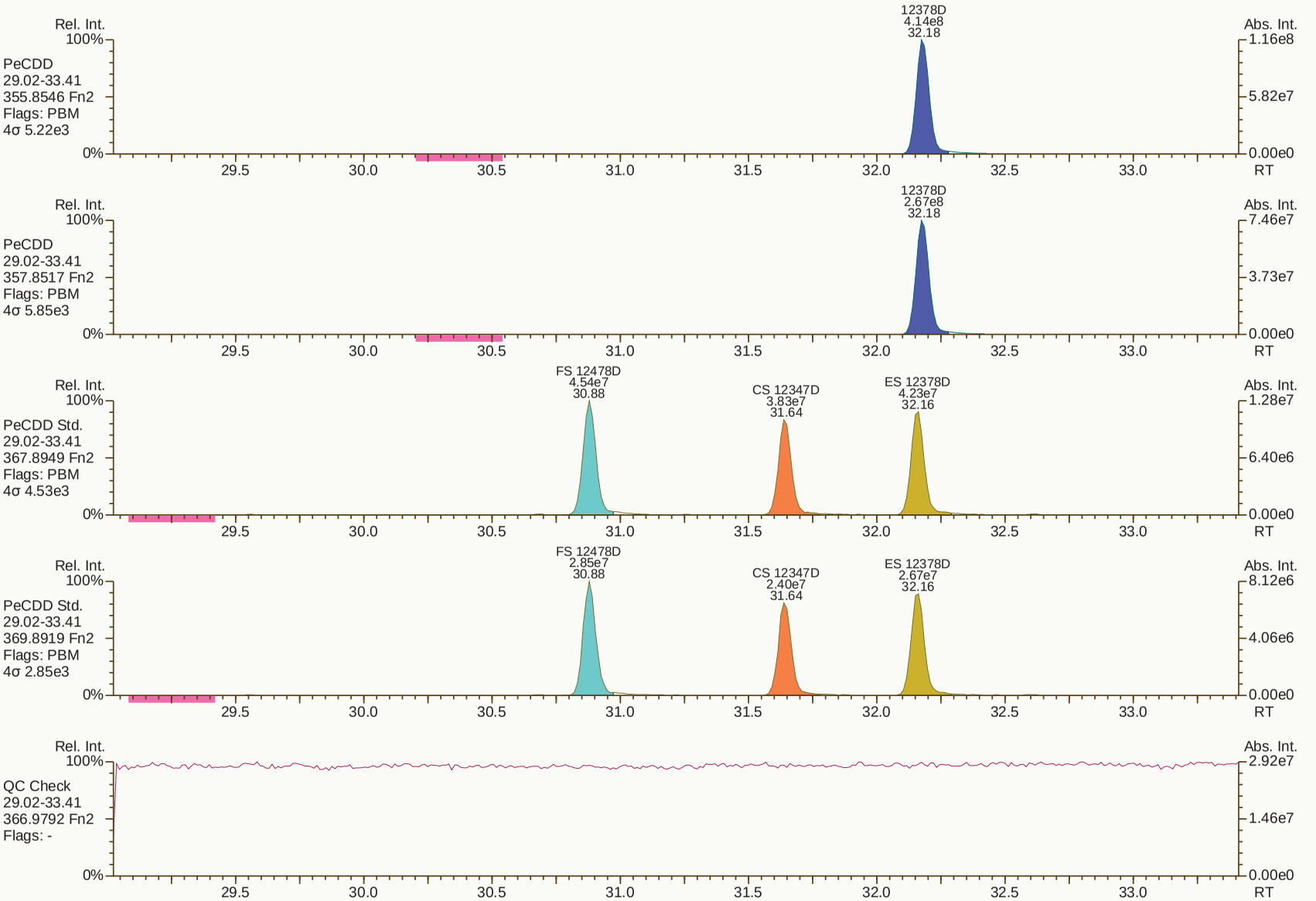
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0495, 4103, 6679 scc: 617-885 *Revised: 15-Jul-2016 10:21 (LKB) Printed: 15-Jul-2016 14:49 Page 2 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



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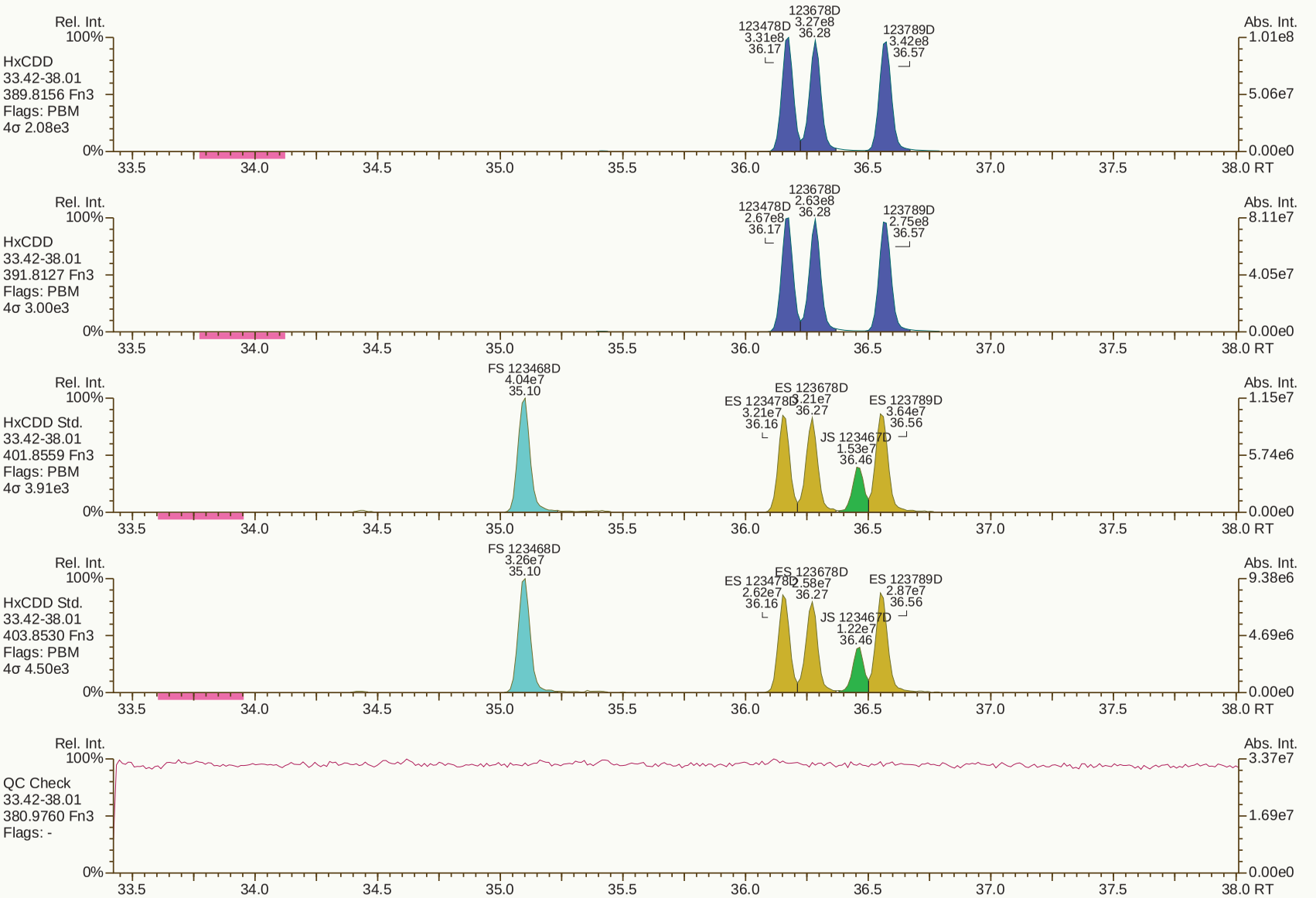
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0016, 3046 scc: 617-885 *Revised: 15-Jul-2016 10:21 (LKB) Printed: 15-Jul-2016 14:49 Page 3 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**

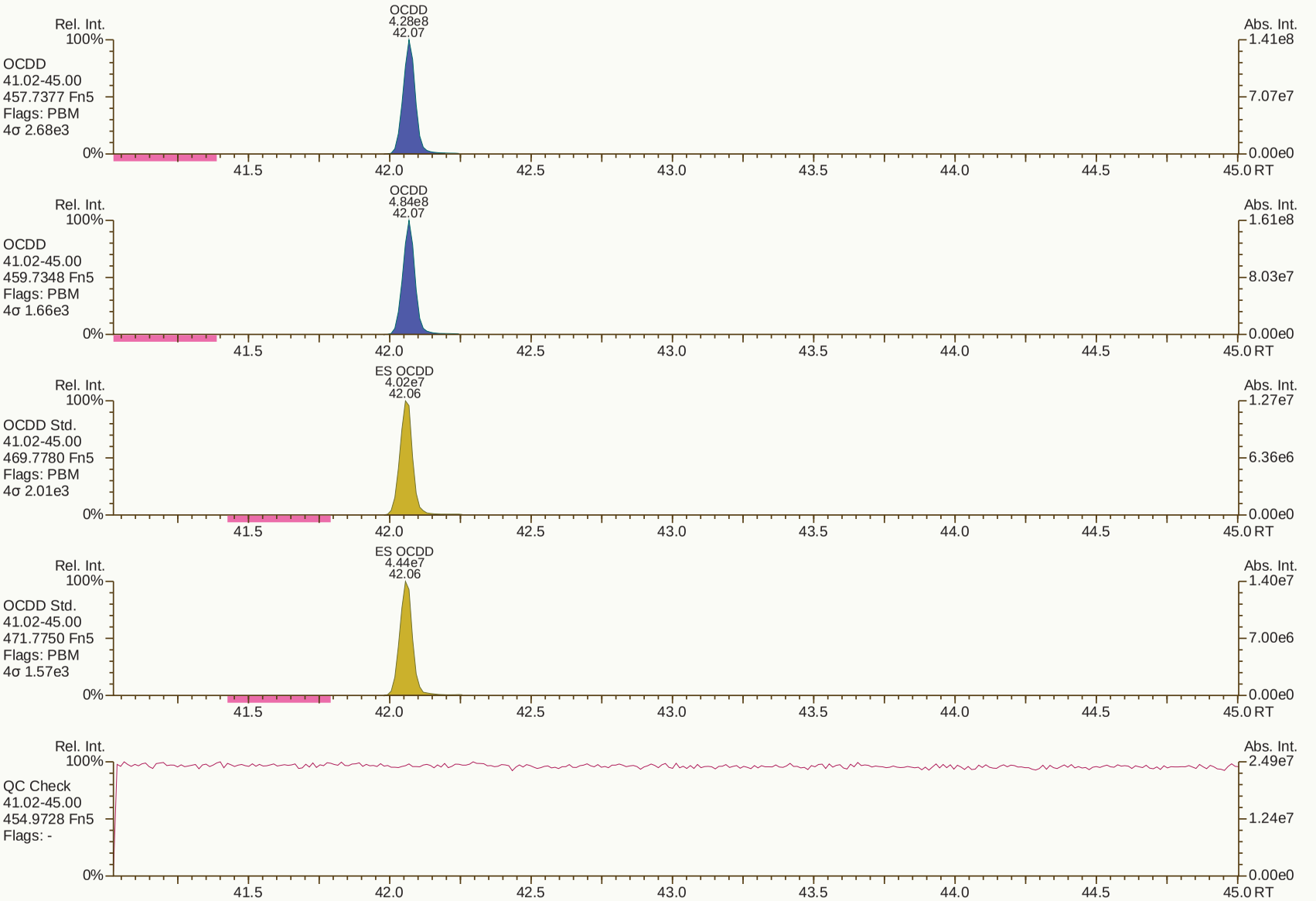


Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5228, 4947 scc: 617-885 *Revised: 15-Jul-2016 10:21 (LKB) Printed: 15-Jul-2016 14:49 Page 4 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3937, 9551 scc: 617-885 *PKD: 15-Jul-2016 10:21 Printed: 15-Jul-2016 14:49 Page 5 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0413, 7162 scc: 617-885 *PKD: 15-Jul-2016 10:20 Printed: 15-Jul-2016 14:49 Page 6 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3960, 1920, 4165 scc: 617-885 *PKD: 15-Jul-2016 10:20 Printed: 15-Jul-2016 14:49 Page 7 of 12*

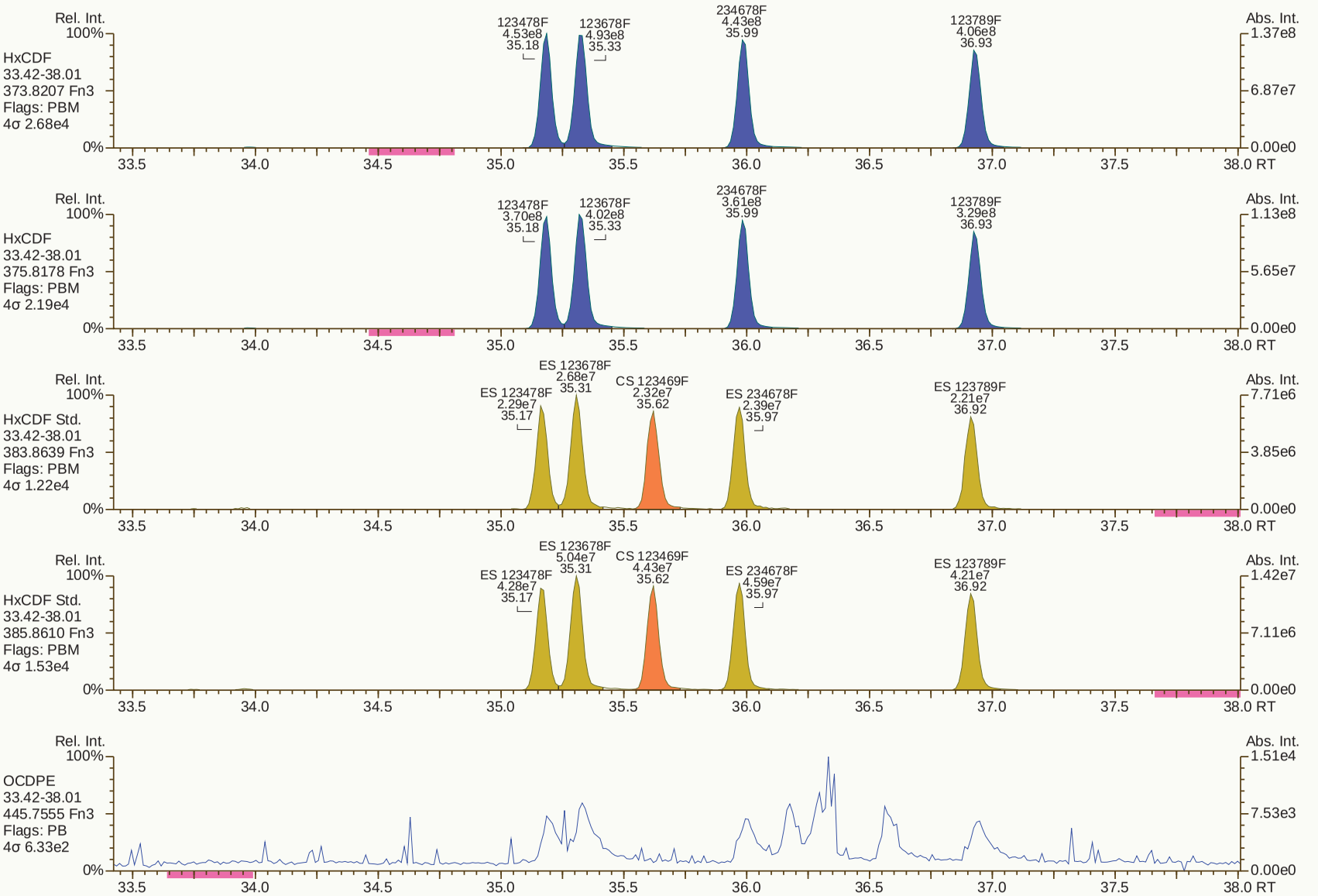
SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6380 scc: 617-885 *Revised: 15-Jul-2016 10:19 (LKB) Printed: 15-Jul-2016 14:49 Page 8 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9373, 6975, 3504 scc: 617-885 *Revised: 15-Jul-2016 10:22 (LKB) Printed: 15-Jul-2016 14:49 Page 9 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**



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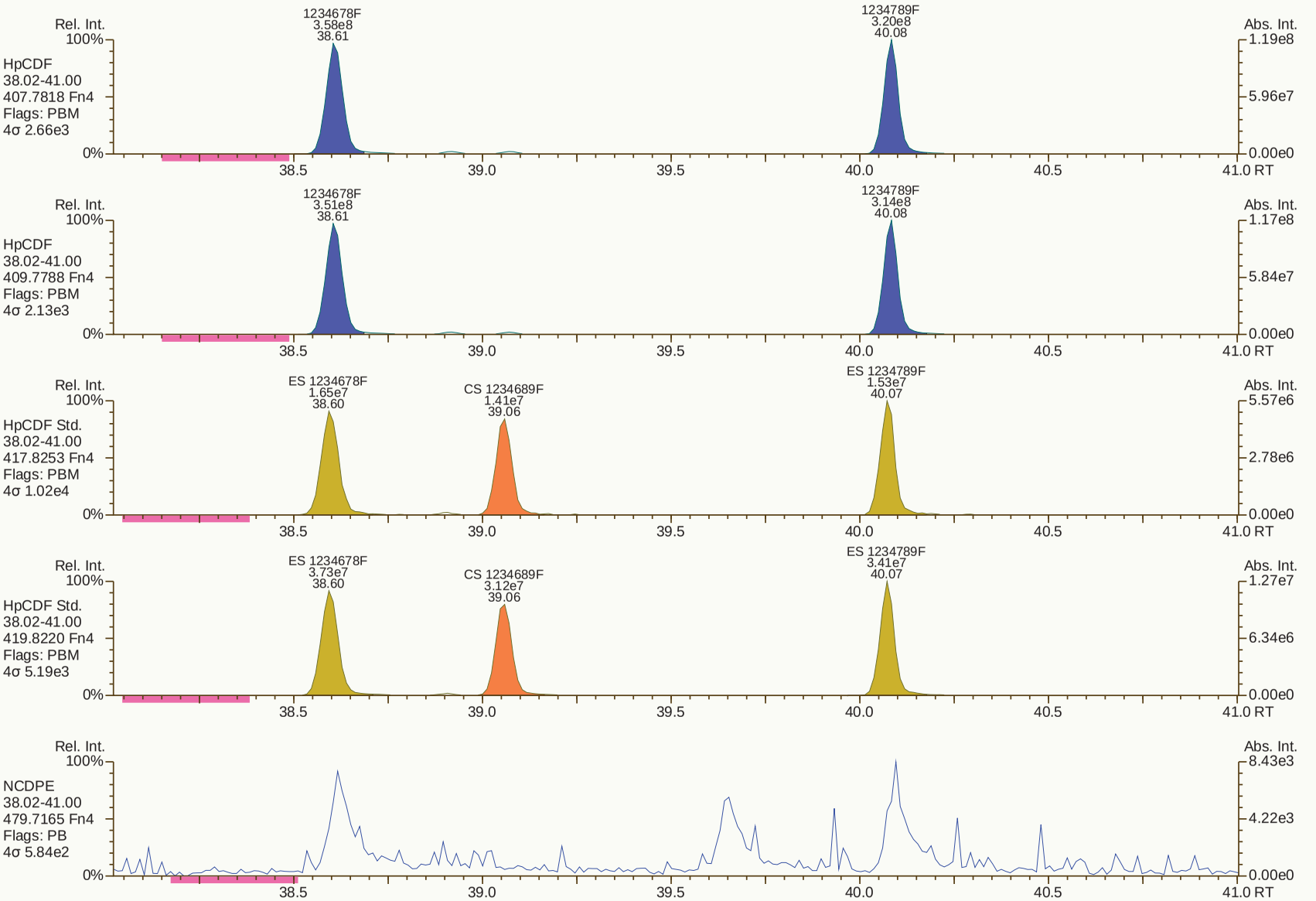
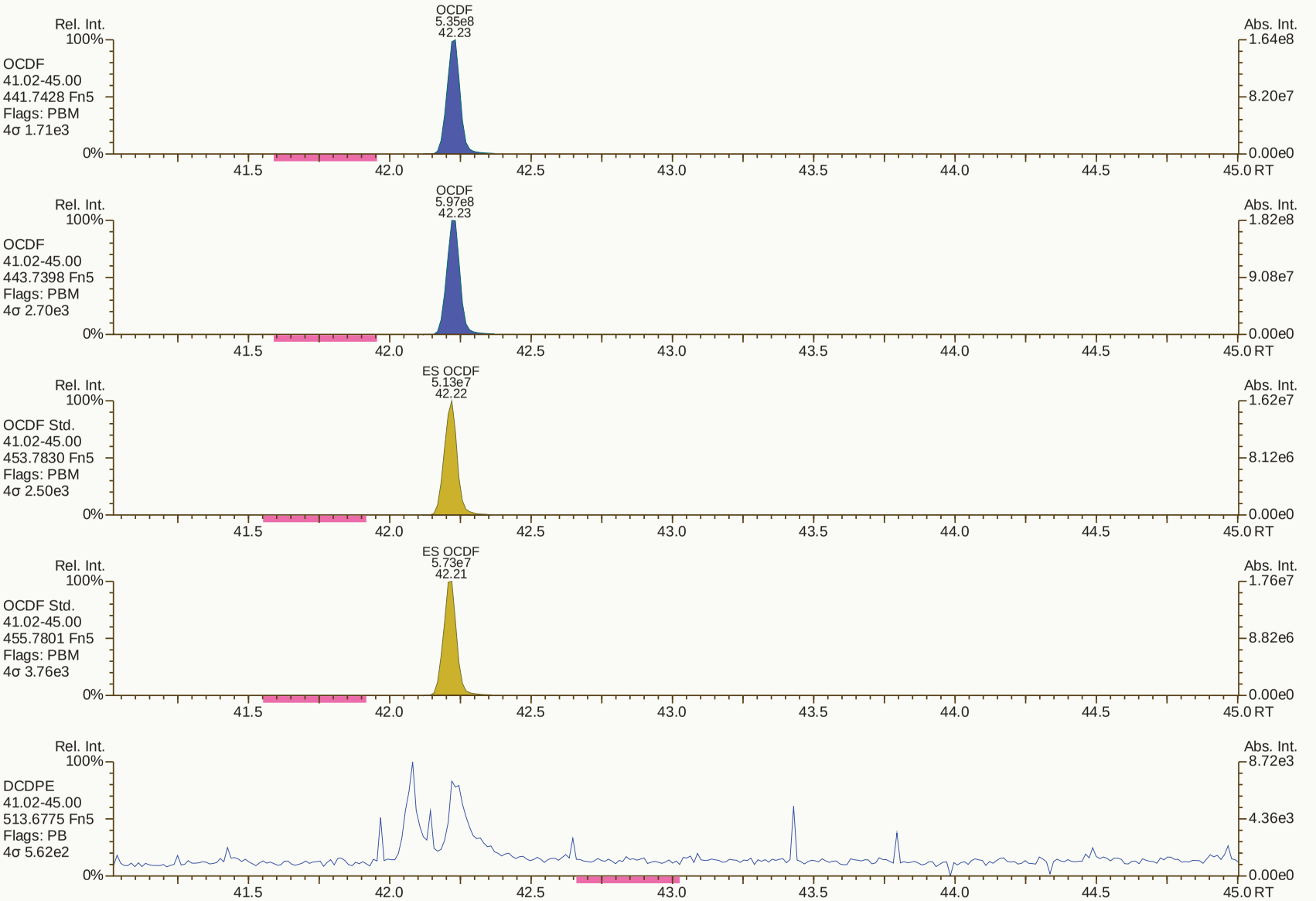
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3475, 8078, 5392 scc: 617-885 *Revised: 15-Jul-2016 10:22 (LKB) Printed: 15-Jul-2016 14:49 Page 10 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4019, 7480, 2920 scc: 617-885 *PKD: 15-Jul-2016 10:22 Printed: 15-Jul-2016 14:49 Page 11 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1117, 4064, 7522 scc: 617-885 *PKD: 15-Jul-2016 10:20 Printed: 15-Jul-2016 14:49 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 21:06 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS6_160714_DF_PB	UTP: 15-Jul-2016 14:40:57 LKB	Checkcode: 450-982-VJS
Sample ID: SIL 15-103-3	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P21

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.45	4.01E+08	0.78	Y	1.04	1.11	7%
12378-PeCDD	32.17	1.84E+09	1.55	Y	0.93	0.99	7%
123478-HxCDD	36.17	1.65E+09	1.25	Y	0.97	1.01	3%
123678-HxCDD	36.28	1.61E+09	1.24	Y	1.00	1.04	4%
123789-HxCDD	36.57	1.71E+09	1.24	Y	0.92	0.98	6%
1234678-HpCDD	39.64	1.47E+09	1.04	Y	0.96	1.01	6%
OCDD	42.07	2.57E+09	0.89	Y	1.03	1.08	5%
2378-TCDF	25.48	5.12E+08	0.77	Y	0.99	1.01	3%
12378-PeCDF	30.64	2.49E+09	1.53	Y	0.94	0.98	4%
23478-PeCDF	31.81	2.55E+09	1.54	Y	0.93	0.97	4%
123478-HxCDF	35.18	2.26E+09	1.23	Y	1.19	1.24	4%
123678-HxCDF	35.32	2.42E+09	1.23	Y	1.10	1.14	3%
234678-HxCDF	35.98	2.20E+09	1.23	Y	1.11	1.15	4%
123789-HxCDF	36.93	2.04E+09	1.24	Y	1.08	1.14	6%
1234678-HpCDF	38.60	2.00E+09	1.02	Y	1.28	1.33	4%
1234789-HpCDF	40.08	1.80E+09	1.02	Y	1.22	1.28	5%
OCDF	42.22	3.25E+09	0.90	Y	1.01	1.05	4%
ES 2378-TCDD	26.42	7.19E+07	0.79	Y	1.04	1.10	7%
ES 12378-PeCDD	32.16	7.40E+07	1.60	Y	1.00	1.14	14%
ES 123478-HxCDD	36.15	6.56E+07	1.29	Y	1.08	1.18	10%
ES 123678-HxCDD	36.27	6.19E+07	1.27	Y	1.03	1.11	8%
ES 123789-HxCDD	36.55	7.00E+07	1.24	Y	1.18	1.26	6%
ES 1234678-HpCDD	39.63	5.83E+07	1.06	Y	0.97	1.05	8%
ES OCDD	42.06	9.55E+07	0.91	Y	0.76	0.86	13%
ES 2378-TCDF	25.45	1.01E+08	0.74	Y	1.06	1.14	8%
ES 12378-PeCDF	30.62	1.01E+08	1.52	Y	0.99	1.15	16%
ES 23478-PeCDF	31.79	1.05E+08	1.48	Y	1.02	1.18	16%
ES 123478-HxCDF	35.16	7.28E+07	0.52	Y	1.20	1.31	9%
ES 123678-HxCDF	35.31	8.53E+07	0.53	Y	1.40	1.53	9%
ES 234678-HxCDF	35.97	7.67E+07	0.52	Y	1.27	1.38	8%
ES 123789-HxCDF	36.91	7.17E+07	0.53	Y	1.16	1.29	11%
ES 1234678-HpCDF	38.59	6.01E+07	0.46	Y	0.98	1.08	10%
ES 1234789-HpCDF	40.07	5.60E+07	0.46	Y	0.90	1.01	12%
ES OCDF	42.21	1.24E+08	0.92	Y	0.96	1.11	17%

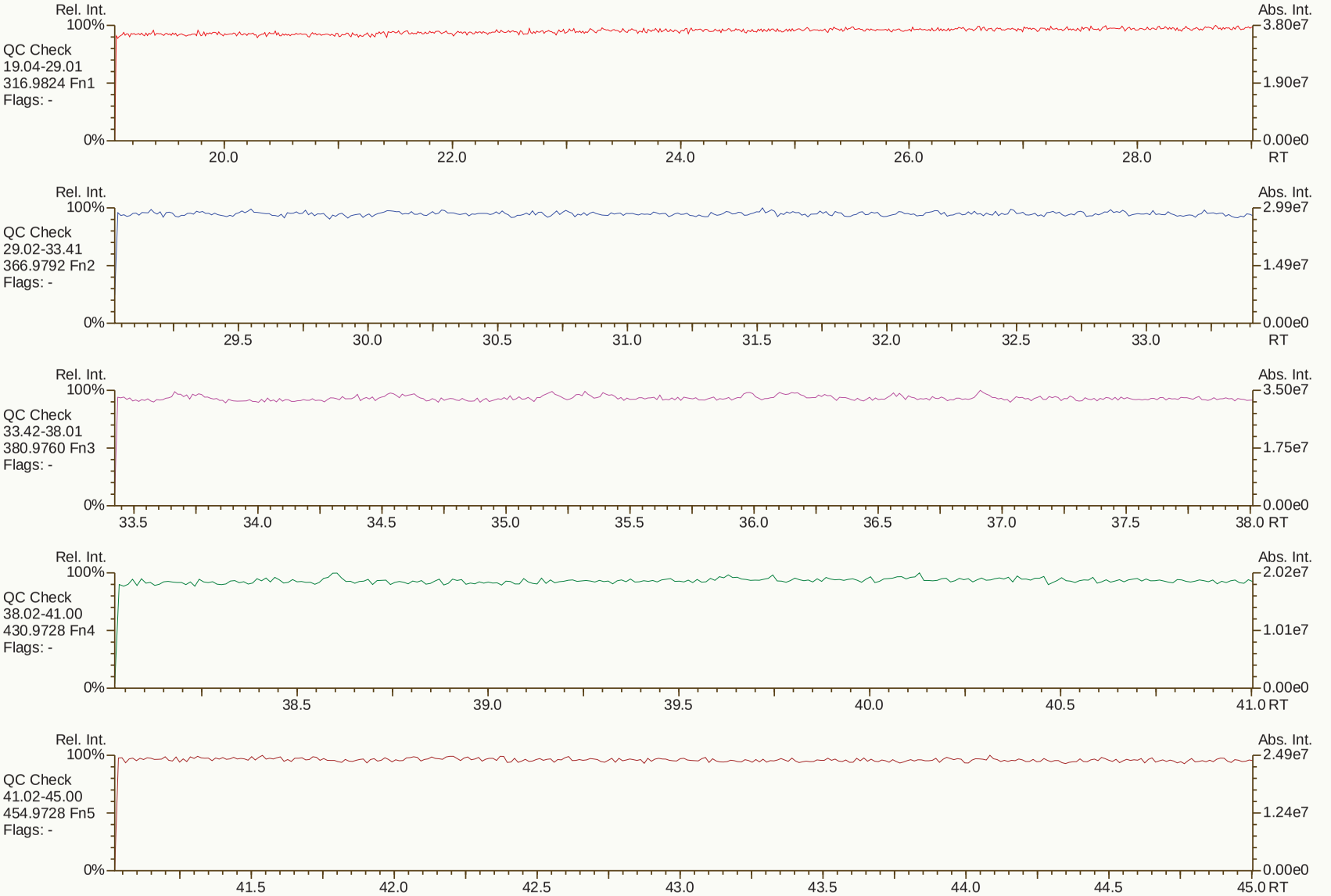
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 21:06 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS6_160714_DF_PB | **UTP: 15-Jul-2016 14:40:57 LKB** | **Checkcode: 450-982-VJS**

Sample ID: SIL 15-103-3 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P21**

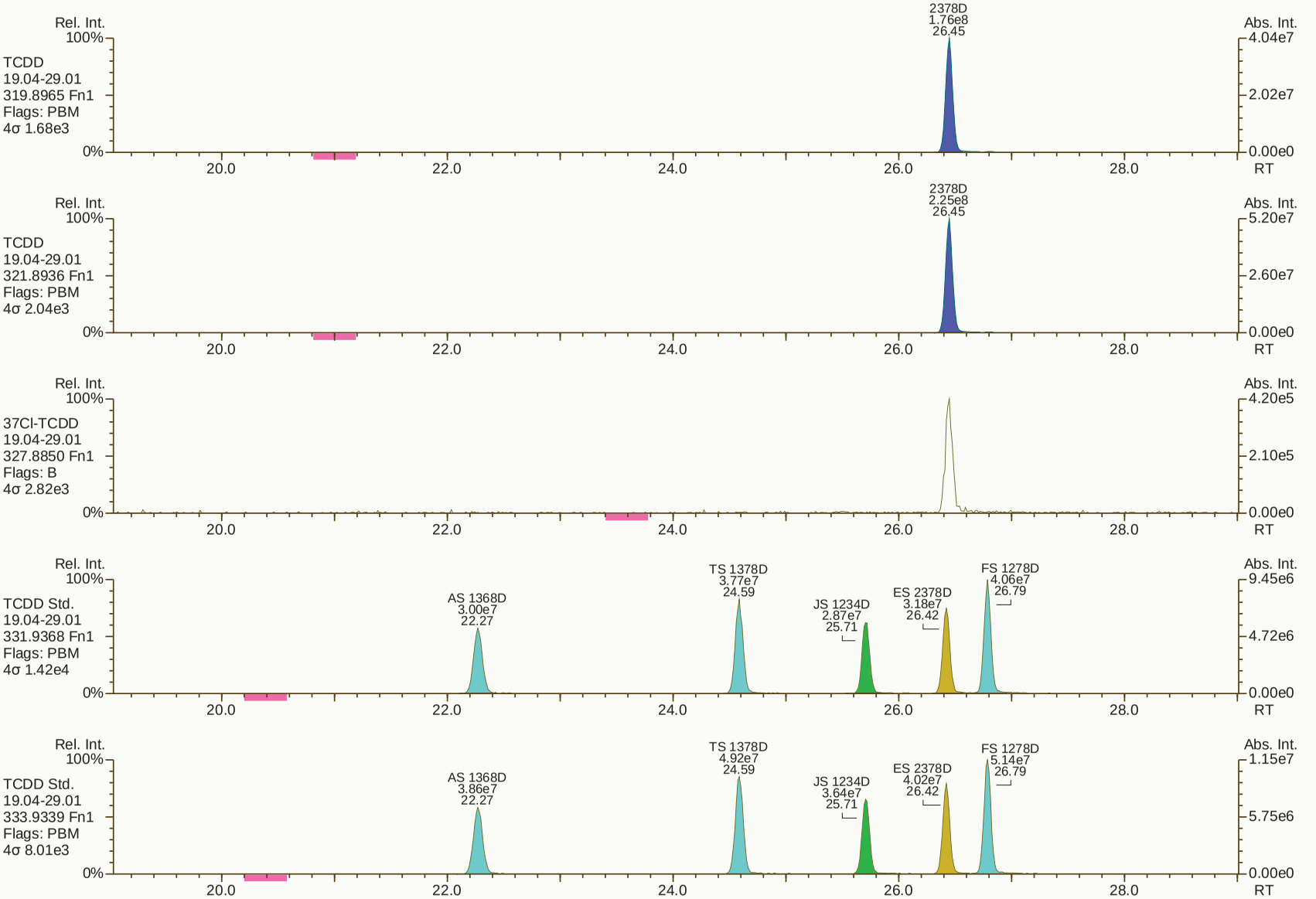
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.71	6.52E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.93	8.83E+07	0.71	Y	-	-	-
JS 123467-HxCDD	36.45	2.78E+07	1.27	Y	-	-	-
CS 37Cl-2378-TCDD	NotFnd		n/a	-	1.05		
CS 12347-PeCDD	31.64	6.39E+07	1.65	Y	0.91	0.98	7%
CS 12346-PeCDF	30.07	9.14E+07	1.51	Y	0.98	1.03	6%
CS 123469-HxCDF	35.61	6.86E+07	0.54	Y	1.25	1.23	-1%
CS 1234689-HpCDF	39.05	4.64E+07	0.45	Y	0.85	0.83	-2%
SS 37Cl-2378-TCDD	NotFnd		n/a	-	1.03		
SS 12347-PeCDD	31.64	6.39E+07	1.65	Y	0.92	0.86	-6%
SS 12346-PeCDF	30.07	9.14E+07	1.51	Y	0.99	0.90	-9%
SS 123469-HxCDF	35.61	6.86E+07	0.54	Y	0.89	0.80	-10%
SS 1234689-HpCDF	39.05	4.64E+07	0.45	Y	0.87	0.77	-11%
AS 1368-TCDD	22.27	6.86E+07	0.78	Y	1.02	1.05	3%
AS 1368-TCDF	20.13	1.30E+08	0.72	Y	1.41	1.47	4%
FS 1278-TCDD	26.79	9.20E+07	0.79	Y	1.31	1.28	-2%
FS 12478-PeCDD	30.87	7.97E+07	1.59	Y	1.15	1.08	-6%
FS 123468-HxCDD	35.09	7.63E+07	1.23	Y	1.31	1.16	-11%
FS 1234679-HpCDD	38.89	6.50E+07	1.04	Y	1.24	1.11	-10%
TS 1378-TCDD	24.59	8.68E+07	0.77	Y	1.23	1.21	-2%
OCDD-a	42.06	1.59E+08	2.48	Y	0.06	0.07	12%
OCDF-a	42.22	1.98E+08	2.53	Y	0.06	0.06	6%

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 450-982 | *PKD: n/a Printed: 15-Jul-2016 14:50 Page 1 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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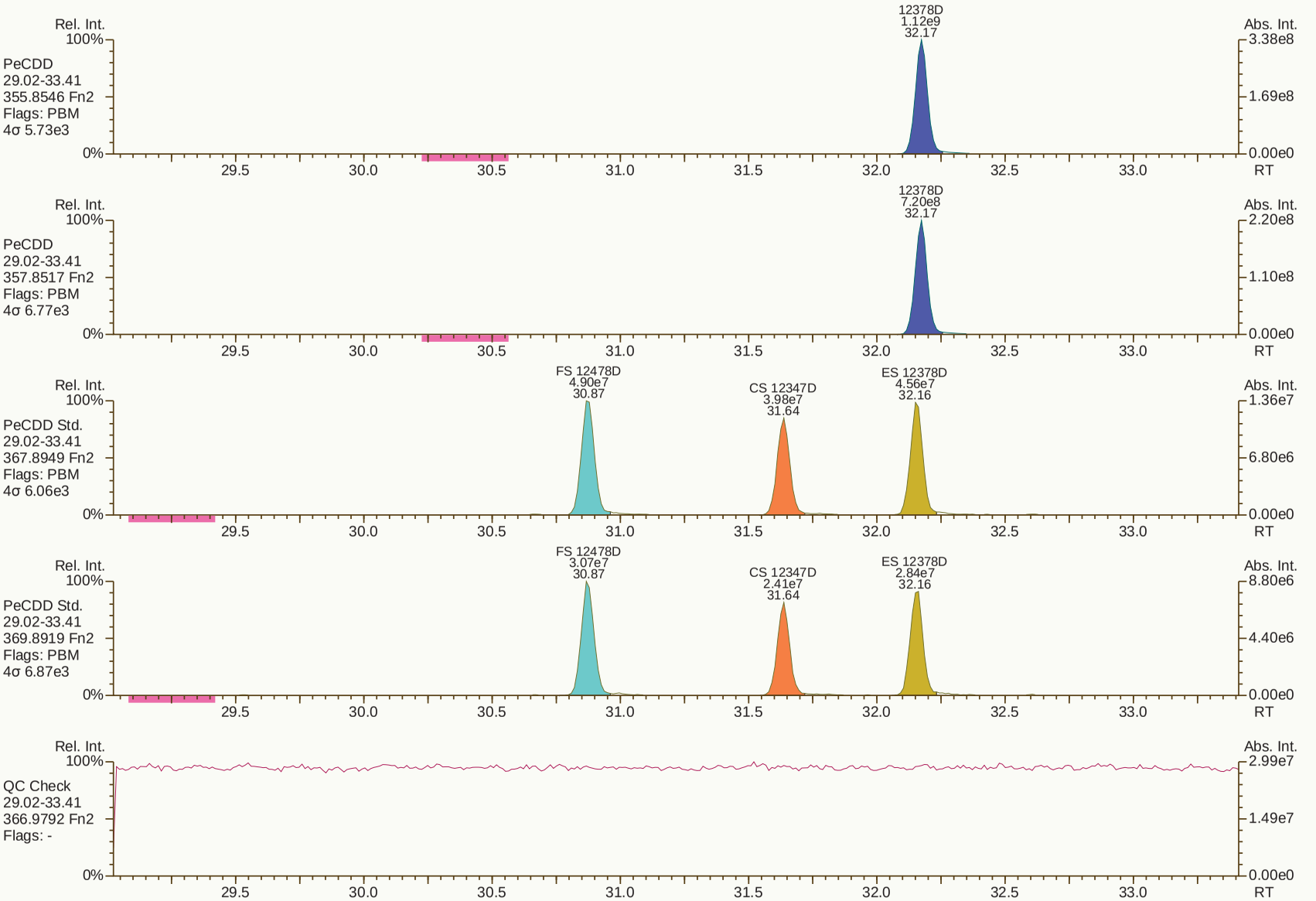
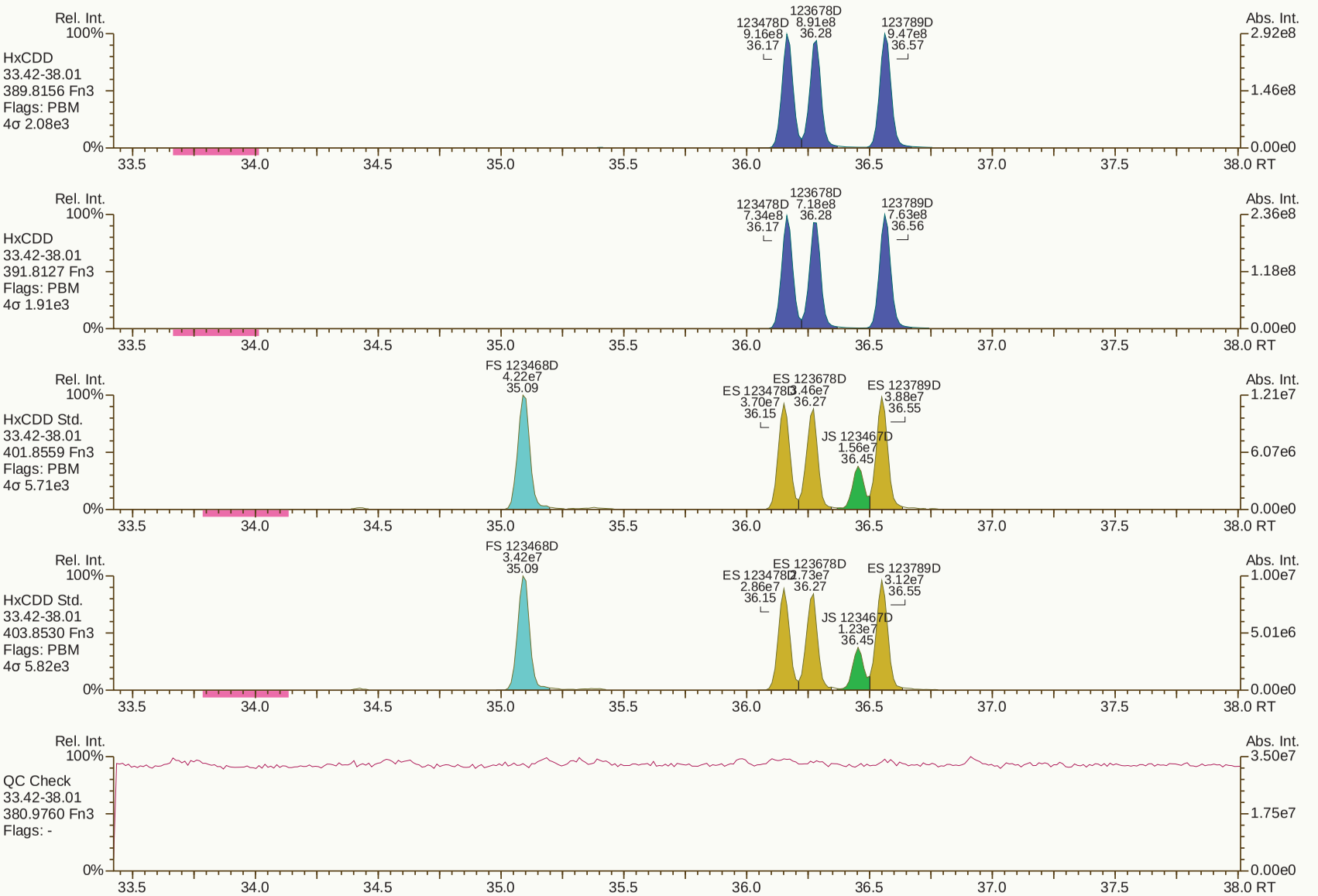
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3747, 1171, 0429 scc: 450-982 *Revised: 15-Jul-2016 10:29 (LKB) Printed: 15-Jul-2016 14:50 Page 2 of 12*

SGS ID: CS6_160714_DF_PB **Sample ID: SIL 15-103-3** **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** **User: LKB Datafile: 160714P21**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8149, 2071 scc: 450-982 *PKD: 15-Jul-2016 13:55 Printed: 15-Jul-2016 14:50 Page 3 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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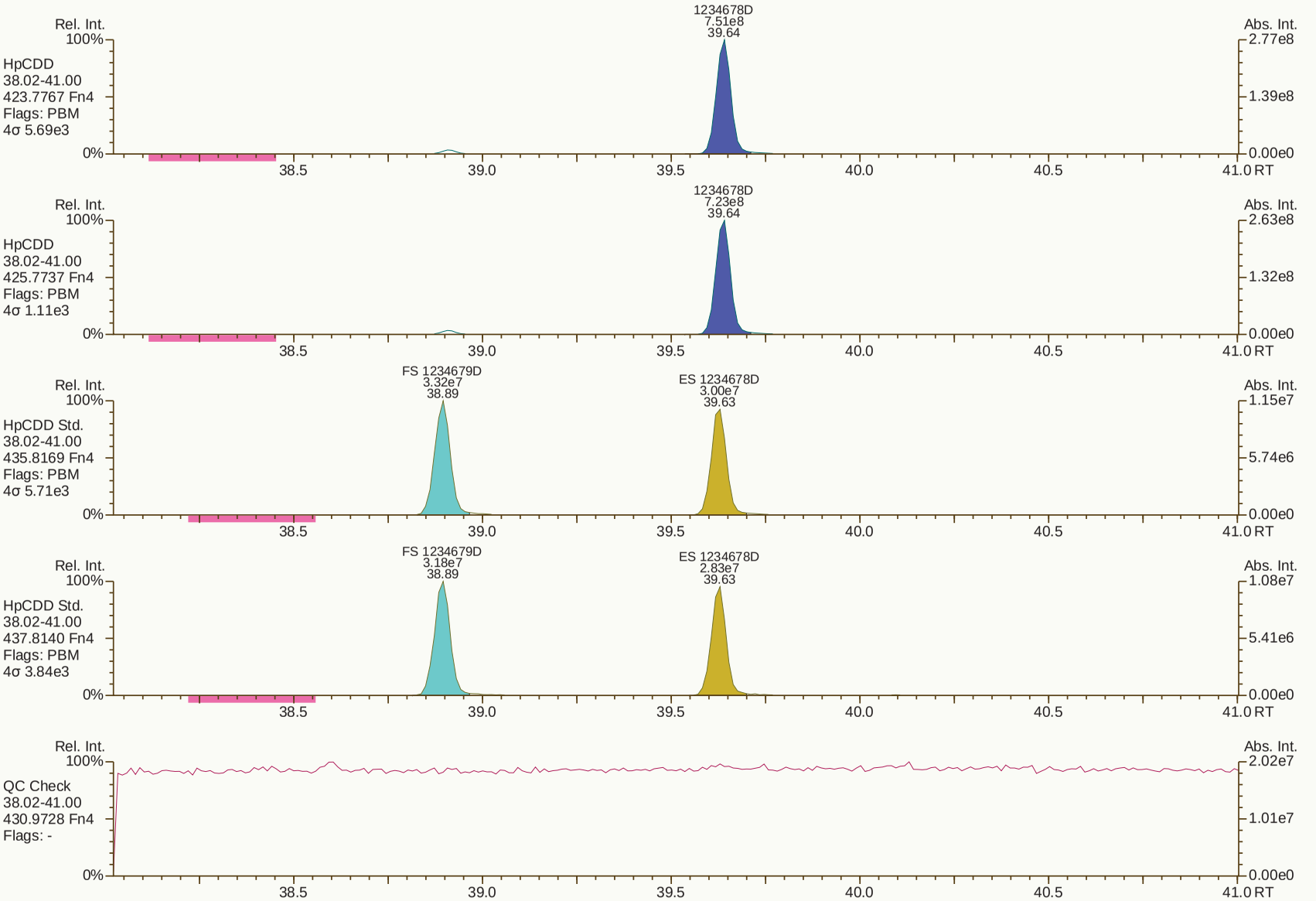
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1350, 7923 scc: 450-982 *Revised: 15-Jul-2016 13:58 (LKB) Printed: 15-Jul-2016 14:50 Page 4 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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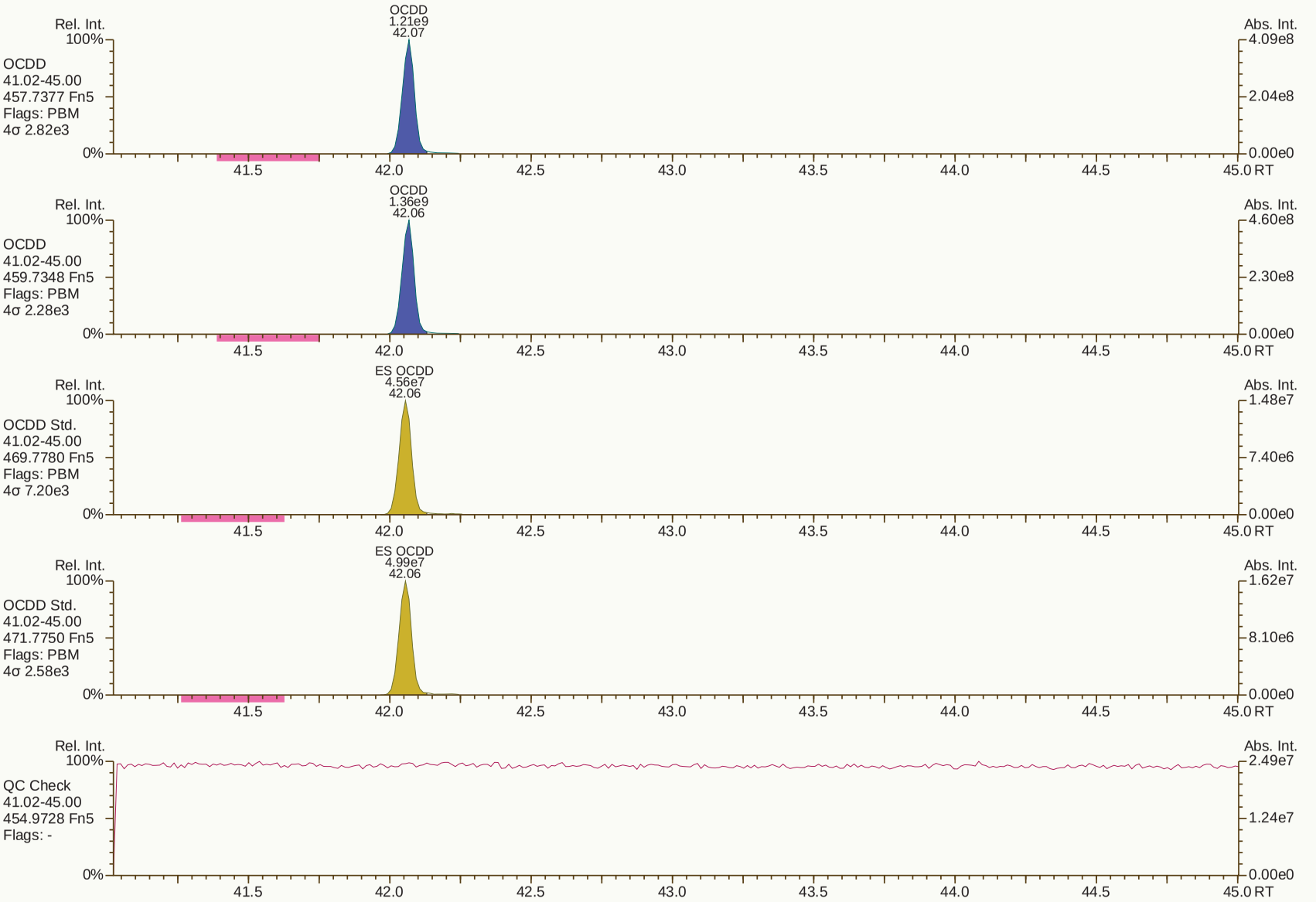
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0779, 5969 scc: 450-982 *PKD: 15-Jul-2016 13:56 Printed: 15-Jul-2016 14:50 Page 5 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8741, 2112 scc: 450-982 *PKD: 15-Jul-2016 13:47 Printed: 15-Jul-2016 14:50 Page 6 of 12*

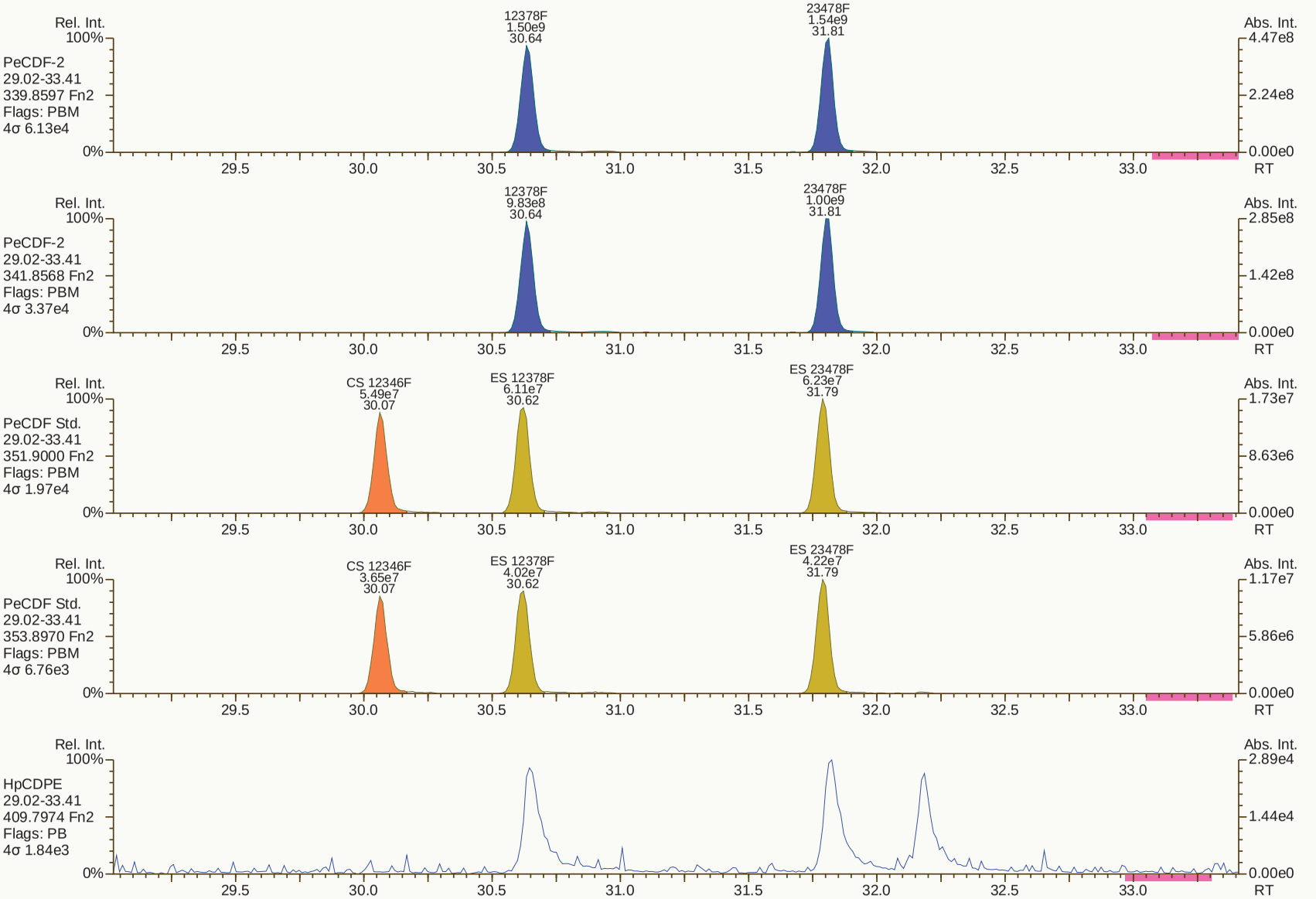
SGS ID: CS6_160714_DF_PB **Sample ID: SIL 15-103-3** **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** **User: LKB Datafile: 160714P21**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7929, 0093, 4633 scc: 450-982 *PKD: 15-Jul-2016 13:56 Printed: 15-Jul-2016 14:50 Page 7 of 12*

SGS ID: CS6_160714_DF_PB **Sample ID: SIL 15-103-3** **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** **User: LKB Datafile: 160714P21**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8075 scc: 450-982 *PKD: 15-Jul-2016 10:26 Printed: 15-Jul-2016 14:50 Page 8 of 12*

SGS ID: CS6_160714_DF_PB **Sample ID: SIL 15-103-3** **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** **User: LKB Datafile: 160714P21**



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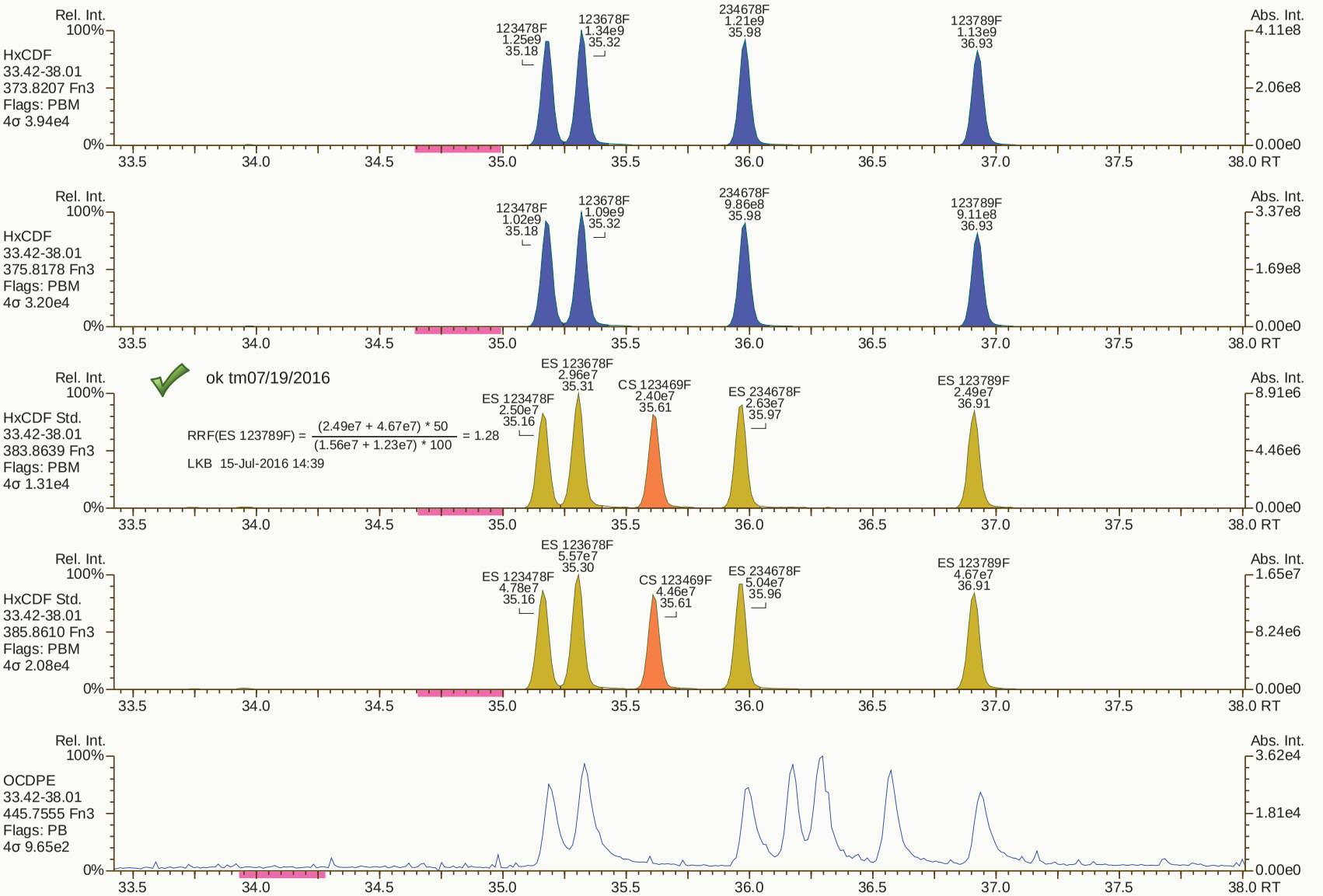
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2171, 4639, 5649 scc: 450-982 *PKD: 15-Jul-2016 13:56 Printed: 15-Jul-2016 14:50 Page 9 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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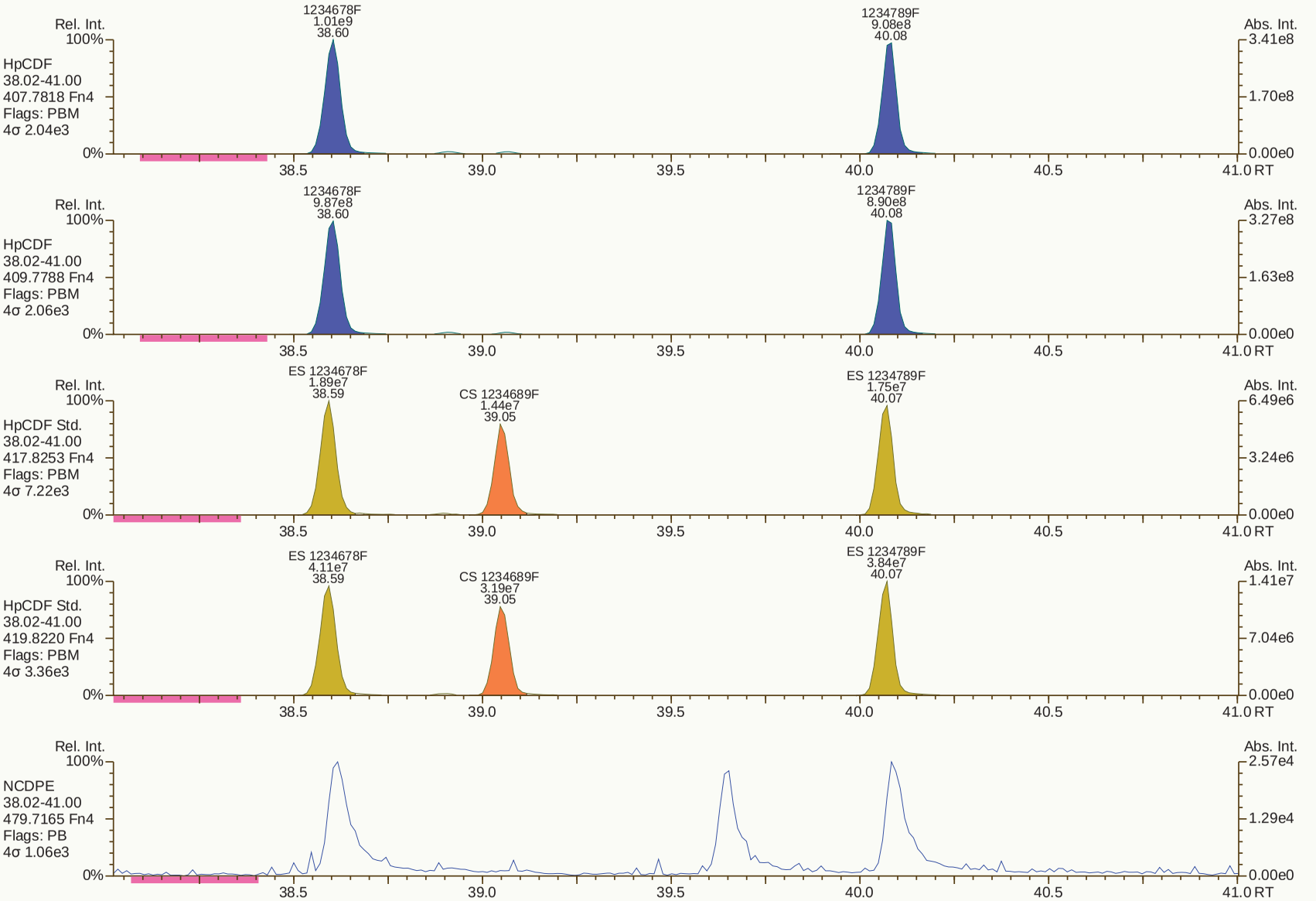
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8798, 4510, 4660 scc: 450-982 *PKD: 15-Jul-2016 13:57 Printed: 15-Jul-2016 14:50 Page 10 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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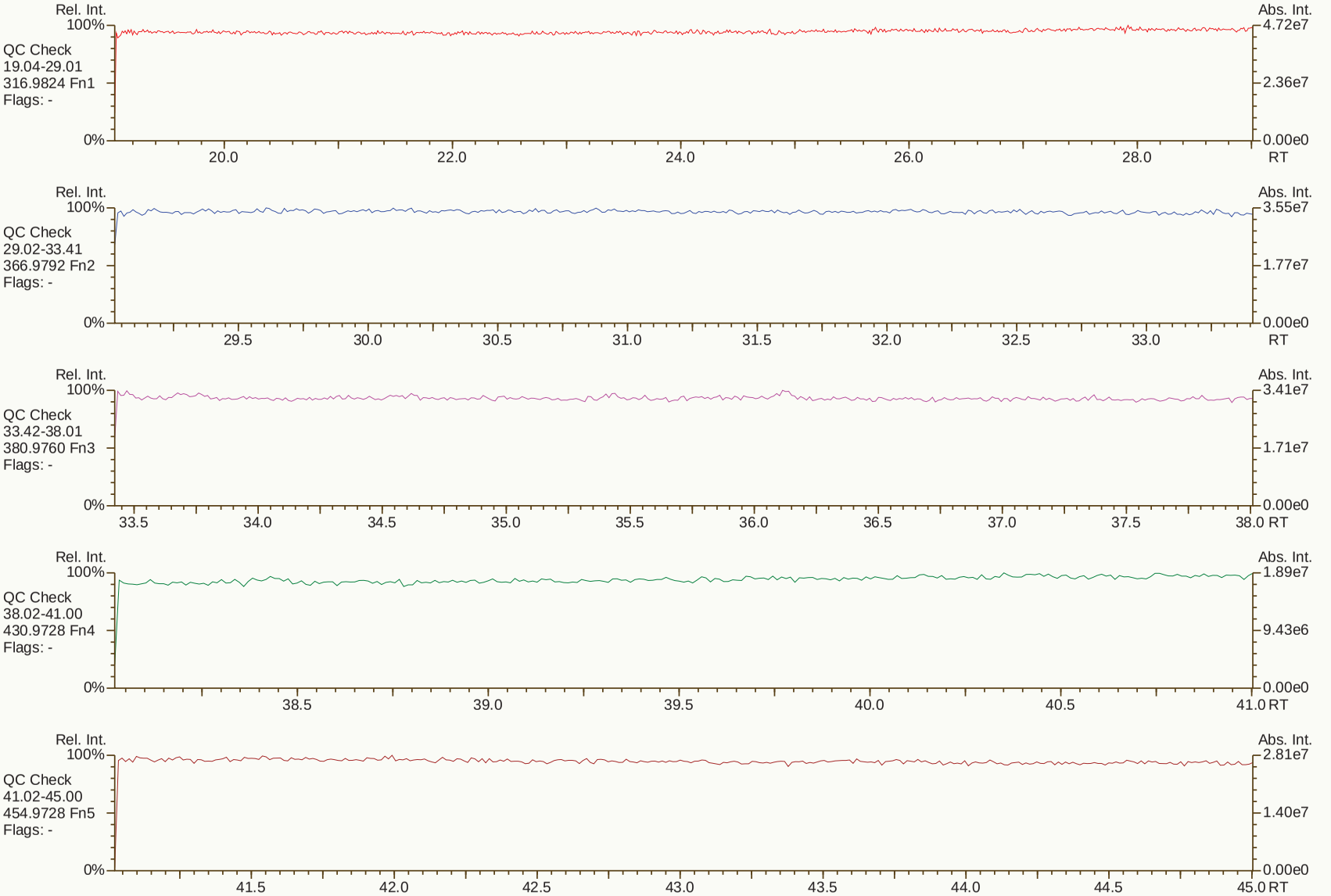
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0748, 0767, 9233 scc: 450-982 *Revised: 15-Jul-2016 13:57 (LKB) Printed: 15-Jul-2016 14:50 Page 11 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3393, 4234, 7299 scc: 450-982 *Revised: 15-Jul-2016 13:57 (LKB) Printed: 15-Jul-2016 14:50 Page 12 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 483-666 | *PKD: n/a Printed: 15-Jul-2016 14:47 Page 1 of 12*

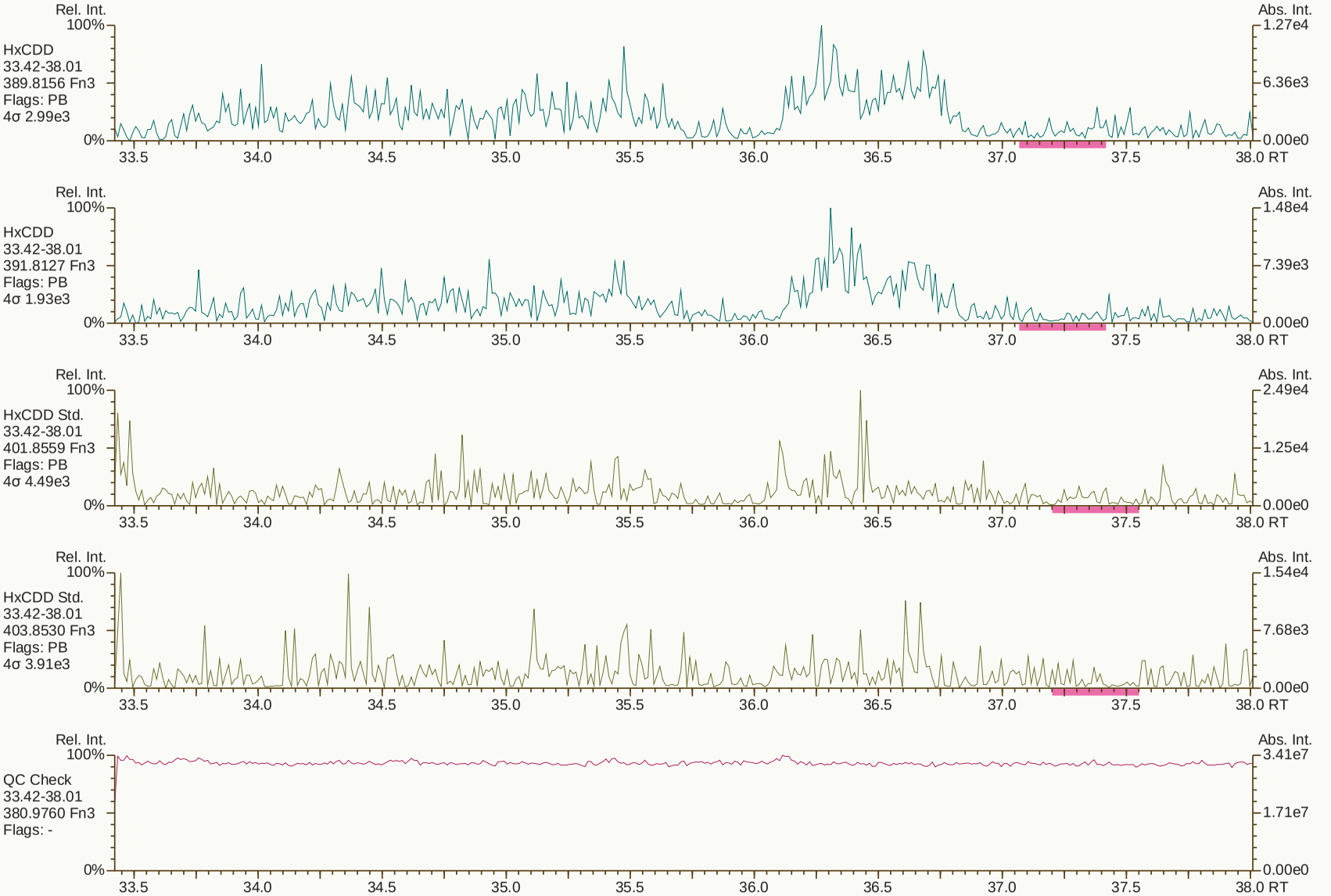
SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5453, 8572, 5553 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 2 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7872, 6842 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 3 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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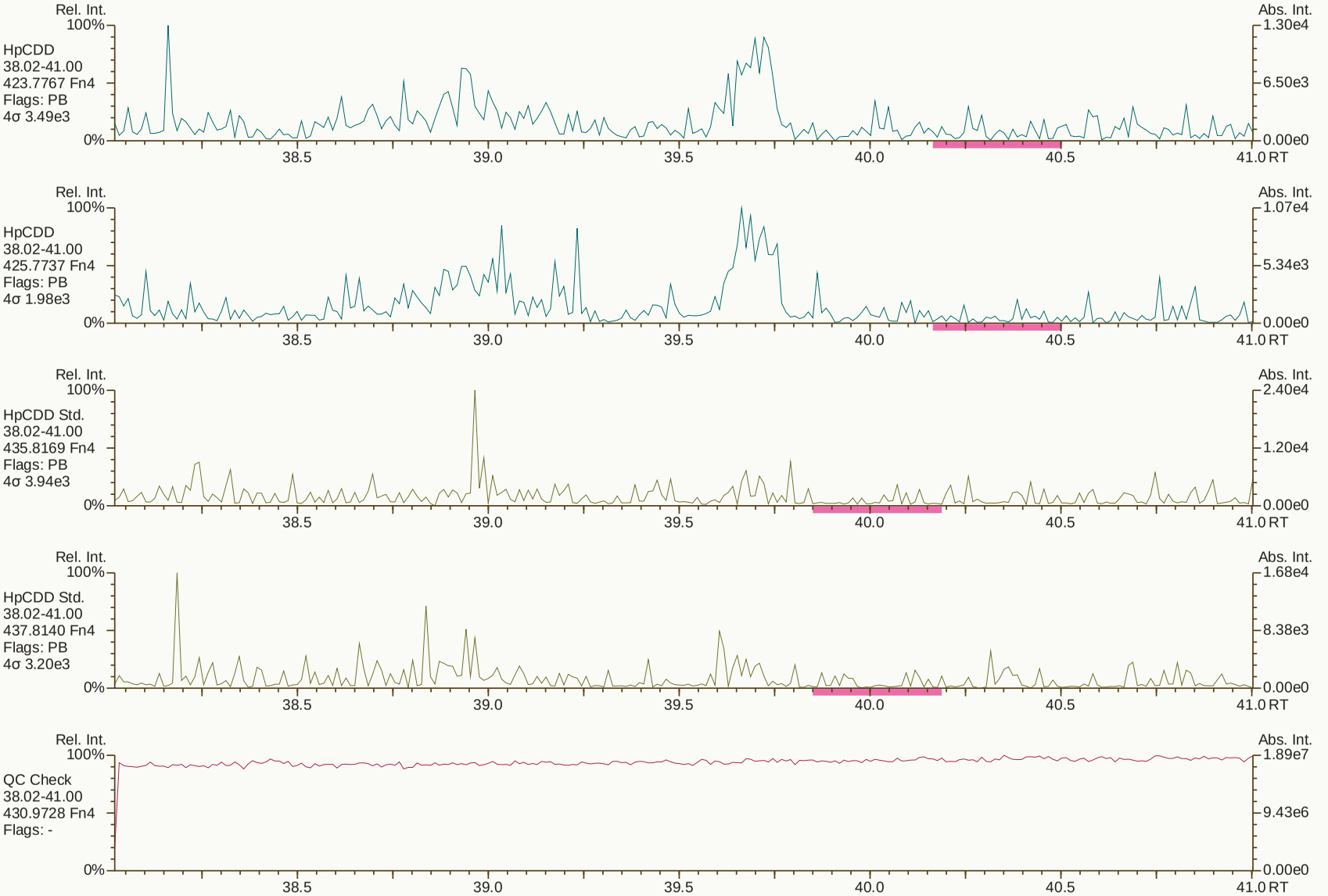
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6826, 0117 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 4 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2103, 5472 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 5 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1841, 8337 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 6 of 12*

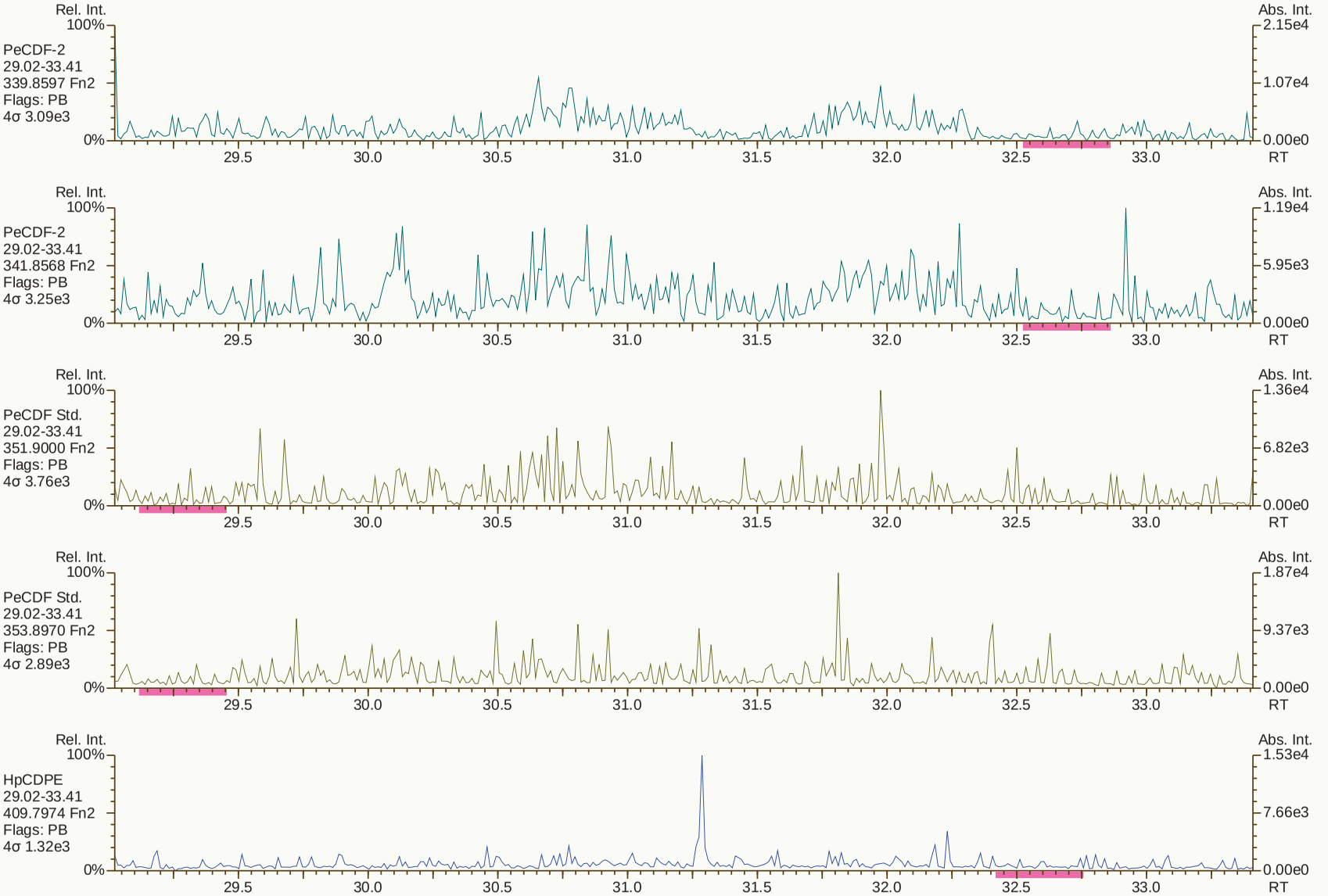
SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2547, 0889, 7925 scc: 483-666 *Revised: 14-Jul-2016 15:07 (LKB) Printed: 15-Jul-2016 14:47 Page 7 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9813 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 8 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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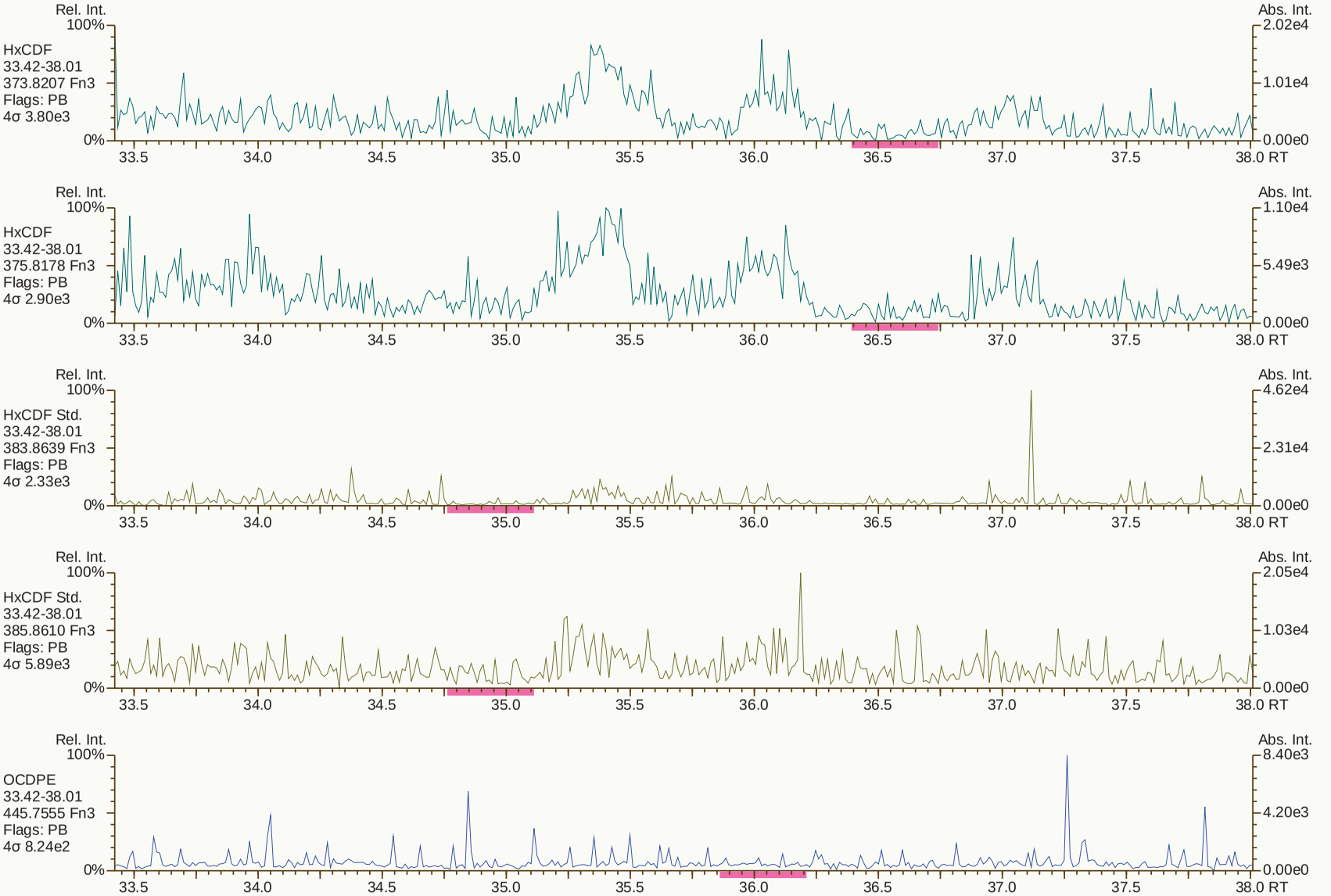
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4491, 9106, 7001 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 9 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4275, 3678, 7286 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 10 of 12*

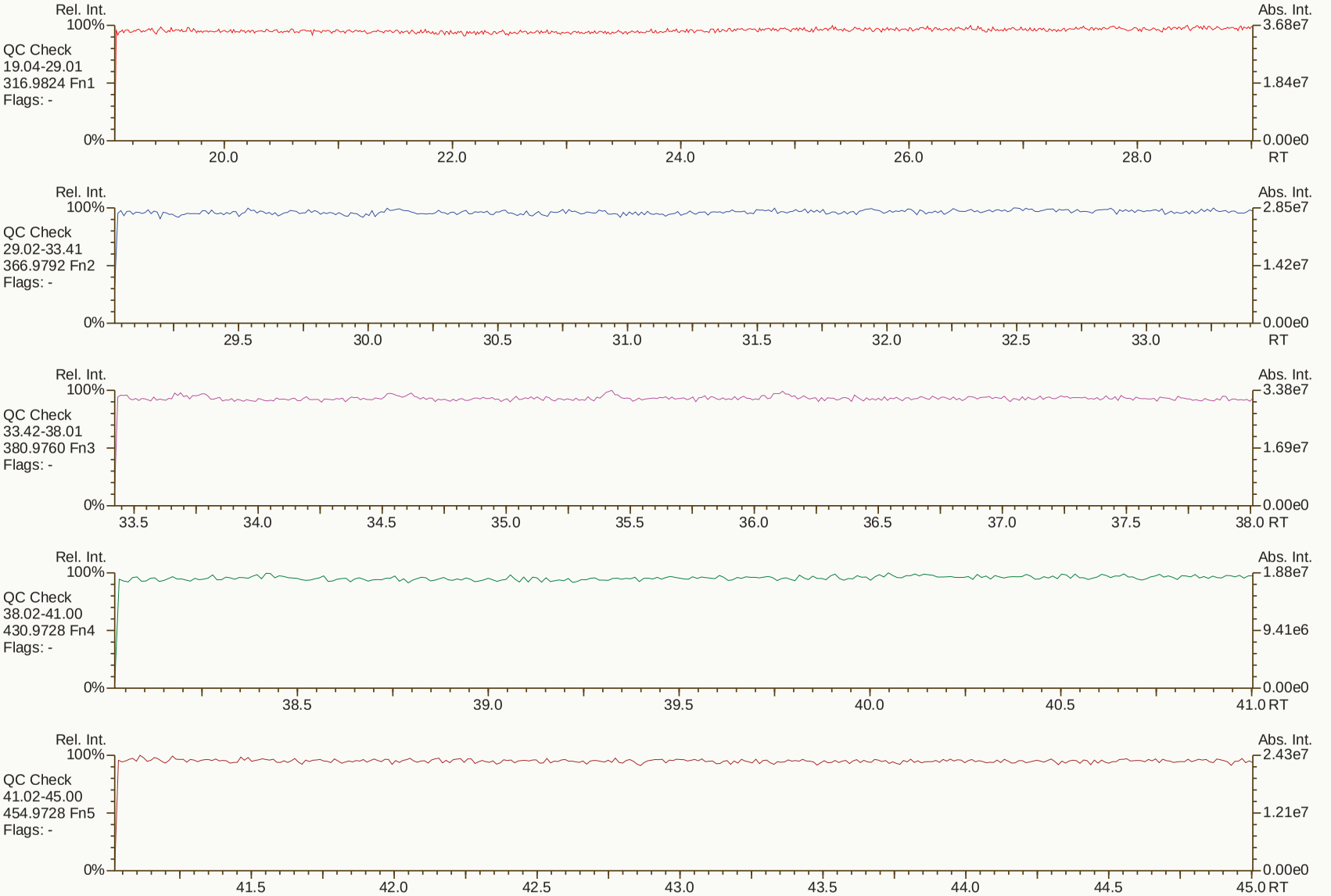
SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4491, 9484, 9772 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 11 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8943, 1791, 8322 scc: 483-666 *Revised: 14-Jul-2016 15:07 (LKB) Printed: 15-Jul-2016 14:47 Page 12 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

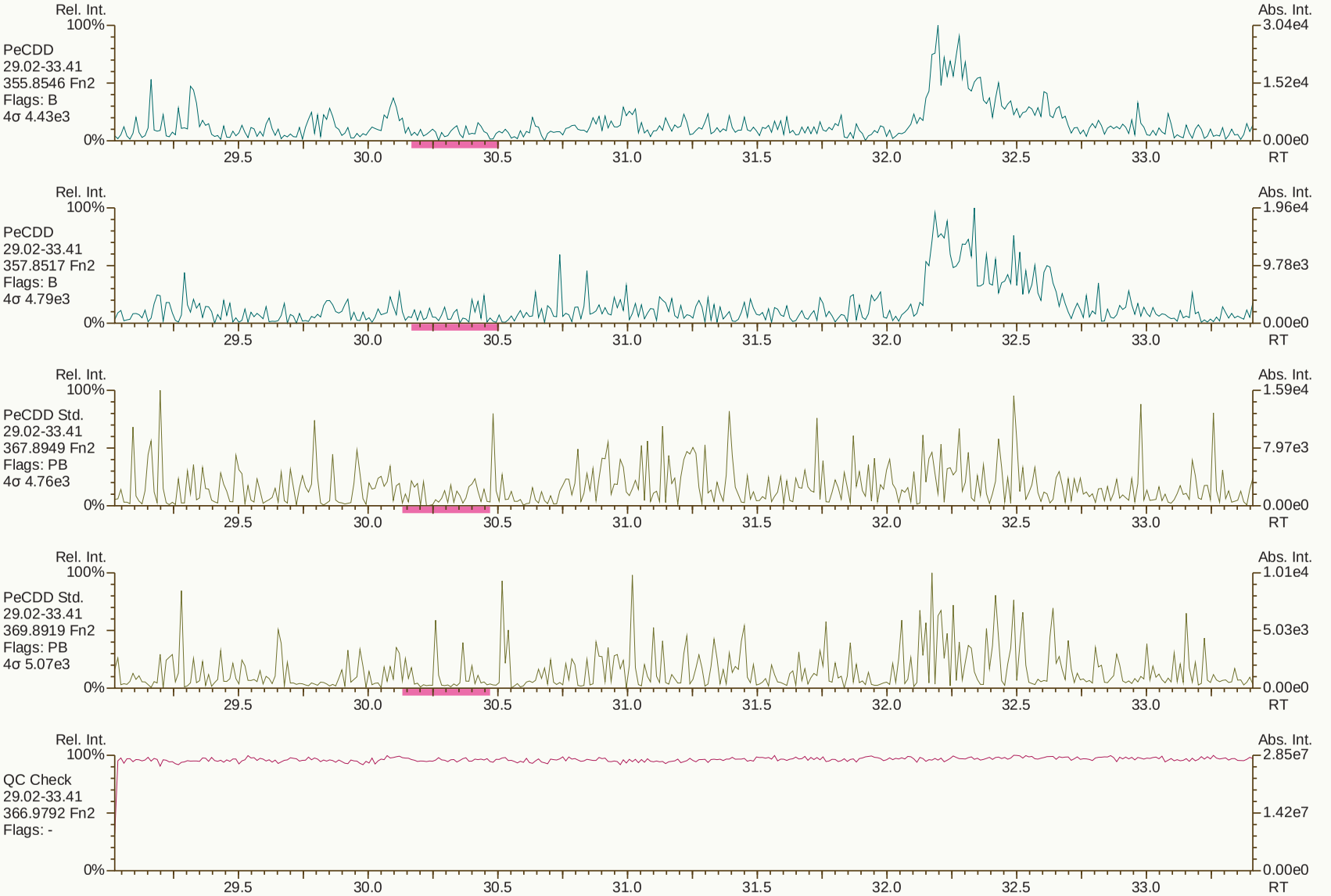


Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 334-191 *PKD: n/a Printed: 15-Jul-2016 14:50 Page 1 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

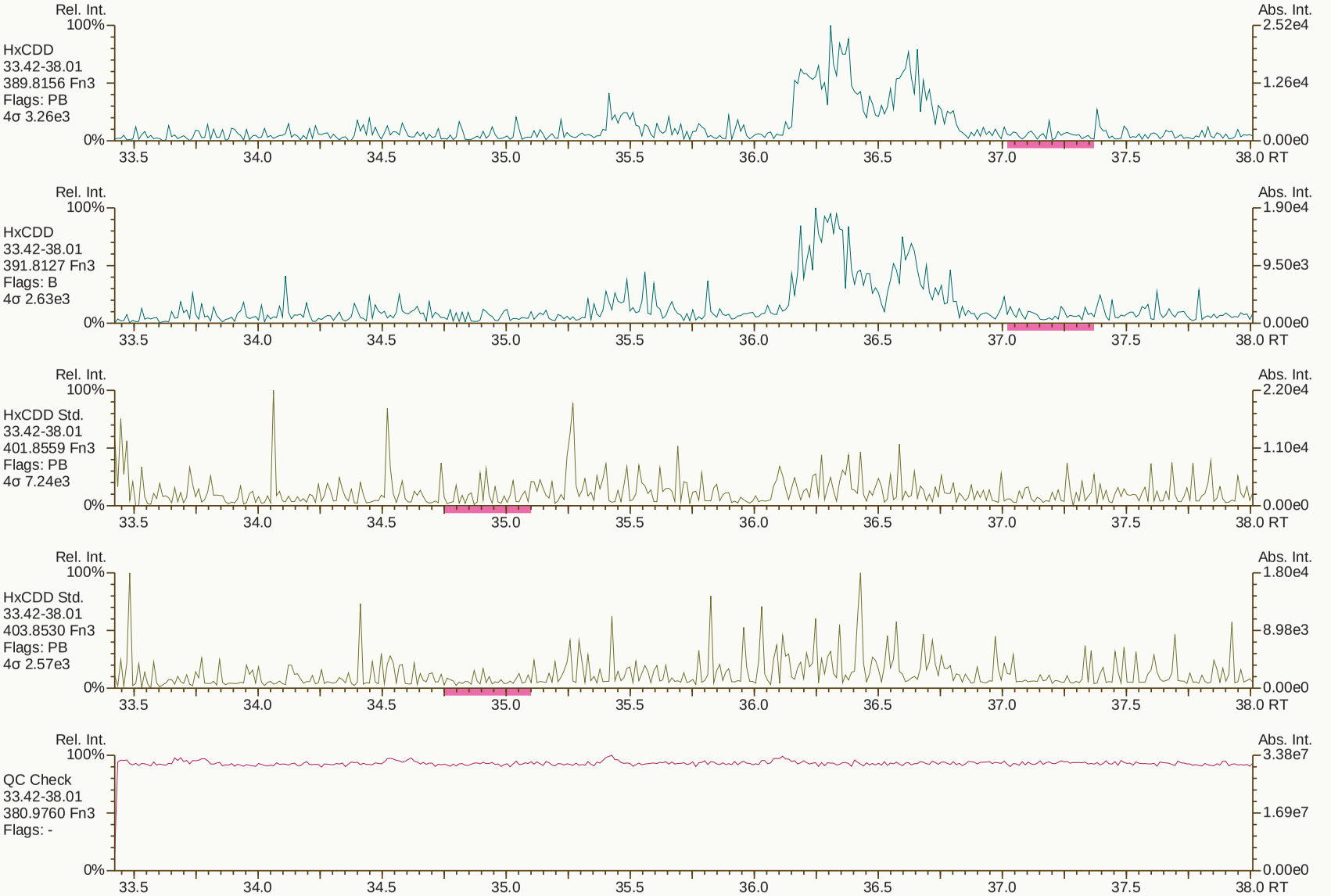
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6995, 8861, 6629 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 2 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3356, 7366 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 3 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6489, 4320 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 4 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6114, 2040 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 5 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4369, 7063 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 6 of 12*

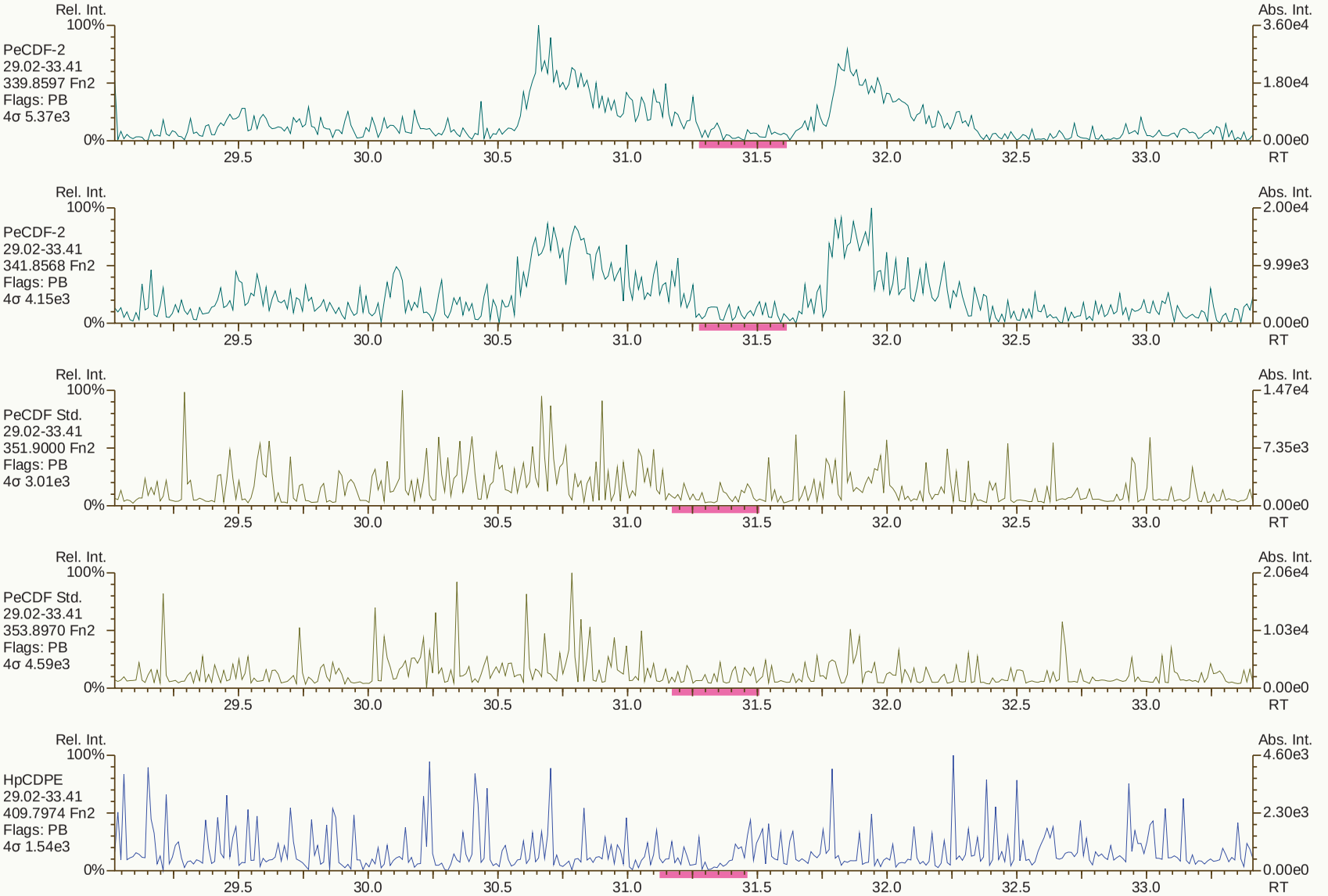
SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8761, 1786, 0172 scc: 334-191 *Revised: 15-Jul-2016 10:24 (LKB) Printed: 15-Jul-2016 14:50 Page 7 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6461 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 8 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



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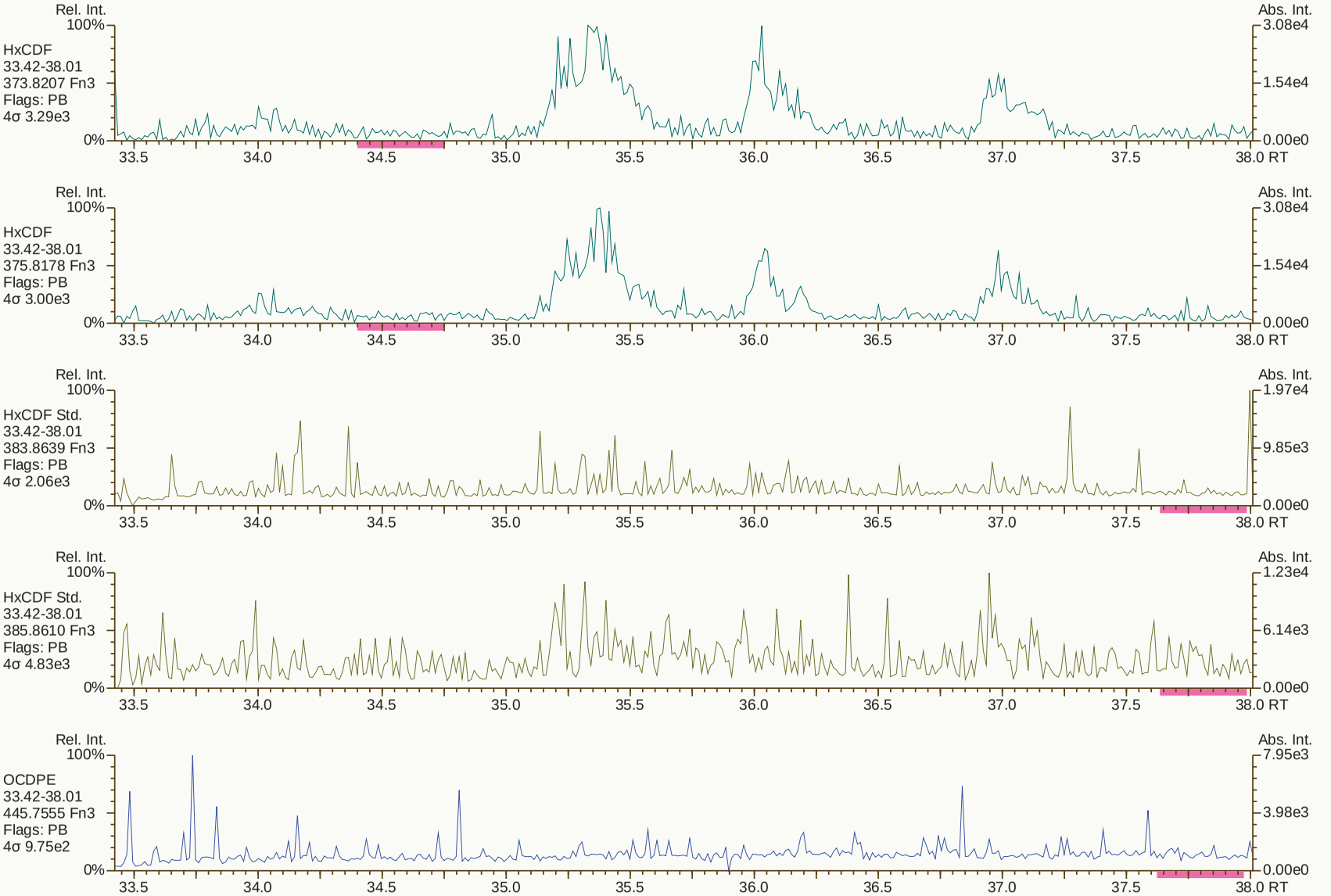
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4716, 9969, 7774 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 9 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7056, 4987, 4962 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 10 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0075, 7958, 8246 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 11 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

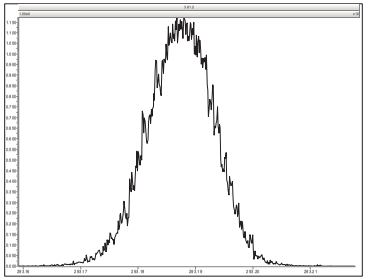
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5939, 4208, 3218 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 12 of 12*

Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

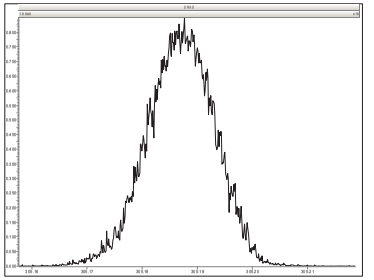
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 1 @ 200 (ppm)

Printed: Thursday, July 14, 2016 14:20:52 Eastern Daylight Time

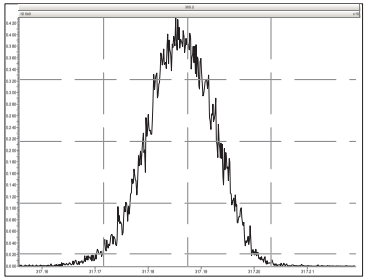
M 292.9824 R 11163



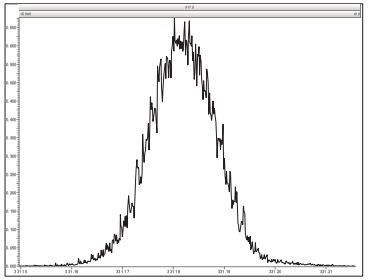
M 304.9824 R 10729



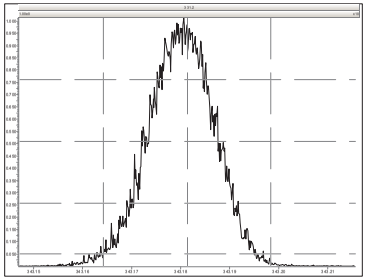
M 316.9824 R 11259



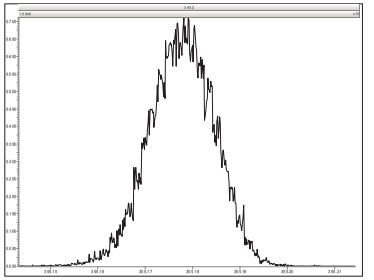
M 330.9792 R 10778



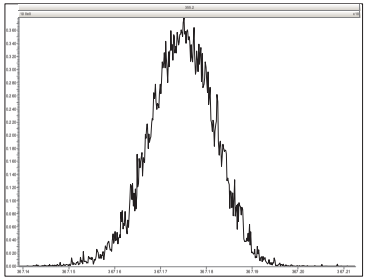
M 342.9792 R 11013



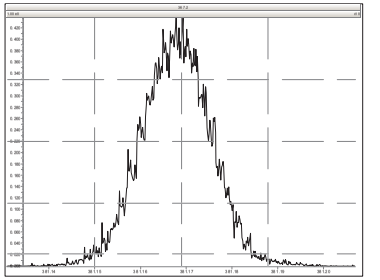
M 354.9792 R 11466



M 366.9792 R 11162



M 380.9760 R 11628

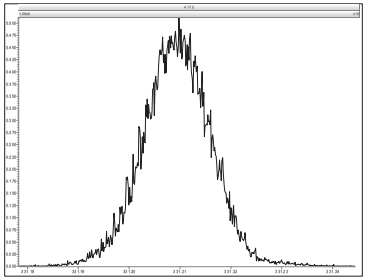


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

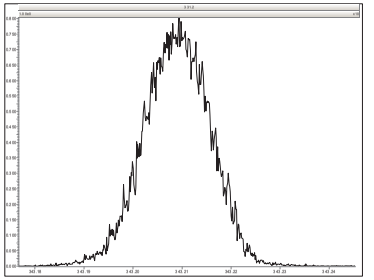
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 2 @ 200 (ppm)

Printed: Thursday, July 14, 2016 14:21:21 Eastern Daylight Time

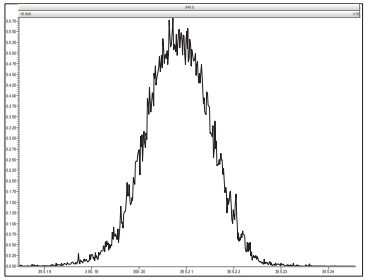
M 330.9792 R 11213



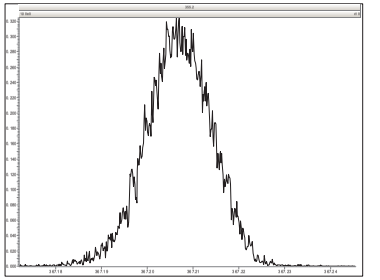
M 342.9792 R 11793



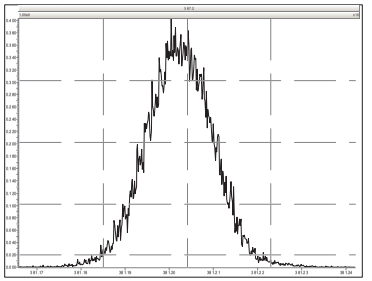
M 354.9792 R 11160



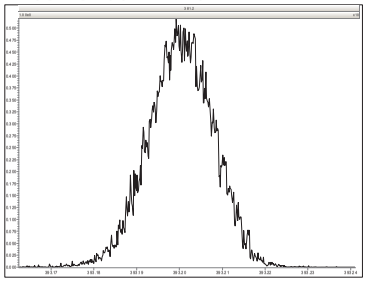
M 366.9792 R 11413



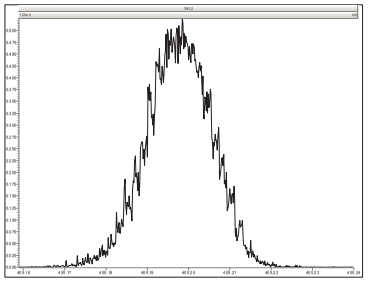
M 380.9760 R 10965



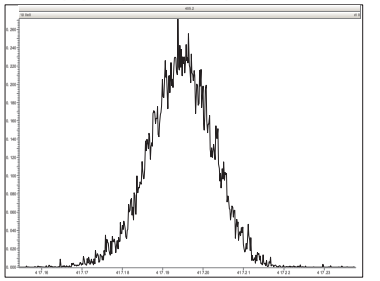
M 392.9760 R 11311



M 404.9760 R 11734



M 416.9760 R 11416

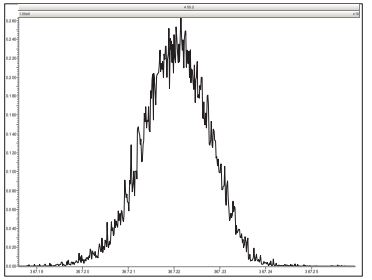


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

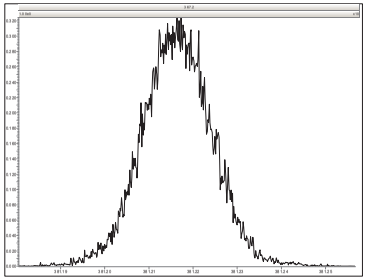
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 3 @ 200 (ppm)

Printed: Thursday, July 14, 2016 14:21:42 Eastern Daylight Time

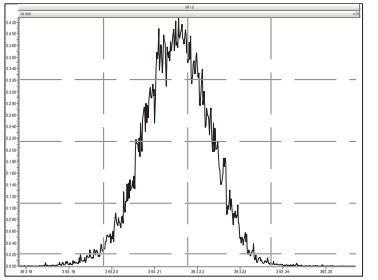
M 366.9792 R 11208



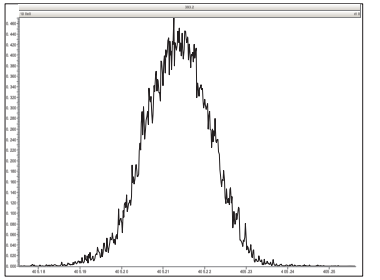
M 380.9760 R 10731



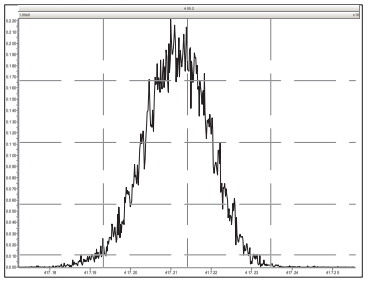
M 392.9760 R 11210



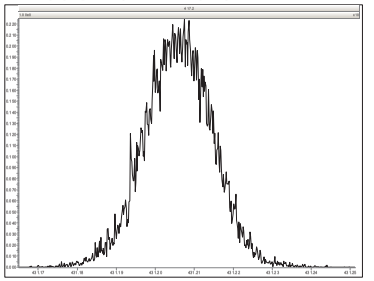
M 404.9760 R 11310



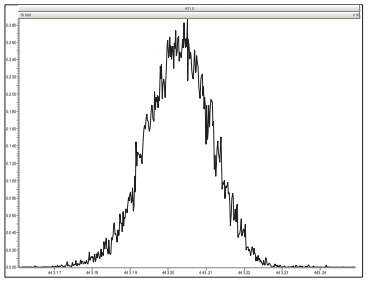
M 416.9760 R 11112



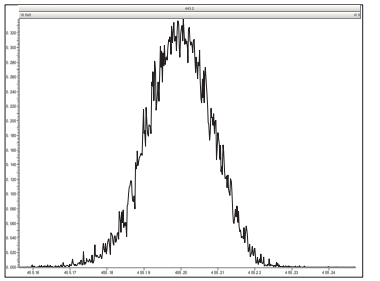
M 430.9728 R 11520



M 442.9728 R 10820



M 454.9728 R 10917



Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 4 @ 200 (ppm)

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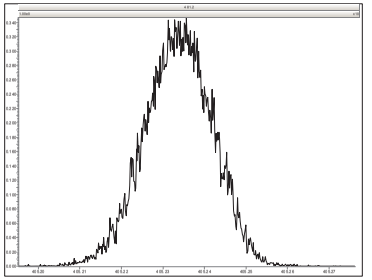
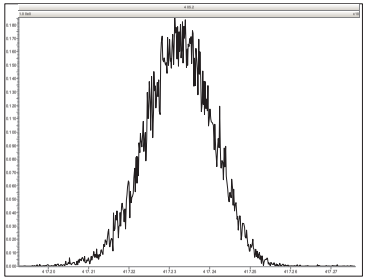
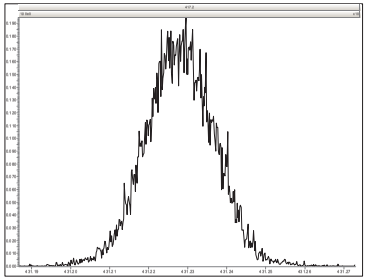
M 404.9760 R 10641



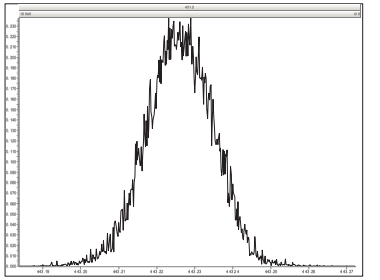
M 416.9760 R 10914



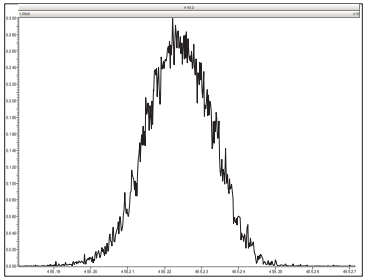
M 430.9728 R 10869



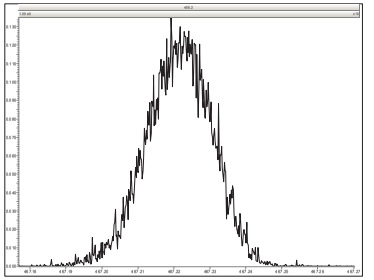
M 442.9728 R 10686



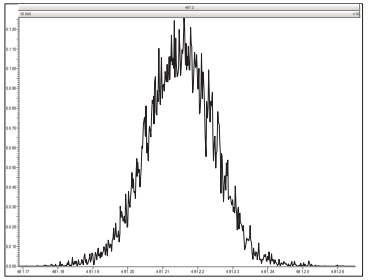
M 454.9728 R 10823



M 466.9728 R 11682



M 480.9696 R 11159



Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 5 @ 200 (ppm)

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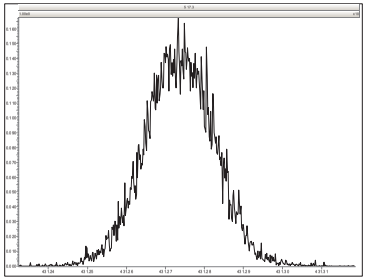
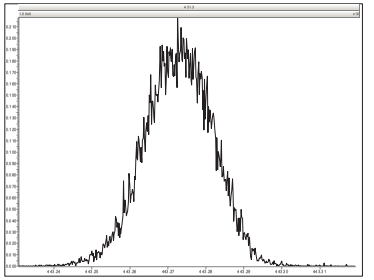
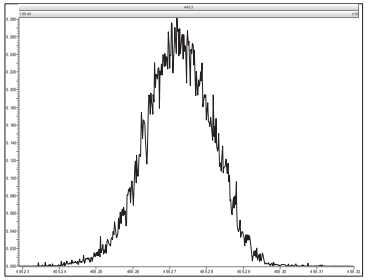
M 430.9728 R 11059



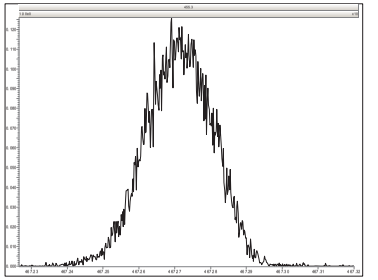
M 442.9728 R 11210



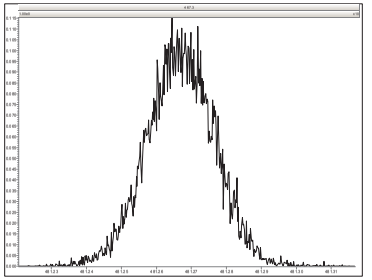
M 454.9728 R 11015



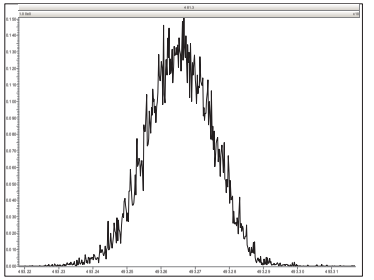
M 466.9728 R 11571



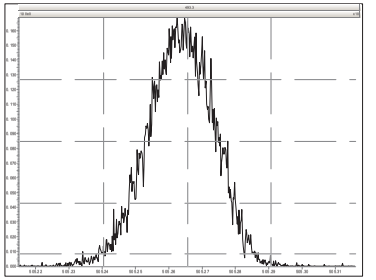
M 480.9696 R 11312



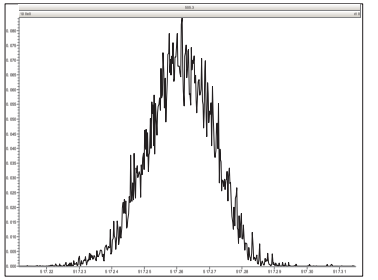
M 492.9696 R 11311



M 504.9696 R 12133



M 516.9697 R 11736



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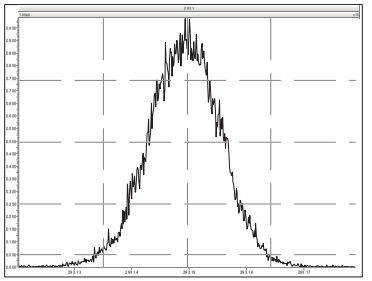
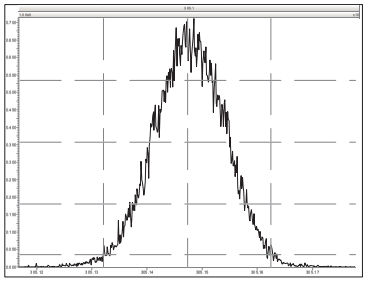
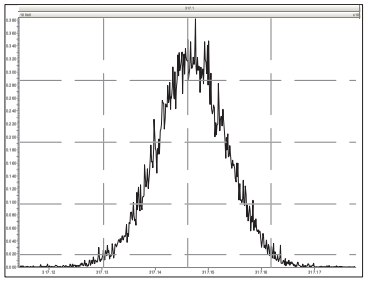
M 292.9824 R 10282



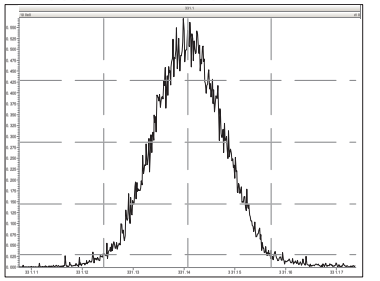
M 304.9824 R 10468



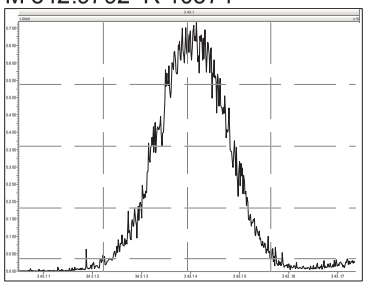
M 316.9824 R 10660



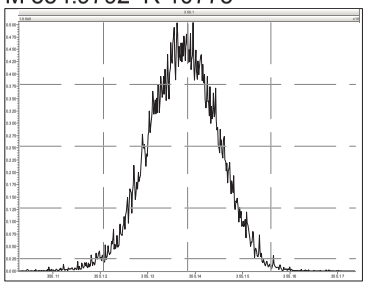
M 330.9792 R 10309



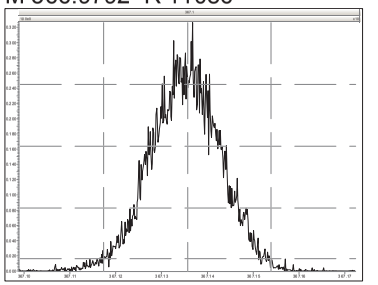
M 342.9792 R 10374



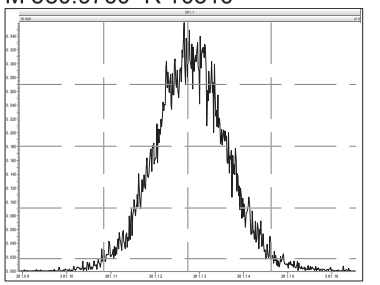
M 354.9792 R 10775



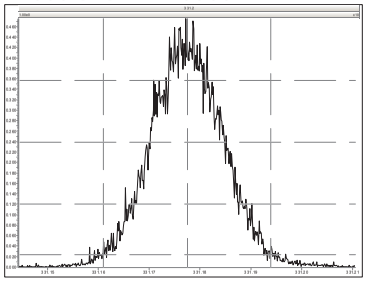
M 366.9792 R 11086



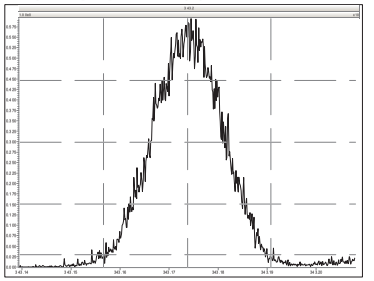
M 380.9760 R 10316



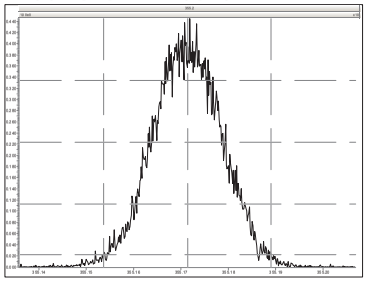
M 330.9792 R 10333



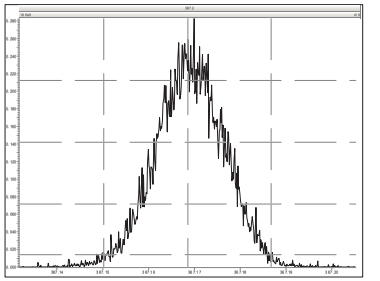
M 342.9792 R 10527



M 354.9792 R 10920



M 366.9792 R 10944



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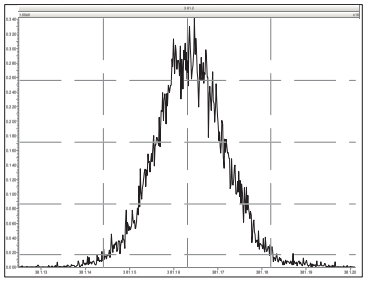
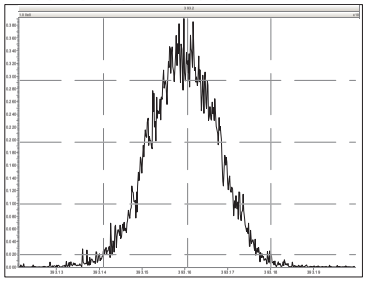
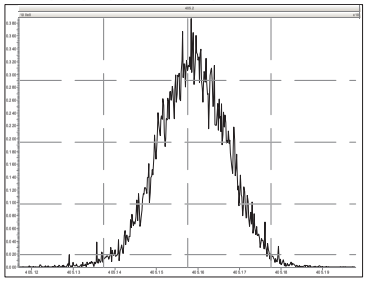
M 380.9760 R 10755



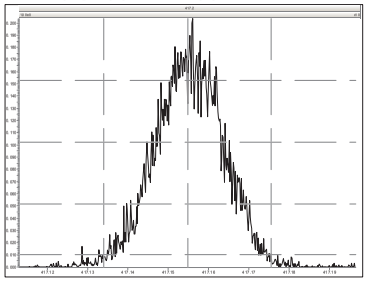
M 392.9760 R 11076



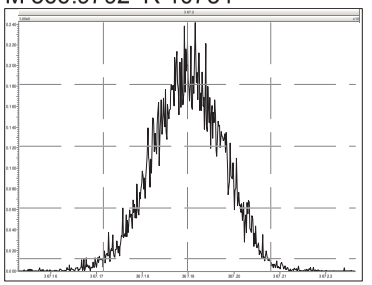
M 404.9760 R 11287



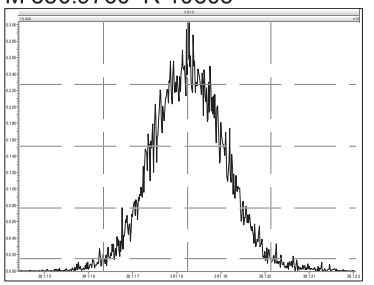
M 416.9760 R 11037



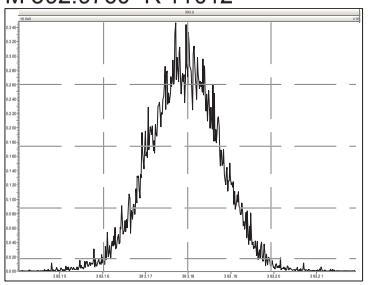
M 366.9792 R 10734



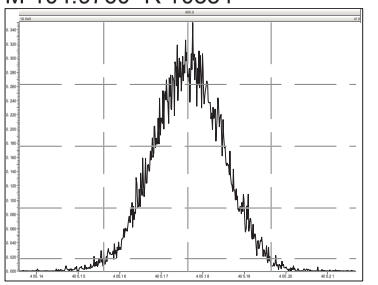
M 380.9760 R 10505



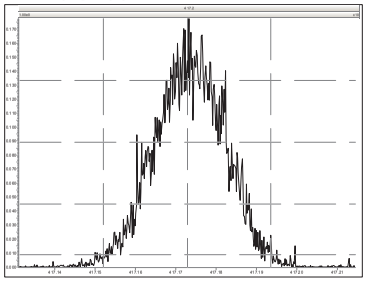
M 392.9760 R 11012



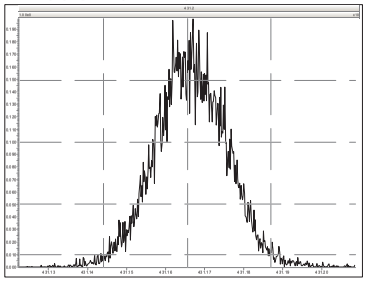
M 404.9760 R 10354



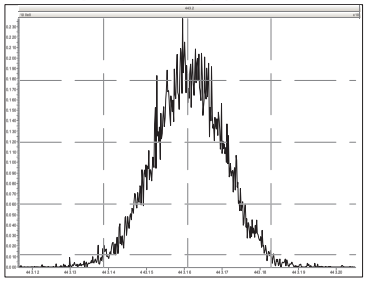
M 416.9760 R 11111



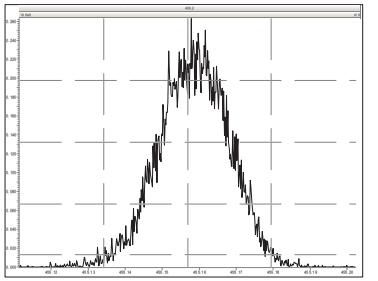
M 430.9728 R 10422



M 442.9728 R 10506



M 454.9728 R 10738



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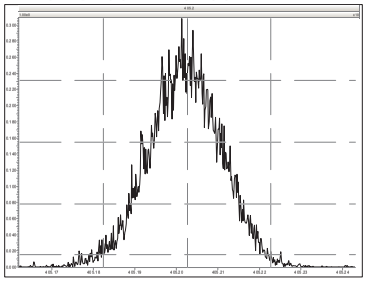
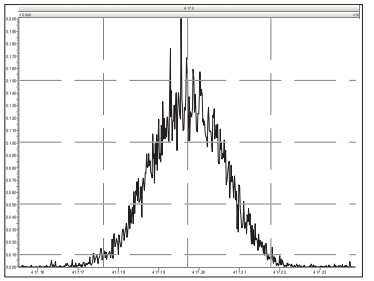
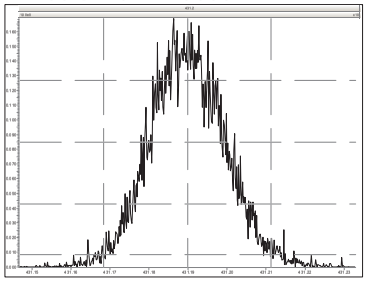
M 404.9760 R 10485



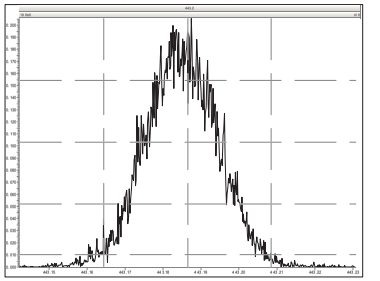
M 416.9760 R 10645



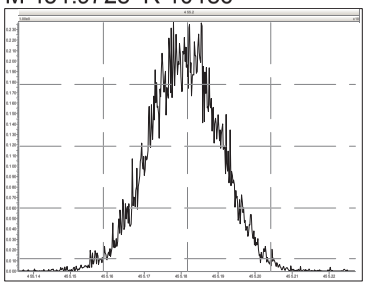
M 430.9728 R 10005



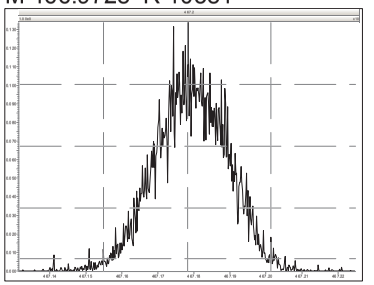
M 442.9728 R 10775



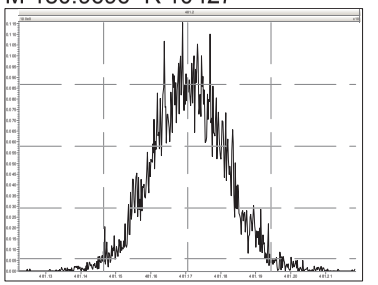
M 454.9728 R 10486



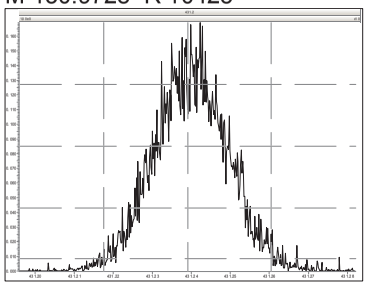
M 466.9728 R 10381



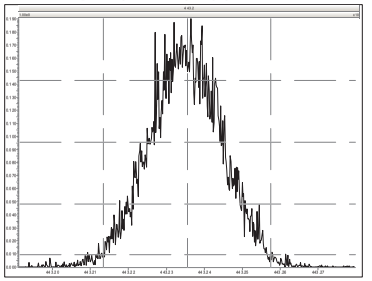
M 480.9696 R 10427



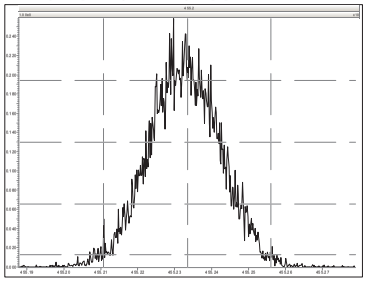
M 430.9728 R 10425



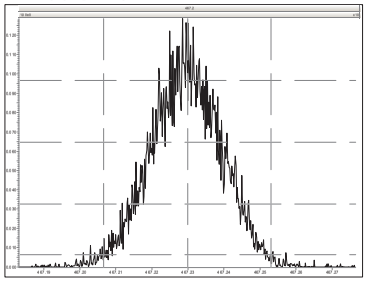
M 442.9728 R 10266



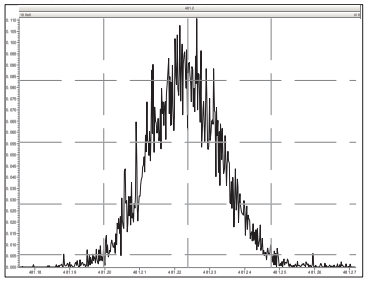
M 454.9728 R 10799



M 466.9728 R 11111



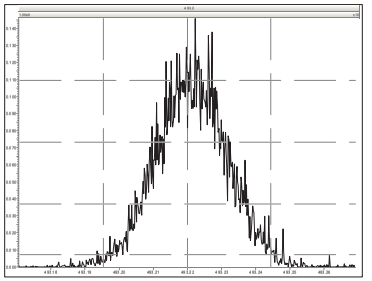
M 480.9696 R 10638



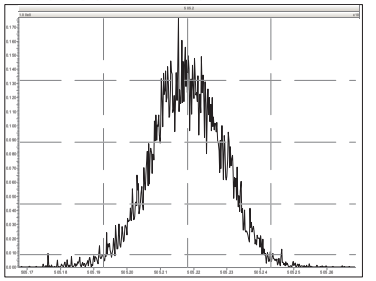
Resolution Check Report **MassLynx 4.1 SCN640**

Printed: Thursday, July 14, 2016 22:52:26 Eastern Daylight Time

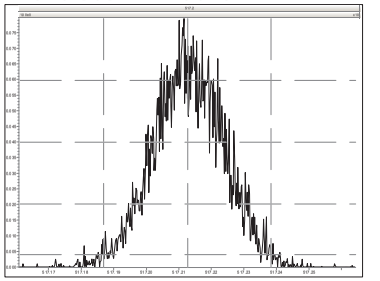
M 492.9696 R 10774



M 504.9696 R 10641



M 516.9697 R 10615



Lab ID: OPR1_14511_DF | Acq'd: 23 Nov 2016 18:43 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB27-161103 | UTP: 28-Nov-2016 15:37:22 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 731-621-FDT

Datafile: 161123P10 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.62		1.0008	1.0008	0	5.52E+06	0.77	Y	1.04	11.3	2933	0.0632

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.60	1.0243	1.0244	+0.2	4.70E+07	0.78	Y	1.04	91.5

SGS North America

REVIEWED
By Amber Kornegay at 9:24 am, Nov 29, 2016

Lab ID: OPR1_14511_DF | Acq'd: 23 Nov 2016 18:43 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB27-161103 | UTP: 28-Nov-2016 15:37:22 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 731-621-FDT
Datafile: 161123P10 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	4.96E+07	0.79	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	2.09E+07	1.31	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0253	+0.2	2.35E+07	n/a	-	1.05	112

Totals	Conc	EMPC
Total TCDD	49.2	49.2

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.76	0.77
Response	5.54E+06	5.52E+06

Lab ID: OPR1_14511_DF-RJ | Acq'd: 24 Nov 2016 02:12 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB28-161104 | UTP: 28-Nov-2016 15:38:29 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 316-420-JLN

Datafile: 161123P19 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.62		1.0008	1.0008	0	5.01E+06	0.79	Y	1.04	11.2	2360	0.0562

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.60	1.0243	1.0245	+0.3	4.30E+07	0.78	Y	1.04	92.2

Lab ID: OPR1_14511_DF-RJ | Acq'd: 24 Nov 2016 02:12 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB28-161104 | UTP: 28-Nov-2016 15:38:29 PSW | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 316-420-JLN

Datafile: 161123P19 | Report: 28 Nov 2016 15:41 pw | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	4.50E+07	0.79	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	2.27E+07	1.26	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0253	+0.2	2.09E+07	n/a	-	1.05	110

Totals	Conc	EMPC
Total TCDD	49.1	49.1

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.79	0.79
Response	5.02E+06	5.01E+06

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P10	Analysis Date:	23-NOV-2016 18:43:33
Lab ID:	OPR1_14511_DF		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	11.3	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 28 Nov 2016 15:41 Analyst: pw

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P10	Analysis Date:	23-NOV-2016 18:43:33
Lab ID:	OPR1_14511_DF		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	91.5	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	45	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 28 Nov 2016 15:41 Analyst: pw

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
CPSM Data Filename:	161123P10	Analysis Date:	23-NOV-2016 18:43:33
Lab ID:	OPR1_14511_DF		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.86	1289-TCDD	28.63

Isomer Specificity Test Standard Results

Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	27.48	2378-TCDD	27.62

Processed: 28 Nov 2016 15:41 Analyst: pw

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P19	Analysis Date:	24-NOV-2016 02:12:20
Lab ID:	OPR1_14511_DF-RJ		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	11.2	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 28 Nov 2016 15:41 Analyst: pw

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P19	Analysis Date:	24-NOV-2016 02:12:20
Lab ID:	OPR1_14511_DF-RJ		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	92.2	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	43.9	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 28 Nov 2016 15:41 Analyst: pw

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
CPSM Data Filename:	161123P19	Analysis Date:	24-NOV-2016 02:12:20
Lab ID:	OPR1_14511_DF-RJ		

Window Defining Standards Results

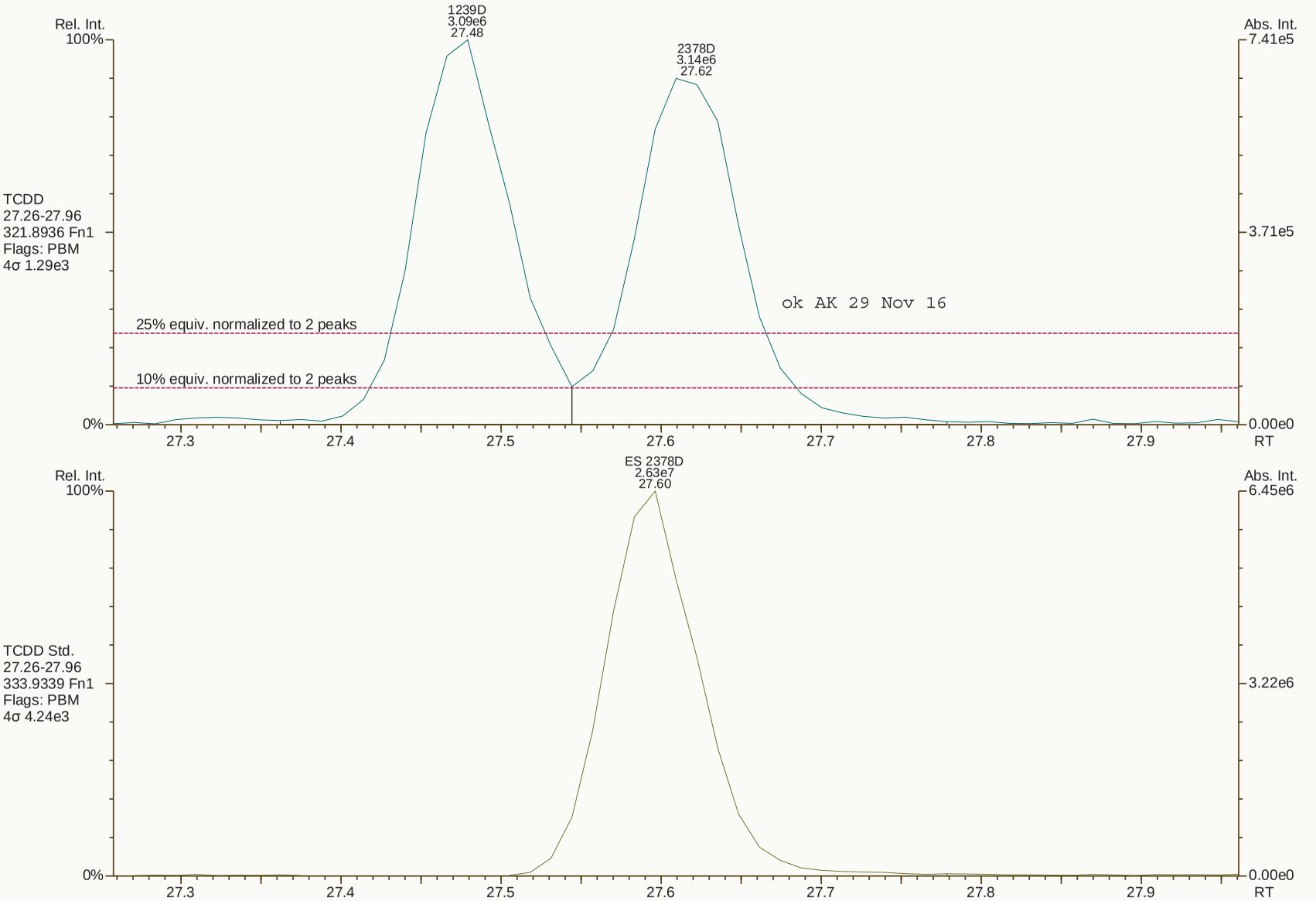
First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.86	1289-TCDD	28.63

Isomer Specificity Test Standard Results

Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	27.48	2378-TCDD	27.62

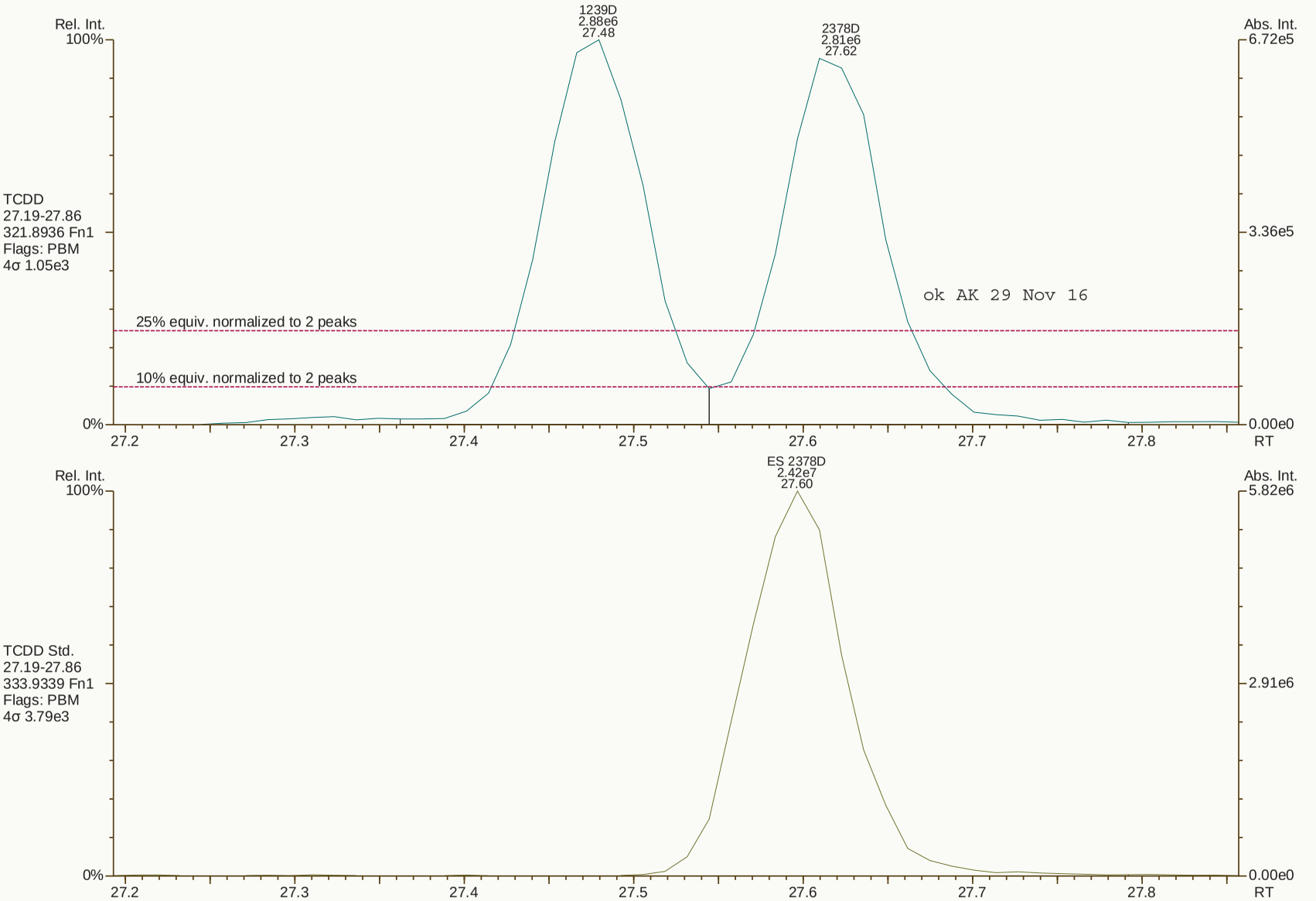
Processed: 28 Nov 2016 15:41 Analyst: pw

SGS ID: OPR1_14511_DF **Sample ID: 0_14511_OPR001** **Acq: 23-Nov-2016 18:43:33**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 49** **User: PSW Datafile: 161123P10**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\OPR1_14511_DF.utp_res, saved 28-Nov-2016 15:37 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 *PKD: 28-Nov-2016 08:15 Printed: 28-Nov-2016 16:03*

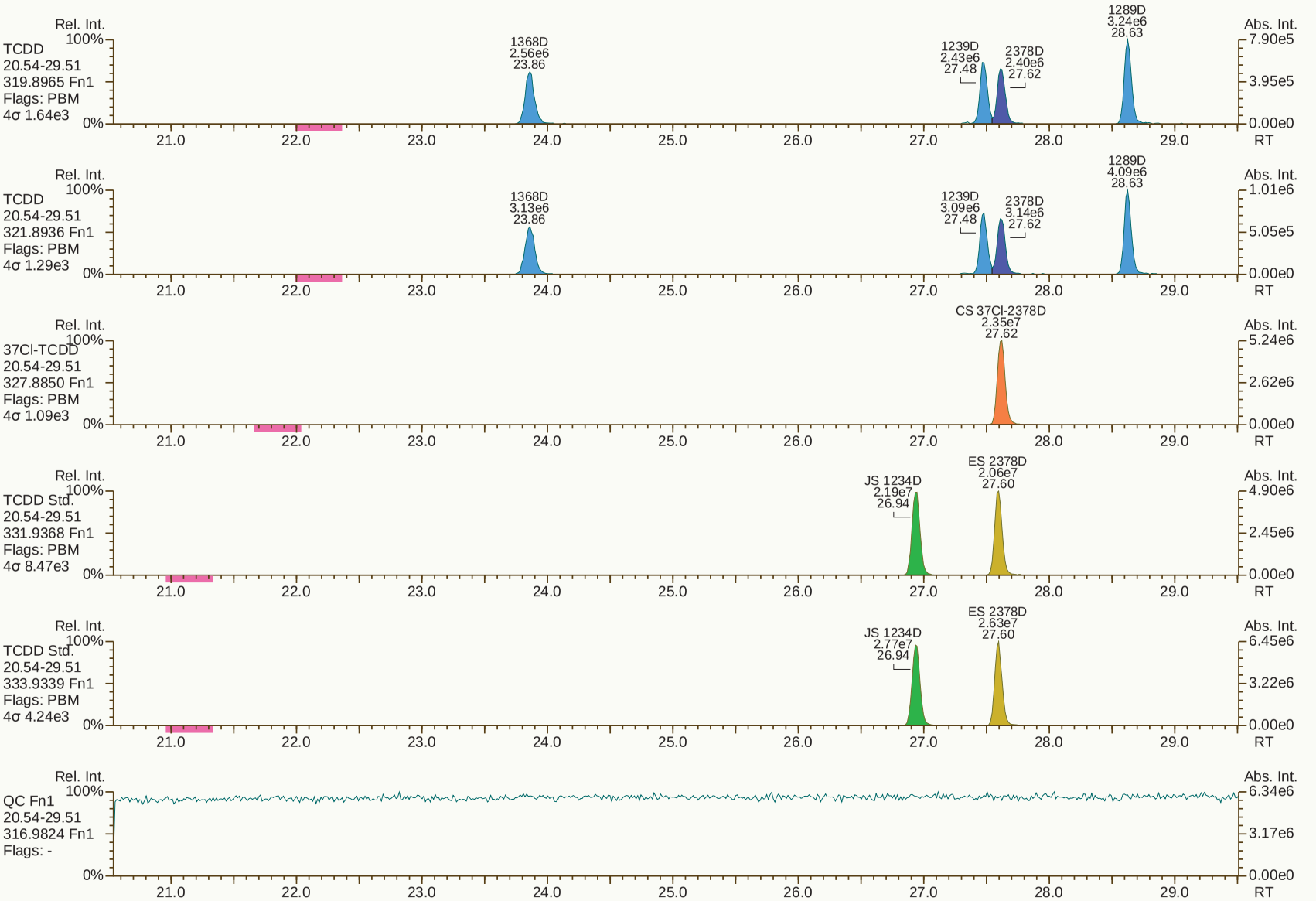
SGS ID: OPR1_14511_DF-RJ **Sample ID: 0_14511_OPR001** **Acq: 24-Nov-2016 02:12:20**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 49** **User: PSW Datafile: 161123P19**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\OPR1_14511_DF-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 *PKD: 28-Nov-2016 08:18 Printed: 28-Nov-2016 16:03*

SGS ID: OPR1_14511_DF | **Sample ID: 0_14511_OPR001** | **Acq: 23-Nov-2016 18:43:33**

Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 49** | **User: PSW Datafile: 161123P10**



Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\OPR1_14511_DF.utp_res, saved 28-Nov-2016 15:37 (PSW) | *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 9504, 4296, 6656 scc: 731-621 | *PKD: 28-Nov-2016 08:15 Printed: 28-Nov-2016 15:58 Page 1 of 1*

SGS ID: OPR1_14511_DF-RJ **Sample ID: 0_14511_OPR001** **Acq: 24-Nov-2016 02:12:20**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 49** **User: PSW Datafile: 161123P19**

Results: P:\A9400_A9499\A9414\A9414_14511 DF\Resources\OPR1_14511_DF-RJ.utp_res, saved 28-Nov-2016 15:38 (PSW) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: PSW/US0008027 cc: 2177, 6369, 9760 scc: 316-420 *PKD: 28-Nov-2016 08:18 Printed: 28-Nov-2016 15:59 Page 1 of 1*

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST

SLC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC31165

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City State Zip: Florham Park NJ 07932
Project Contact: Brian Crespi bcrespi@matrixnewworld.com
E-mail:
Phone #: 212-324-4251
Sampler(s) Name(s): M. Cleland
Phone #:

Project Information

Project Name: LSRP expansion
Street:
City State: Long Island, NY
Project #: 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)

Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCL/TAL (FULL), TCLP (Full), Reg Chem, Dioxin

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (FULL)	TCLP (Full)	Reg Chem	Dioxin	LAB USE ONLY
1	SB17-161103	0	11/3/16	0930	MC	S	7					4			3	X	X	X	X	023
2	SB15-161103	0	11/3/16	1152	MC	S	7					4			3	X	X	X	X	801
3	SB27-161103	0	11/3/16	1310	MC	S	7					4			3	X	X	X	X	P31
4	SB26-161103	0	11/3/16	1352	MC	S	7					4			3	X	X	X	X	1403
5	SB25-161103	0	11/3/16	1423	MC	S	7					4			3	X	X	X	X	4097
6	SB28-161104	0	11/4/16	0845	MC	S	7					4			3	X	X	X	X	
7	SB29-161104	0	11/4/16	0957	MC	S	7					4			3	X	X	X	X	
8	SB33-161104	0	11/4/16	1055	MC	S	7					4			3	X	X	X	X	
9	SB31-161104	0	11/4/16	1225	MC	S	7					4			3	X	X	X	X	

INITIAL ASSESSMENT 28 JK

LABEL VERIFICATION JK

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] *NJ Data of Known Quality Protocol Reporting*
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

samples on ice
o 3 encores received 11/4/16 JK

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	11/4/16 1330	Chris Lam	Chris Lam	11/4/16 17:00	[signature]
2						
3						
4						
5						

Custody Seal # 326,332 [x] Intact [ ] Not intact
Preserved where applicable [ ]
On Ice [x]
Cooler Temp 2.8, 3.4°C IR

JC31165X: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31165 **Client:** **Project:**

Date / Time Received: 11/4/2016 5:00:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.8); Cooler 2: (3.4);

Cooler Temps (Corrected) °C: Cooler 1: (0.7); Cooler 2: (1.3);

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	or N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	2	

Quality Control _Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

JC31165X: Chain of Custody
Page 2 of 2

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31250

Sampling Date: 11/07/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **90**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31250

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31250-1	11/07/16	10:12	MC	11/07/16	SO	Soil	SB30-161107
JC31250-1A	11/07/16	10:12	MC	11/07/16	SO	Soil	SB30-161107
JC31250-2	11/07/16	11:17	MC	11/07/16	SO	Soil	SB35-161107
JC31250-2A	11/07/16	11:17	MC	11/07/16	SO	Soil	SB35-161107
JC31250-3	11/07/16	12:00	MC	11/07/16	SO	Soil	SB34-161107
JC31250-3A	11/07/16	12:00	MC	11/07/16	SO	Soil	SB34-161107
JC31250-4	11/07/16	13:27	MC	11/07/16	SO	Soil	SB32-161107
JC31250-4A	11/07/16	13:27	MC	11/07/16	SO	Soil	SB32-161107

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

2

Summary of Hits

Job Number: JC31250
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/07/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC31250-1	**SB30-161107**					
Methylene chloride		0.0017 J	0.0044	0.00088	mg/kg	SW846 8260C
Acenaphthylene		0.0393	0.034	0.018	mg/kg	SW846 8270D
Anthracene		0.0530	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.141	0.034	0.0098	mg/kg	SW846 8270D
Benzo(a)pyrene		0.142	0.034	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.216	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.149	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0787	0.034	0.016	mg/kg	SW846 8270D
Carbazole		0.0201 J	0.069	0.0050	mg/kg	SW846 8270D
Chrysene		0.178	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0435	0.034	0.015	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.180	0.069	0.0081	mg/kg	SW846 8270D
Fluoranthene		0.215	0.034	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.113	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0248 J	0.069	0.0078	mg/kg	SW846 8270D
Naphthalene		0.0193 J	0.034	0.0097	mg/kg	SW846 8270D
Phenanthrene		0.116	0.034	0.012	mg/kg	SW846 8270D
Pyrene		0.233	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane		0.0023	0.00068	0.00032	mg/kg	SW846 8081B
gamma-Chlordane		0.0017	0.00068	0.00030	mg/kg	SW846 8081B
4,4'-DDT [a]		0.0058	0.00068	0.00040	mg/kg	SW846 8081B
Aroclor 1254		0.0502	0.034	0.017	mg/kg	SW846 8082A
Aroclor 1260		0.0347	0.034	0.014	mg/kg	SW846 8082A
Aluminum		2740	51		mg/kg	SW846 6010C
Arsenic		3.2	2.0		mg/kg	SW846 6010C
Barium		24.1	20		mg/kg	SW846 6010C
Calcium		3110	510		mg/kg	SW846 6010C
Chromium		12.0	1.0		mg/kg	SW846 6010C
Copper		36.0	2.5		mg/kg	SW846 6010C
Iron		7500	51		mg/kg	SW846 6010C
Lead		111	2.0		mg/kg	SW846 6010C
Magnesium		1740	510		mg/kg	SW846 6010C
Manganese		92.7	1.5		mg/kg	SW846 6010C
Mercury		0.046	0.034		mg/kg	SW846 7471B
Nickel		6.8	4.1		mg/kg	SW846 6010C
Silver		0.56	0.51		mg/kg	SW846 6010C
Vanadium		9.9	5.1		mg/kg	SW846 6010C
Zinc		91.8	5.1		mg/kg	SW846 6010C
JC31250-1A	**SB30-161107**					
Corrosivity as pH		7.39 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93

Summary of Hits

Job Number: JC31250
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/07/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC31250-2	**SB35-161107**					
Carbon disulfide		0.00024 J	0.0021	0.00018	mg/kg	SW846 8260C
Methylene chloride		0.0017 J	0.0053	0.0011	mg/kg	SW846 8260C
Acenaphthene		0.0211 J	0.035	0.012	mg/kg	SW846 8270D
Acenaphthylene		0.202	0.035	0.018	mg/kg	SW846 8270D
Anthracene		0.287	0.035	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.476	0.035	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.494	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.987	0.035	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.488	0.035	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.255	0.035	0.016	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0314 J	0.071	0.0048	mg/kg	SW846 8270D
Benzaldehyde		0.0365 J	0.18	0.0087	mg/kg	SW846 8270D
Carbazole		0.107	0.071	0.0051	mg/kg	SW846 8270D
Chrysene		0.715	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.152	0.035	0.016	mg/kg	SW846 8270D
Dibenzofuran		0.0728	0.071	0.014	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.0544 J	0.071	0.0083	mg/kg	SW846 8270D
Fluoranthene		0.768	0.035	0.016	mg/kg	SW846 8270D
Fluorene		0.0331 J	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.403	0.035	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene		0.156	0.071	0.0080	mg/kg	SW846 8270D
Naphthalene		0.121	0.035	0.0099	mg/kg	SW846 8270D
Phenanthrene		0.392	0.035	0.012	mg/kg	SW846 8270D
Pyrene		0.759	0.035	0.011	mg/kg	SW846 8270D
4,4'-DDT		0.0104	0.00063	0.00037	mg/kg	SW846 8081B
Aluminum		3570	53		mg/kg	SW846 6010C
Antimony		2.7	2.1		mg/kg	SW846 6010C
Arsenic		4.2	2.1		mg/kg	SW846 6010C
Barium		100	21		mg/kg	SW846 6010C
Beryllium		0.23	0.21		mg/kg	SW846 6010C
Calcium		1970	530		mg/kg	SW846 6010C
Chromium		11.2	1.1		mg/kg	SW846 6010C
Copper		70.6	2.7		mg/kg	SW846 6010C
Iron		10200	53		mg/kg	SW846 6010C
Lead		88.0	2.1		mg/kg	SW846 6010C
Magnesium		595	530		mg/kg	SW846 6010C
Manganese		106	1.6		mg/kg	SW846 6010C
Mercury		0.13	0.031		mg/kg	SW846 7471B
Nickel		7.1	4.3		mg/kg	SW846 6010C
Silver		0.72	0.53		mg/kg	SW846 6010C
Vanadium		11.5	5.3		mg/kg	SW846 6010C
Zinc		47.8	5.3		mg/kg	SW846 6010C

2

Summary of Hits

Job Number: JC31250
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/07/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC31250-2A	**SB35-161107**					
Corrosivity as pH		7.28 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
Benzene		0.0019 J	0.0025	0.00070	mg/l	SW846 8260C
JC31250-3	**SB34-161107**					
Methylene chloride		0.0012 J	0.0056	0.0011	mg/kg	SW846 8260C
Tetrachloroethene		0.00054 J	0.0022	0.00031	mg/kg	SW846 8260C
Trichloroethene		0.0013	0.0011	0.00021	mg/kg	SW846 8260C
Acenaphthene		0.0847	0.036	0.012	mg/kg	SW846 8270D
Acenaphthylene		0.154	0.036	0.018	mg/kg	SW846 8270D
Anthracene		0.360	0.036	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.601	0.036	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.581	0.036	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		1.03	0.036	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.454	0.036	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.329	0.036	0.017	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0213 J	0.072	0.0049	mg/kg	SW846 8270D
Benzaldehyde		0.0294 J	0.18	0.0089	mg/kg	SW846 8270D
Carbazole		0.159	0.072	0.0052	mg/kg	SW846 8270D
Chrysene		0.770	0.036	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.151	0.036	0.016	mg/kg	SW846 8270D
Dibenzofuran		0.0804	0.072	0.015	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.0767	0.072	0.0084	mg/kg	SW846 8270D
Fluoranthene		1.37	0.036	0.016	mg/kg	SW846 8270D
Fluorene		0.0798	0.036	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.433	0.036	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0916	0.072	0.0081	mg/kg	SW846 8270D
Naphthalene		0.0842	0.036	0.010	mg/kg	SW846 8270D
Phenanthrene		0.832	0.036	0.012	mg/kg	SW846 8270D
Pyrene		1.13	0.036	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.0082	0.00070	0.00033	mg/kg	SW846 8081B
gamma-Chlordane		0.0043	0.00070	0.00031	mg/kg	SW846 8081B
Dieldrin		0.0402	0.00070	0.00035	mg/kg	SW846 8081B
4,4'-DDT		0.0138	0.00070	0.00042	mg/kg	SW846 8081B
Aroclor 1260		0.0981	0.035	0.015	mg/kg	SW846 8082A
Aluminum		6460	54		mg/kg	SW846 6010C
Arsenic		3.9	2.2		mg/kg	SW846 6010C
Barium		111	22		mg/kg	SW846 6010C
Beryllium		0.24	0.22		mg/kg	SW846 6010C
Cadmium		0.63	0.54		mg/kg	SW846 6010C
Calcium		8110	540		mg/kg	SW846 6010C

2

Summary of Hits

Job Number: JC31250
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/07/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chromium		22.0	1.1		mg/kg	SW846 6010C
Copper		72.7	2.7		mg/kg	SW846 6010C
Iron		10800	54		mg/kg	SW846 6010C
Lead		55.7	2.2		mg/kg	SW846 6010C
Magnesium		4610	540		mg/kg	SW846 6010C
Manganese		159	1.6		mg/kg	SW846 6010C
Mercury		0.10	0.035		mg/kg	SW846 7471B
Nickel		11.1	4.3		mg/kg	SW846 6010C
Silver		0.63	0.54		mg/kg	SW846 6010C
Vanadium		17.2	5.4		mg/kg	SW846 6010C
Zinc		95.7	5.4		mg/kg	SW846 6010C
Cyanide		0.42	0.22		mg/kg	SW846 9012B/LACHAT
JC31250-3A	**SB34-161107**					
Corrosivity as pH		6.85 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
Benzene		0.0057	0.0025	0.00070	mg/l	SW846 8260C
JC31250-4	**SB32-161107**					
Methylene chloride		0.0022 J	0.0057	0.0011	mg/kg	SW846 8260C
Acenaphthylene		0.0272 J	0.035	0.018	mg/kg	SW846 8270D
Anthracene		0.0593	0.035	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0932	0.035	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0802	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.200	0.035	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0789	0.035	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0601	0.035	0.016	mg/kg	SW846 8270D
Benzaldehyde		0.0331 J	0.18	0.0087	mg/kg	SW846 8270D
Carbazole		0.0319 J	0.071	0.0051	mg/kg	SW846 8270D
Chrysene		0.154	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0225 J	0.035	0.016	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.0484 J	0.071	0.0082	mg/kg	SW846 8270D
Fluoranthene		0.129	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0743	0.035	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0163 J	0.071	0.0080	mg/kg	SW846 8270D
Naphthalene		0.0157 J	0.035	0.0099	mg/kg	SW846 8270D
Phenanthrene		0.0551	0.035	0.012	mg/kg	SW846 8270D
Pyrene		0.110	0.035	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.0898	0.0035	0.0016	mg/kg	SW846 8081B
gamma-Chlordane		0.104	0.0035	0.0015	mg/kg	SW846 8081B
4,4'-DDE		0.0139	0.00069	0.00036	mg/kg	SW846 8081B
4,4'-DDT		0.0291	0.00069	0.00041	mg/kg	SW846 8081B
Heptachlor		0.0153	0.00069	0.00034	mg/kg	SW846 8081B

Summary of Hits

Job Number: JC31250
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/07/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Heptachlor epoxide [a]	0.0040	0.00069	0.00037	mg/kg	SW846 8081B
Aluminum	2560	52		mg/kg	SW846 6010C
Calcium	1030	520		mg/kg	SW846 6010C
Chromium	8.8	1.0		mg/kg	SW846 6010C
Copper	14.7	2.6		mg/kg	SW846 6010C
Iron	5130	52		mg/kg	SW846 6010C
Lead	20.6	2.1		mg/kg	SW846 6010C
Manganese	80.8	1.6		mg/kg	SW846 6010C
Nickel	4.5	4.1		mg/kg	SW846 6010C
Vanadium	5.5	5.2		mg/kg	SW846 6010C
Zinc	29.3	5.2		mg/kg	SW846 6010C
JC31250-4A SB32-161107					
Corrosivity as pH	6.20 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93

(a) More than 40 % RPD for detected concentrations between the two GC columns.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C132972.D	1	11/10/16	PS	11/08/16 08:00	n/a	V3C6064
Run #2							

	Initial Weight
Run #1	6.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0088	0.0044	mg/kg	
71-43-2	Benzene	ND	0.00044	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0044	0.00028	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0018	0.00013	mg/kg	
75-25-2	Bromoform	ND	0.0044	0.00023	mg/kg	
74-83-9	Bromomethane	ND	0.0044	0.00043	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0088	0.0015	mg/kg	
75-15-0	Carbon disulfide	ND	0.0018	0.00015	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0018	0.00015	mg/kg	
108-90-7	Chlorobenzene	ND	0.0018	0.00014	mg/kg	
75-00-3	Chloroethane	ND	0.0044	0.00038	mg/kg	
67-66-3	Chloroform	ND	0.0018	0.00021	mg/kg	
74-87-3	Chloromethane	ND	0.0044	0.00019	mg/kg	
110-82-7	Cyclohexane	ND	0.0018	0.00048	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0018	0.00043	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0018	0.00013	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00088	0.00021	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00088	0.00015	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00088	0.00012	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00088	0.00013	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0044	0.00048	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00088	0.00016	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00088	0.00015	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00088	0.00013	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00088	0.00039	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00088	0.00014	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0018	0.00027	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0018	0.00017	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0018	0.00019	mg/kg	
100-41-4	Ethylbenzene	ND	0.00088	0.00013	mg/kg	
76-13-1	Freon 113	ND	0.0044	0.00043	mg/kg	
591-78-6	2-Hexanone	ND	0.0044	0.0012	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0018	0.00014	mg/kg	
79-20-9	Methyl Acetate	ND	0.0044	0.0018	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0018	0.00044	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00088	0.00023	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0044	0.00075	mg/kg	
75-09-2	Methylene chloride	0.0017	0.0044	0.00088	mg/kg	J
100-42-5	Styrene	ND	0.0018	0.00013	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.022	0.0027	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0018	0.00021	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0018	0.00025	mg/kg	
108-88-3	Toluene	ND	0.00088	0.00011	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0044	0.00020	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0044	0.00016	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0018	0.00015	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0018	0.00028	mg/kg	
79-01-6	Trichloroethene	ND	0.00088	0.00017	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0044	0.00055	mg/kg	
75-01-4	Vinyl chloride	ND	0.0018	0.00018	mg/kg	
	m,p-Xylene	ND	0.00088	0.00019	mg/kg	
95-47-6	o-Xylene	ND	0.00088	0.00018	mg/kg	
1330-20-7	Xylene (total)	ND	0.00088	0.00018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	102%		77-125%
460-00-4	4-Bromofluorobenzene	98%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M88875.D	1	11/10/16	AN	11/09/16	OP98422	E2M3946
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.069	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.069	0.022	mg/kg	
	3&4-Methylphenol	ND	0.069	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.092	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.069	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0393	0.034	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0074	mg/kg	
120-12-7	Anthracene	0.0530	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.069	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.141	0.034	0.0098	mg/kg	
50-32-8	Benzo(a)pyrene	0.142	0.034	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.216	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.149	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0787	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.069	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.069	0.0084	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.069	0.0047	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0085	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.069	0.0082	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0201	0.069	0.0050	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.069	0.014	mg/kg	
218-01-9	Chrysene	0.178	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.069	0.0074	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.069	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.069	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.069	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.069	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0435	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	ND	0.069	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.069	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.069	0.0086	mg/kg	
84-66-2	Diethyl phthalate	ND	0.069	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.069	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.180	0.069	0.0081	mg/kg	
206-44-0	Fluoranthene	0.215	0.034	0.015	mg/kg	
86-73-7	Fluorene	ND	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.069	0.0087	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.113	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.069	0.0074	mg/kg	
91-57-6	2-Methylnaphthalene	0.0248	0.069	0.0078	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0081	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0086	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0089	mg/kg	
91-20-3	Naphthalene	0.0193	0.034	0.0097	mg/kg	J
98-95-3	Nitrobenzene	ND	0.069	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.069	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.116	0.034	0.012	mg/kg	
129-00-0	Pyrene	0.233	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0088	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	84%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	81%		30-106%
118-79-6	2,4,6-Tribromophenol	95%		24-140%
4165-60-0	Nitrobenzene-d5	81%		26-122%
321-60-8	2-Fluorobiphenyl	90%		36-112%
1718-51-0	Terphenyl-d14	93%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129672.D	1	11/17/16	RK	11/09/16	OP98416	G1G4143
Run #2							

	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00068	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00068	0.00036	mg/kg	
319-85-7	beta-BHC	ND	0.00068	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00068	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00068	0.00030	mg/kg	
5103-71-9	alpha-Chlordane	0.0023	0.00068	0.00032	mg/kg	
5103-74-2	gamma-Chlordane	0.0017	0.00068	0.00030	mg/kg	
60-57-1	Dieldrin	ND	0.00068	0.00034	mg/kg	
72-54-8	4,4'-DDD	ND	0.00068	0.00044	mg/kg	
72-55-9	4,4'-DDE	ND	0.00068	0.00035	mg/kg	
50-29-3	4,4'-DDT [a]	0.0058	0.00068	0.00040	mg/kg	
72-20-8	Endrin	ND	0.00068	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00068	0.00027	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00068	0.00040	mg/kg	
959-98-8	Endosulfan-I	ND	0.00068	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00068	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00068	0.00033	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00068	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00034	mg/kg	
53494-70-5	Endrin ketone	ND	0.00068	0.00052	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0071	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		24-136%
877-09-8	Tetrachloro-m-xylene	88%		24-136%
2051-24-3	Decachlorobiphenyl	89%		10-153%
2051-24-3	Decachlorobiphenyl	85%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX199988.D	1	11/11/16	JR	11/09/16	OP98415	GXX5856
Run #2							

	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.034	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.034	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.034	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.034	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.034	0.022	mg/kg	
11097-69-1	Aroclor 1254	0.0502	0.034	0.017	mg/kg	
11096-82-5	Aroclor 1260	0.0347	0.034	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.034	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.034	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		20-152%
877-09-8	Tetrachloro-m-xylene	104%		20-152%
2051-24-3	Decachlorobiphenyl	79%		12-157%
2051-24-3	Decachlorobiphenyl	110%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	94.8
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2740	51	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Antimony	< 2.0	2.0	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Arsenic	3.2	2.0	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Barium	24.1	20	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Beryllium	< 0.20	0.20	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Cadmium	< 0.51	0.51	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Calcium	3110	510	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Chromium	12.0	1.0	mg/kg	1	11/08/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.1	5.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Copper	36.0	2.5	mg/kg	1	11/08/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Iron	7500	51	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Lead	111	2.0	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Magnesium	1740	510	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Manganese	92.7	1.5	mg/kg	1	11/08/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.046	0.034	mg/kg	1	11/14/16	11/14/16	MS	SW846 7471B [3]	SW846 7471B [5]
Nickel	6.8	4.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Selenium	< 2.0	2.0	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Silver	0.56	0.51	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Thallium	< 1.0	1.0	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Vanadium	9.9	5.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Zinc	91.8	5.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA40733
(2) Instrument QC Batch: MA40740
(3) Instrument QC Batch: MA40759
(4) Prep QC Batch: MP97048
(5) Prep QC Batch: MP97120

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	94.8
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.23	0.23	mg/kg	1	11/10/16 13:16	BM	SW846 9012B/LACHAT
Solids, Percent	94.8		%	1	11/09/16 13:54	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36478.D	5	11/09/16	EH	11/08/16	GP1320	V2V1427
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		76-120%
17060-07-0	1,2-Dichloroethane-D4	107%		64-135%
2037-26-5	Toluene-D8	96%		76-117%
460-00-4	4-Bromofluorobenzene	103%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31808.D	1	11/10/16	AC	11/09/16	OP98440	E6P1475
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	38%		14-88%
4165-62-2	Phenol-d5	25%		10-110%
118-79-6	2,4,6-Tribromophenol	61%		39-149%
4165-60-0	Nitrobenzene-d5	66%		32-128%
321-60-8	2-Fluorobiphenyl	66%		35-119%
1718-51-0	Terphenyl-d14	77%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OA121178.D	1	11/11/16	RK	11/10/16	OP98447	GOA4167
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	86%		50-142%
19719-28-9	2,4-DCAA	82%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	94.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74979.D	1	11/16/16	KD	11/09/16	OP98444	G4G1951
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		30-137%
877-09-8	Tetrachloro-m-xylene	92%		30-137%
2051-24-3	Decachlorobiphenyl	94%		10-137%
2051-24-3	Decachlorobiphenyl	88%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	94.8
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/10/16	11/10/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40739
(2) Instrument QC Batch: MA40743
(3) Prep QC Batch: MP97065
(4) Prep QC Batch: MP97080

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB30-161107		
Lab Sample ID:	JC31250-1A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	94.8
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.39 NC		su	1	11/15/16 12:16	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/14/16 15:16	YZ	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 20:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/14/16 10:01	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C132951.D	1	11/10/16	PS	11/08/16 08:00	n/a	V3C6063
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0053	mg/kg	
71-43-2	Benzene	ND	0.00053	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0053	0.00034	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0053	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0053	0.00052	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0019	mg/kg	
75-15-0	Carbon disulfide	0.00024	0.0021	0.00018	mg/kg	J
56-23-5	Carbon tetrachloride	ND	0.0021	0.00018	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0053	0.00046	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0053	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00058	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0021	0.00052	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00026	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0053	0.00058	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00020	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00047	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00017	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00033	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00021	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00024	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00016	mg/kg	
76-13-1	Freon 113 [a]	ND	0.0053	0.00052	mg/kg	
591-78-6	2-Hexanone	ND	0.0053	0.0015	mg/kg	

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0053	0.0022	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00054	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00028	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0053	0.00090	mg/kg	
75-09-2	Methylene chloride	0.0017	0.0053	0.0011	mg/kg	J
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.027	0.0032	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00030	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0053	0.00024	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0053	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00018	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00034	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0053	0.00067	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00022	mg/kg	
	m,p-Xylene	ND	0.0011	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00022	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-122%
17060-07-0	1,2-Dichloroethane-D4	104%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	97%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M88851.D	1	11/10/16	SB	11/09/16	OP98422	E2M3945
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.071	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.023	mg/kg	
	3&4-Methylphenol	ND	0.071	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.071	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	0.0211	0.035	0.012	mg/kg	J
208-96-8	Acenaphthylene	0.202	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	0.287	0.035	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.071	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.476	0.035	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.494	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.987	0.035	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.488	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.255	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.071	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.071	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	0.0314	0.071	0.0048	mg/kg	J
100-52-7	Benzaldehyde	0.0365	0.18	0.0087	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.071	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.107	0.071	0.0051	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.071	0.014	mg/kg	
218-01-9	Chrysene	0.715	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.071	0.0075	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.071	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.071	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.071	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.071	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.152	0.035	0.016	mg/kg	
132-64-9	Dibenzofuran	0.0728	0.071	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0057	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.071	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.071	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0544	0.071	0.0083	mg/kg	J
206-44-0	Fluoranthene	0.768	0.035	0.016	mg/kg	
86-73-7	Fluorene	0.0331	0.035	0.016	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.071	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.403	0.035	0.017	mg/kg	
78-59-1	Isophorone	ND	0.071	0.0075	mg/kg	
91-57-6	2-Methylnaphthalene	0.156	0.071	0.0080	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0091	mg/kg	
91-20-3	Naphthalene	0.121	0.035	0.0099	mg/kg	
98-95-3	Nitrobenzene	ND	0.071	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.071	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.392	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.759	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0090	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	85%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	83%		30-106%
118-79-6	2,4,6-Tribromophenol	95%		24-140%
4165-60-0	Nitrobenzene-d5	79%		26-122%
321-60-8	2-Fluorobiphenyl	87%		36-112%
1718-51-0	Terphenyl-d14	89%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129821.D	1	11/21/16	KD	11/09/16	OP98416	G1G4146
Run #2							

	Initial Weight	Final Volume
Run #1	16.9 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00063	0.00030	mg/kg	
319-84-6	alpha-BHC	ND	0.00063	0.00034	mg/kg	
319-85-7	beta-BHC	ND	0.00063	0.00040	mg/kg	
319-86-8	delta-BHC	ND	0.00063	0.00028	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00063	0.00028	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00063	0.00030	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00063	0.00028	mg/kg	
60-57-1	Dieldrin	ND	0.00063	0.00032	mg/kg	
72-54-8	4,4'-DDD	ND	0.00063	0.00040	mg/kg	
72-55-9	4,4'-DDE	ND	0.00063	0.00033	mg/kg	
50-29-3	4,4'-DDT	0.0104	0.00063	0.00037	mg/kg	
72-20-8	Endrin	ND	0.00063	0.00030	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00063	0.00025	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00063	0.00037	mg/kg	
959-98-8	Endosulfan-I	ND	0.00063	0.00033	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00063	0.00033	mg/kg	
76-44-8	Heptachlor	ND	0.00063	0.00031	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00063	0.00034	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00031	mg/kg	
53494-70-5	Endrin ketone	ND	0.00063	0.00049	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0066	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	91%		24-136%
877-09-8	Tetrachloro-m-xylene	90%		24-136%
2051-24-3	Decachlorobiphenyl	118%		10-153%
2051-24-3	Decachlorobiphenyl	168% [a]		10-153%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX199989.D	1	11/11/16	JR	11/09/16	OP98415	GXX5856
Run #2							

	Initial Weight	Final Volume
Run #1	16.9 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.032	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.032	0.015	mg/kg	
11141-16-5	Aroclor 1232	ND	0.032	0.012	mg/kg	
53469-21-9	Aroclor 1242	ND	0.032	0.011	mg/kg	
12672-29-6	Aroclor 1248	ND	0.032	0.020	mg/kg	
11097-69-1	Aroclor 1254	ND	0.032	0.016	mg/kg	
11096-82-5	Aroclor 1260	ND	0.032	0.013	mg/kg	
11100-14-4	Aroclor 1268	ND	0.032	0.011	mg/kg	
37324-23-5	Aroclor 1262	ND	0.032	0.021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	79%		20-152%
877-09-8	Tetrachloro-m-xylene	89%		20-152%
2051-24-3	Decachlorobiphenyl	77%		12-157%
2051-24-3	Decachlorobiphenyl	211% [a]		12-157%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	93.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3570	53	mg/kg	1	11/08/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Antimony	2.7	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Arsenic	4.2	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Barium	100	21	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Beryllium	0.23	0.21	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Calcium	1970	530	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Chromium	11.2	1.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Copper	70.6	2.7	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Iron	10200	53	mg/kg	1	11/08/16	11/10/16	DE	SW846 6010C [2]	SW846 3050B [4]
Lead	88.0	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Magnesium	595	530	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Manganese	106	1.6	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Mercury	0.13	0.031	mg/kg	1	11/14/16	11/14/16	MS	SW846 7471B [3]	SW846 7471B [5]
Nickel	7.1	4.3	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Silver	0.72	0.53	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Vanadium	11.5	5.3	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]
Zinc	47.8	5.3	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA40733
(2) Instrument QC Batch: MA40740
(3) Instrument QC Batch: MA40759
(4) Prep QC Batch: MP97048
(5) Prep QC Batch: MP97120

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	93.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.22	0.22	mg/kg	1	11/10/16 13:18	BM	SW846 9012B/LACHAT
Solids, Percent	93.9		%	1	11/09/16 13:54	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36491.D	5	11/09/16	EH	11/08/16	GP1320	V2V1427
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	0.0019	D018	0.50	0.0025	0.00070	mg/l	J
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		76-120%
17060-07-0	1,2-Dichloroethane-D4	99%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	103%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31809.D	1	11/10/16	AC	11/09/16	OP98440	E6P1475
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	41%		14-88%
4165-62-2	Phenol-d5	26%		10-110%
118-79-6	2,4,6-Tribromophenol	65%		39-149%
4165-60-0	Nitrobenzene-d5	71%		32-128%
321-60-8	2-Fluorobiphenyl	72%		35-119%
1718-51-0	Terphenyl-d14	91%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OA121179.D	1	11/11/16	RK	11/10/16	OP98447	GOA4167
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	88%		50-142%
19719-28-9	2,4-DCAA	78%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	93.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	8G475.D	1	11/18/16	RK	11/16/16	OP98444	G8G24
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%		30-137%
877-09-8	Tetrachloro-m-xylene	95%		30-137%
2051-24-3	Decachlorobiphenyl	93%		10-137%
2051-24-3	Decachlorobiphenyl	92%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	93.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/10/16	11/10/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40739
(2) Instrument QC Batch: MA40743
(3) Prep QC Batch: MP97065
(4) Prep QC Batch: MP97080

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB35-161107		
Lab Sample ID:	JC31250-2A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	93.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.28 NC		su	1	11/15/16 12:16	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/14/16 15:17	YZ	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 20:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/14/16 10:01	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C132952.D	1	11/10/16	PS	11/08/16 08:00	n/a	V3C6063
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0056	mg/kg	
71-43-2	Benzene	ND	0.00056	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0056	0.00036	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0022	0.00017	mg/kg	
75-25-2	Bromoform	ND	0.0056	0.00030	mg/kg	
74-83-9	Bromomethane	ND	0.0056	0.00054	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0020	mg/kg	
75-15-0	Carbon disulfide	ND	0.0022	0.00019	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0022	0.00019	mg/kg	
108-90-7	Chlorobenzene	ND	0.0022	0.00018	mg/kg	
75-00-3	Chloroethane	ND	0.0056	0.00048	mg/kg	
67-66-3	Chloroform	ND	0.0022	0.00027	mg/kg	
74-87-3	Chloromethane	ND	0.0056	0.00024	mg/kg	
110-82-7	Cyclohexane	ND	0.0022	0.00061	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0022	0.00054	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0022	0.00017	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00027	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00019	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00017	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0056	0.00061	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00019	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00049	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00018	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0022	0.00035	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0022	0.00022	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0022	0.00025	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00017	mg/kg	
76-13-1	Freon 113 [a]	ND	0.0056	0.00054	mg/kg	
591-78-6	2-Hexanone	ND	0.0056	0.0016	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0022	0.00017	mg/kg	
79-20-9	Methyl Acetate	ND	0.0056	0.0023	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0022	0.00056	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00030	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0056	0.00095	mg/kg	
75-09-2	Methylene chloride	0.0012	0.0056	0.0011	mg/kg	J
100-42-5	Styrene	ND	0.0022	0.00016	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.028	0.0034	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0022	0.00027	mg/kg	
127-18-4	Tetrachloroethene	0.00054	0.0022	0.00031	mg/kg	J
108-88-3	Toluene	ND	0.0011	0.00014	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0056	0.00025	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0056	0.00020	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0022	0.00019	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0022	0.00036	mg/kg	
79-01-6	Trichloroethene	0.0013	0.0011	0.00021	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0056	0.00070	mg/kg	
75-01-4	Vinyl chloride	ND	0.0022	0.00023	mg/kg	
	m,p-Xylene	ND	0.0011	0.00024	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00023	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		70-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	92%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M88852.D	1	11/10/16	SB	11/09/16	OP98422	E2M3945
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.072	0.018	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.031	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.064	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.072	0.023	mg/kg	
	3&4-Methylphenol	ND	0.072	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.024	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.096	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.034	mg/kg	
108-95-2	Phenol	ND	0.072	0.019	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.024	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	0.0847	0.036	0.012	mg/kg	
208-96-8	Acenaphthylene	0.154	0.036	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0077	mg/kg	
120-12-7	Anthracene	0.360	0.036	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.072	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.601	0.036	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.581	0.036	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	1.03	0.036	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.454	0.036	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.329	0.036	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.072	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.072	0.0087	mg/kg	
92-52-4	1,1'-Biphenyl	0.0213	0.072	0.0049	mg/kg	J
100-52-7	Benzaldehyde	0.0294	0.18	0.0089	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.072	0.0085	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.159	0.072	0.0052	mg/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.072	0.014	mg/kg	
218-01-9	Chrysene	0.770	0.036	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.072	0.0077	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.072	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.072	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.072	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.036	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.036	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.072	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.036	0.024	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.151	0.036	0.016	mg/kg	
132-64-9	Dibenzofuran	0.0804	0.072	0.015	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.072	0.0058	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.072	0.0089	mg/kg	
84-66-2	Diethyl phthalate	ND	0.072	0.0076	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.072	0.0064	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0767	0.072	0.0084	mg/kg	
206-44-0	Fluoranthene	1.37	0.036	0.016	mg/kg	
86-73-7	Fluorene	0.0798	0.036	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.072	0.0091	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.036	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.36	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.433	0.036	0.017	mg/kg	
78-59-1	Isophorone	ND	0.072	0.0077	mg/kg	
91-57-6	2-Methylnaphthalene	0.0916	0.072	0.0081	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0084	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0089	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0093	mg/kg	
91-20-3	Naphthalene	0.0842	0.036	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.072	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.072	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.832	0.036	0.012	mg/kg	
129-00-0	Pyrene	1.13	0.036	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0091	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	82%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	78%		30-106%
118-79-6	2,4,6-Tribromophenol	98%		24-140%
4165-60-0	Nitrobenzene-d5	75%		26-122%
321-60-8	2-Fluorobiphenyl	84%		36-112%
1718-51-0	Terphenyl-d14	89%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129674.D	1	11/17/16	RK	11/09/16	OP98416	G1G4143
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00070	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00070	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00070	0.00044	mg/kg	
319-86-8	delta-BHC	ND	0.00070	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00070	0.00031	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0082	0.00070	0.00033	mg/kg	
5103-74-2	gamma-Chlordane	0.0043	0.00070	0.00031	mg/kg	
60-57-1	Dieldrin	0.0402	0.00070	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00070	0.00045	mg/kg	
72-55-9	4,4'-DDE	ND	0.00070	0.00037	mg/kg	
50-29-3	4,4'-DDT	0.0138	0.00070	0.00042	mg/kg	
72-20-8	Endrin	ND	0.00070	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00070	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00070	0.00042	mg/kg	
959-98-8	Endosulfan-I	ND	0.00070	0.00037	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00070	0.00037	mg/kg	
76-44-8	Heptachlor	ND	0.00070	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00070	0.00038	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00070	0.00054	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		24-136%
877-09-8	Tetrachloro-m-xylene	91%		24-136%
2051-24-3	Decachlorobiphenyl	82%		10-153%
2051-24-3	Decachlorobiphenyl	139%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX199990.D	1	11/11/16	JR	11/09/16	OP98415	GXX5856
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.018	mg/kg	
11096-82-5	Aroclor 1260	0.0981	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	91%		20-152%
877-09-8	Tetrachloro-m-xylene	104%		20-152%
2051-24-3	Decachlorobiphenyl	72%		12-157%
2051-24-3	Decachlorobiphenyl	163% [a]		12-157%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	91.3
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6460	54	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Arsenic	3.9	2.2	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Barium	111	22	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Beryllium	0.24	0.22	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Cadmium	0.63	0.54	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Calcium	8110	540	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Chromium	22.0	1.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Cobalt	< 5.4	5.4	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Copper	72.7	2.7	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Iron	10800	54	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Lead	55.7	2.2	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Magnesium	4610	540	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Manganese	159	1.6	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Mercury	0.10	0.035	mg/kg	1	11/14/16	11/14/16	MS	SW846 7471B [2]	SW846 7471B [4]
Nickel	11.1	4.3	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Silver	0.63	0.54	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Vanadium	17.2	5.4	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Zinc	95.7	5.4	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA40733
(2) Instrument QC Batch: MA40759
(3) Prep QC Batch: MP97048
(4) Prep QC Batch: MP97120

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	91.3
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.42	0.22	mg/kg	1	11/10/16 13:19	BM	SW846 9012B/LACHAT
Solids, Percent	91.3		%	1	11/09/16 13:54	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36492.D	5	11/09/16	EH	11/08/16	GP1320	V2V1427
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	0.0057	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		76-120%
17060-07-0	1,2-Dichloroethane-D4	101%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	103%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31810.D	1	11/10/16	AC	11/09/16	OP98440	E6P1475
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	40%		14-88%
4165-62-2	Phenol-d5	26%		10-110%
118-79-6	2,4,6-Tribromophenol	70%		39-149%
4165-60-0	Nitrobenzene-d5	67%		32-128%
321-60-8	2-Fluorobiphenyl	65%		35-119%
1718-51-0	Terphenyl-d14	81%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OA121180.D	1	11/11/16	RK	11/10/16	OP98447	GOA4167
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	95%		50-142%
19719-28-9	2,4-DCAA	87%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	91.3
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74980.D	1	11/16/16	KD	11/09/16	OP98444	G4G1951
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	107%		30-137%
877-09-8	Tetrachloro-m-xylene	107%		30-137%
2051-24-3	Decachlorobiphenyl	94%		10-137%
2051-24-3	Decachlorobiphenyl	90%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	91.3
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/10/16	11/10/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40739
(2) Instrument QC Batch: MA40743
(3) Prep QC Batch: MP97065
(4) Prep QC Batch: MP97080

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB34-161107		
Lab Sample ID:	JC31250-3A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	91.3
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.85 NC		su	1	11/15/16 12:16	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/14/16 15:19	YZ	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 20:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/14/16 10:01	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C132953.D	1	11/10/16	PS	11/08/16 08:00	n/a	V3C6063
Run #2							

	Initial Weight
Run #1	4.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0057	mg/kg	
71-43-2	Benzene	ND	0.00057	0.00014	mg/kg	
74-97-5	Bromochloromethane	ND	0.0057	0.00037	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0023	0.00017	mg/kg	
75-25-2	Bromoform	ND	0.0057	0.00031	mg/kg	
74-83-9	Bromomethane	ND	0.0057	0.00056	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0020	mg/kg	
75-15-0	Carbon disulfide	ND	0.0023	0.00020	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0023	0.00019	mg/kg	
108-90-7	Chlorobenzene	ND	0.0023	0.00019	mg/kg	
75-00-3	Chloroethane	ND	0.0057	0.00049	mg/kg	
67-66-3	Chloroform	ND	0.0023	0.00027	mg/kg	
74-87-3	Chloromethane	ND	0.0057	0.00024	mg/kg	
110-82-7	Cyclohexane	ND	0.0023	0.00063	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0023	0.00056	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0023	0.00017	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00028	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00020	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00016	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00018	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0057	0.00063	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00020	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00018	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00050	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00018	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0023	0.00035	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0023	0.00022	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0023	0.00025	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00017	mg/kg	
76-13-1	Freon 113 [a]	ND	0.0057	0.00056	mg/kg	
591-78-6	2-Hexanone	ND	0.0057	0.0016	mg/kg	

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RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0023	0.00018	mg/kg	
79-20-9	Methyl Acetate	ND	0.0057	0.0023	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0023	0.00058	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00030	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0057	0.00097	mg/kg	
75-09-2	Methylene chloride	0.0022	0.0057	0.0011	mg/kg	J
100-42-5	Styrene	ND	0.0023	0.00017	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.029	0.0035	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0023	0.00027	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0023	0.00032	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00014	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0057	0.00026	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0057	0.00021	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0023	0.00019	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0023	0.00037	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00022	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0057	0.00072	mg/kg	
75-01-4	Vinyl chloride	ND	0.0023	0.00023	mg/kg	
	m,p-Xylene	ND	0.0011	0.00025	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00023	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-122%
17060-07-0	1,2-Dichloroethane-D4	104%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	96%		72-130%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M88853.D	1	11/10/16	SB	11/09/16	OP98422	E2M3945
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.071	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.023	mg/kg	
	3&4-Methylphenol	ND	0.071	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.071	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0272	0.035	0.018	mg/kg	J
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	0.0593	0.035	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.071	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0932	0.035	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.0802	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.200	0.035	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0789	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0601	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.071	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.071	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.071	0.0048	mg/kg	
100-52-7	Benzaldehyde	0.0331	0.18	0.0087	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.071	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0319	0.071	0.0051	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.071	0.014	mg/kg	
218-01-9	Chrysene	0.154	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.071	0.0075	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.071	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.071	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.071	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.071	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0225	0.035	0.016	mg/kg	J
132-64-9	Dibenzofuran	ND	0.071	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0057	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.071	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.071	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0484	0.071	0.0082	mg/kg	J
206-44-0	Fluoranthene	0.129	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.071	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0743	0.035	0.017	mg/kg	
78-59-1	Isophorone	ND	0.071	0.0075	mg/kg	
91-57-6	2-Methylnaphthalene	0.0163	0.071	0.0080	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0091	mg/kg	
91-20-3	Naphthalene	0.0157	0.035	0.0099	mg/kg	J
98-95-3	Nitrobenzene	ND	0.071	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.071	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.0551	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.110	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0090	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	83%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		30-106%
118-79-6	2,4,6-Tribromophenol	93%		24-140%
4165-60-0	Nitrobenzene-d5	70%		26-122%
321-60-8	2-Fluorobiphenyl	84%		36-112%
1718-51-0	Terphenyl-d14	85%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129675.D	1	11/17/16	RK	11/09/16	OP98416	G1G4143
Run #2	1G129822.D	5	11/21/16	KD	11/09/16	OP98416	G1G4146

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2	15.6 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00069	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00069	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00069	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00069	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00069	0.00031	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0898 [b]	0.0035	0.0016	mg/kg	
5103-74-2	gamma-Chlordane	0.104 [b]	0.0035	0.0015	mg/kg	
60-57-1	Dieldrin	ND	0.00069	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00069	0.00044	mg/kg	
72-55-9	4,4'-DDE	0.0139	0.00069	0.00036	mg/kg	
50-29-3	4,4'-DDT	0.0291	0.00069	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00069	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00069	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00069	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00069	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00069	0.00036	mg/kg	
76-44-8	Heptachlor	0.0153	0.00069	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide [a]	0.0040	0.00069	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00069	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	100%	109%	24-136%
877-09-8	Tetrachloro-m-xylene	104%	100%	24-136%
2051-24-3	Decachlorobiphenyl	100%	91%	10-153%
2051-24-3	Decachlorobiphenyl	118%	126%	10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.
(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX199991.D	1	11/11/16	JR	11/09/16	OP98415	GXX5856
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	108%		20-152%
877-09-8	Tetrachloro-m-xylene	112%		20-152%
2051-24-3	Decachlorobiphenyl	86%		12-157%
2051-24-3	Decachlorobiphenyl	140%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	92.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2560	52	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Arsenic	< 2.1	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Barium	< 21	21	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Beryllium	< 0.21	0.21	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Calcium	1030	520	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Chromium	8.8	1.0	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Copper	14.7	2.6	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Iron	5130	52	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Lead	20.6	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Magnesium	< 520	520	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Manganese	80.8	1.6	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Mercury	< 0.032	0.032	mg/kg	1	11/14/16	11/14/16	MS	SW846 7471B [2]	SW846 7471B [4]
Nickel	4.5	4.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Vanadium	5.5	5.2	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]
Zinc	29.3	5.2	mg/kg	1	11/08/16	11/09/16	DE	SW846 6010C [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA40733
(2) Instrument QC Batch: MA40759
(3) Prep QC Batch: MP97048
(4) Prep QC Batch: MP97120

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	92.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.23	0.23	mg/kg	1	11/10/16 13:20	BM	SW846 9012B/LACHAT
Solids, Percent	92.7		%	1	11/09/16 13:54	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3B132107.D	5	11/11/16	HA	11/08/16	GP1320	V3B5884
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		76-120%
17060-07-0	1,2-Dichloroethane-D4	110%		64-135%
2037-26-5	Toluene-D8	99%		76-117%
460-00-4	4-Bromofluorobenzene	98%		72-122%

(a) Dilution required due to turpitidy.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P31811.D	1	11/10/16	AC	11/09/16	OP98440	E6P1475
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		14-88%
4165-62-2	Phenol-d5	23%		10-110%
118-79-6	2,4,6-Tribromophenol	65%		39-149%
4165-60-0	Nitrobenzene-d5	69%		32-128%
321-60-8	2-Fluorobiphenyl	73%		35-119%
1718-51-0	Terphenyl-d14	80%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	OA121183.D	1	11/12/16	RK	11/10/16	OP98447	GOA4167
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	94%		50-142%
19719-28-9	2,4-DCAA	80%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74981.D	1	11/16/16	KD	11/09/16	OP98444	G4G1951
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	101%		30-137%
877-09-8	Tetrachloro-m-xylene	101%		30-137%
2051-24-3	Decachlorobiphenyl	88%		10-137%
2051-24-3	Decachlorobiphenyl	83%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	92.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/10/16	11/10/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/09/16	11/10/16	AB	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40739
(2) Instrument QC Batch: MA40743
(3) Prep QC Batch: MP97065
(4) Prep QC Batch: MP97080

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB32-161107		
Lab Sample ID:	JC31250-4A	**Date Sampled:**	11/07/16
Matrix:	SO - Soil	**Date Received:**	11/07/16
		Percent Solids:	92.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.20 NC		su	1	11/15/16 12:16	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/14/16 15:20	YZ	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/15/16 20:00	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/14/16 10:01	MP	SW846 CHAP7/9034

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Parameter Certification Exceptions

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Cyanide Reactivity		**SW846 CHAP7/9012 B**	SO	Accutest is not certified for this parameter.[a]
Sulfide Reactivity		**SW846 CHAP7/9034**	SO	Accutest is not certified for this parameter.[a]

(a) Reactivity analyzed following SW846 Chapter 7 is no longer recognized by regulatory agencies. Use of results should be verified through the program to which the data is being submitted.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

SGS ACCUTEST SLC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC31250

Client / Reporting Information

Company Name: Matrix NewWorld Engineering
Street Address: 26 Columbia Tpk
City: Florham Park NJ Zip: 07932
Project Contact: Brian Crespi BCrespi@matrixnewworld.com
Phone #: 212-344-4251
Sampler(s) Name(s): M. Clelland
Phone #:

Project Information

Project Name: LIRR expansion
Street:
City: Long Island, NY State:
Project #: 16-A4
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCL/TAL (FULL), TCLP (FULL), DIOXIN, RCRA Char.

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (FULL)	TCLP (FULL)	DIOXIN	RCRA Char.	LAB USE ONLY
1	SB30-161107	0	11/7/16	1012	MC	S	7					4			3	X	X	X	X	D47
2	SB35-161107	0	11/7/16	1117	MC	S	7					4			3	X	X	X	X	H71
3	SB34-161107	0	11/7/16	1200	MC	S	7					4			3	X	X	X	X	P32
4	SB32-161107	0	11/7/16	1327	MC	S	7					4			3	X	X	X	X	14C4
																				4099
																				SUB

INITIAL ASESSMENT 3A JK
LABEL VERIFICATION JK

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other _____

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format _____
- [ ] Other _____

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice
o 3 encores received 11/7/16 JK

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	1415 11/7/16	[signature]	[signature]	11/7/16 17:13	[signature]
2						
3						
4						
5						

Custody Seal # 334 — [x] Intact [ ] Not intact
Preserved where applicable [ ]
On Ice [x]
Cooler Temp. 2.5C°
IG

JC31250: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31250 **Client:** **Project:**

Date / Time Received: 11/7/2016 5:13:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (0.2);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31250

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31250-1 Collected: 07-NOV-16 10:12 By: MC Received: 07-NOV-16 By: AS SB30-161107						
JC31250-1	SM2540 G-97	09-NOV-16 13:54	MH			SOL104
JC31250-1	SW846 6010C	09-NOV-16 21:09	DE	08-NOV-16	DP	AG,AL,AS,BA,BE,CA,CD,CO,FE,K,MG,NA,NI,PB,SB,SE,TL,V,ZN
JC31250-1	SW846 9012B/LACHAT	10-NOV-16 13:16	BM	09-NOV-16	HS	CN
JC31250-1	SW846 6010C	10-NOV-16 13:21	DE	08-NOV-16	DP	CR,CU,MN
JC31250-1	SW846 8270D	10-NOV-16 16:39	AN	09-NOV-16	FN	AB8270TCL20
JC31250-1	SW846 8260C	10-NOV-16 18:36	PS			V8260TCL20
JC31250-1	SW846 8082A	11-NOV-16 09:34	JR	09-NOV-16	SZ	P8082PCB11AO
JC31250-1	SW846 7471B	14-NOV-16 12:22	MS	14-NOV-16	MS	HG
JC31250-1	SW846 8081B	17-NOV-16 21:21	RK	09-NOV-16	SZ	P8081PESTTCL
JC31250-2 Collected: 07-NOV-16 11:17 By: MC Received: 07-NOV-16 By: AS SB35-161107						
JC31250-2	SM2540 G-97	09-NOV-16 13:54	MH			SOL104
JC31250-2	SW846 6010C	09-NOV-16 21:13	DE	08-NOV-16	DP	AG,AS,BA,BE,CA,CD,CO,CR,CU,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31250-2	SW846 8260C	10-NOV-16 02:27	PS			V8260TCL20
JC31250-2	SW846 8270D	10-NOV-16 06:06	SB	09-NOV-16	FN	AB8270TCL20
JC31250-2	SW846 9012B/LACHAT	10-NOV-16 13:18	BM	09-NOV-16	HS	CN
JC31250-2	SW846 6010C	10-NOV-16 13:25	DE	08-NOV-16	DP	AL,FE
JC31250-2	SW846 8082A	11-NOV-16 09:50	JR	09-NOV-16	SZ	P8082PCB11AO
JC31250-2	SW846 7471B	14-NOV-16 12:23	MS	14-NOV-16	MS	HG
JC31250-2	SW846 8081B	21-NOV-16 15:40	KD	09-NOV-16	SZ	P8081PESTTCL
JC31250-3 Collected: 07-NOV-16 12:00 By: MC Received: 07-NOV-16 By: AS SB34-161107						
JC31250-3	SM2540 G-97	09-NOV-16 13:54	MH			SOL104
JC31250-3	SW846 6010C	09-NOV-16 21:17	DE	08-NOV-16	DP	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31250-3	SW846 8260C	10-NOV-16 02:55	PS			V8260TCL20
JC31250-3	SW846 8270D	10-NOV-16 06:31	SB	09-NOV-16	FN	AB8270TCL20
JC31250-3	SW846 9012B/LACHAT	10-NOV-16 13:19	BM	09-NOV-16	HS	CN
JC31250-3	SW846 8082A	11-NOV-16 10:07	JR	09-NOV-16	SZ	P8082PCB11AO

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31250

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31250-3	SW846 7471B	14-NOV-16 12:25	MS	14-NOV-16	MS	HG
JC31250-3	SW846 8081B	17-NOV-16 21:54	RK	09-NOV-16	SZ	P8081PESTTCL
JC31250-4	Collected: 07-NOV-16 13:27 By: MC		Received: 07-NOV-16 By: AS			
SB32-161107						
JC31250-4	SM2540 G-97	09-NOV-16 13:54	MH			SOL104
JC31250-4	SW846 6010C	09-NOV-16 21:21	DE	08-NOV-16	DP	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31250-4	SW846 8260C	10-NOV-16 03:23	PS			V8260TCL20
JC31250-4	SW846 8270D	10-NOV-16 06:56	SB	09-NOV-16	FN	AB8270TCL20
JC31250-4	SW846 9012B/LACHAT	10-NOV-16 13:20	BM	09-NOV-16	HS	CN
JC31250-4	SW846 8082A	11-NOV-16 10:24	JR	09-NOV-16	SZ	P8082PCB11AO
JC31250-4	SW846 7471B	14-NOV-16 12:26	MS	14-NOV-16	MS	HG
JC31250-4	SW846 8081B	17-NOV-16 22:11	RK	09-NOV-16	SZ	P8081PESTTCL
JC31250-4	SW846 8081B	21-NOV-16 15:57	KD	09-NOV-16	SZ	P8081PESTTCL
JC31250-1A	Collected: 07-NOV-16 10:12 By: MC		Received: 07-NOV-16 By: AS			
SB30-161107						
JC31250-1A	SW846 8260C	09-NOV-16 13:01	EH	08-NOV-16	MS	V8260TCLP
JC31250-1A	SW846 7470A	10-NOV-16 13:36	JPM	10-NOV-16	JPM	EHG
JC31250-1A	SW846 8270D	10-NOV-16 19:25	AC	09-NOV-16	RF	AB8270TCLP
JC31250-1A	SW846 6010C	10-NOV-16 21:29	AB	09-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31250-1A	SW846 8151	11-NOV-16 22:57	RK	10-NOV-16	AQ	H8151TCLP
JC31250-1A	SW846 CHAP7/9034	14-NOV-16 10:01	MP	13-NOV-16	CB	SREAC
JC31250-1A	SW846 CHAP7/9012 B	14-NOV-16 15:16	YZ	13-NOV-16	CB	CREAC
JC31250-1A	SW846 9045D	15-NOV-16 12:16	ST			CORR
JC31250-1A	SW846 1010A/ASTM D93	15-NOV-16 20:00	AT			IGN
JC31250-1A	SW846 8081B	16-NOV-16 18:57	KD	09-NOV-16	RF	P8081TCLP
JC31250-2A	Collected: 07-NOV-16 11:17 By: MC		Received: 07-NOV-16 By: AS			
SB35-161107						
JC31250-2A	SW846 8260C	09-NOV-16 20:16	EH	08-NOV-16	MS	V8260TCLP
JC31250-2A	SW846 7470A	10-NOV-16 13:38	JPM	10-NOV-16	JPM	EHG
JC31250-2A	SW846 8270D	10-NOV-16 19:49	AC	09-NOV-16	RF	AB8270TCLP
JC31250-2A	SW846 6010C	10-NOV-16 21:46	AB	09-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31250-2A	SW846 8151	11-NOV-16 23:26	RK	10-NOV-16	AQ	H8151TCLP

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31250

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31250-2A	SW846 CHAP7/9034	14-NOV-16 10:01	MP	13-NOV-16	CB	SREAC
JC31250-2A	SW846 CHAP7/9012 B	14-NOV-16 15:17	YZ	13-NOV-16	CB	CREAC
JC31250-2A	SW846 9045D	15-NOV-16 12:16	ST			CORR
JC31250-2A	SW846 1010A/ASTM D93	15-NOV-16 20:00	AT			IGN
JC31250-2A	SW846 8081B	18-NOV-16 01:24	RK	16-NOV-16	YB	P8081TCLP
JC31250-3A	Collected: 07-NOV-16 12:00 By: MC		Received: 07-NOV-16 By: AS			
SB34-161107						
JC31250-3A	SW846 8260C	09-NOV-16 20:43	EH	08-NOV-16	MS	V8260TCLP
JC31250-3A	SW846 7470A	10-NOV-16 13:42	JPM	10-NOV-16	JPM	EHG
JC31250-3A	SW846 8270D	10-NOV-16 20:13	AC	09-NOV-16	RF	AB8270TCLP
JC31250-3A	SW846 6010C	10-NOV-16 21:52	AB	09-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31250-3A	SW846 8151	11-NOV-16 23:55	RK	10-NOV-16	AQ	H8151TCLP
JC31250-3A	SW846 CHAP7/9034	14-NOV-16 10:01	MP	13-NOV-16	CB	SREAC
JC31250-3A	SW846 CHAP7/9012 B	14-NOV-16 15:19	YZ	13-NOV-16	CB	CREAC
JC31250-3A	SW846 9045D	15-NOV-16 12:16	ST			CORR
JC31250-3A	SW846 1010A/ASTM D93	15-NOV-16 20:00	AT			IGN
JC31250-3A	SW846 8081B	16-NOV-16 19:12	KD	09-NOV-16	RF	P8081TCLP
JC31250-4A	Collected: 07-NOV-16 13:27 By: MC		Received: 07-NOV-16 By: AS			
SB32-161107						
JC31250-4A	SW846 7470A	10-NOV-16 13:43	JPM	10-NOV-16	JPM	EHG
JC31250-4A	SW846 8270D	10-NOV-16 20:37	AC	09-NOV-16	RF	AB8270TCLP
JC31250-4A	SW846 6010C	10-NOV-16 21:58	AB	09-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31250-4A	SW846 8260C	11-NOV-16 12:53	HA	08-NOV-16	MS	V8260TCLP
JC31250-4A	SW846 8151	12-NOV-16 01:21	RK	10-NOV-16	AC	H8151TCLP
JC31250-4A	SW846 CHAP7/9034	14-NOV-16 10:01	MP	13-NOV-16	CB	SREAC
JC31250-4A	SW846 CHAP7/9012 B	14-NOV-16 15:20	YZ	13-NOV-16	CB	CREAC
JC31250-4A	SW846 9045D	15-NOV-16 12:16	ST			CORR
JC31250-4A	SW846 1010A/ASTM D93	15-NOV-16 20:00	AT			IGN
JC31250-4A	SW846 8081B	16-NOV-16 19:26	KD	09-NOV-16	RF	P8081TCLP

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-1.1	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-1.1	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-1.1	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-1.1	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-1.1	Secured Storage	Vikas Parikh	11/09/16 04:28	Retrieve from Storage
JC31250-1.1	Vikas Parikh	Meilly Arbelo	11/09/16 08:20	Custody Transfer
JC31250-1.1	Meilly Arbelo	Secured Storage	11/09/16 11:11	Return to Storage
JC31250-1.1	Secured Storage	Todd Shoemaker	11/09/16 14:47	Retrieve from Storage
JC31250-1.1	Todd Shoemaker	Secured Staging Area	11/09/16 14:47	Return to Storage
JC31250-1.1	Secured Staging Area	Hans Seignon	11/09/16 15:15	Retrieve from Storage
JC31250-1.1	Hans Seignon	Secured Storage	11/09/16 21:56	Return to Storage
JC31250-1.1	Secured Storage	Courtney Dringus	11/10/16 06:58	Retrieve from Storage
JC31250-1.1	Courtney Dringus	Secured Storage	11/10/16 11:21	Return to Storage
JC31250-1.1	Secured Storage	Edwin Gonzalez	11/10/16 18:01	Retrieve from Storage
JC31250-1.1	Edwin Gonzalez	Secured Staging Area	11/10/16 18:01	Return to Storage
JC31250-1.1	Edwin Gonzalez	Secured Storage	11/10/16 19:50	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-1.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31250-1.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31250-1.1	Secured Storage	Jessica Adametz	11/12/16 11:15	Retrieve from Storage
JC31250-1.1	Jessica Adametz	Secured Storage	11/12/16 12:25	Return to Storage
JC31250-1.1	Secured Storage	Sahara Feliciano	11/13/16 07:54	Retrieve from Storage
JC31250-1.1	Sahara Feliciano	Secured Staging Area	11/13/16 07:54	Return to Storage
JC31250-1.1	Secured Staging Area	Chris Brunson	11/13/16 12:44	Retrieve from Storage
JC31250-1.1	Chris Brunson	Secured Storage	11/13/16 17:02	Return to Storage
JC31250-1.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31250-1.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31250-1.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31250-1.1	Sarvadaman Tripathi	Secured Storage	11/15/16 16:21	Return to Storage
JC31250-1.1	Secured Storage	Amir Takla	11/15/16 20:06	Retrieve from Storage
JC31250-1.1	Amir Takla	Secured Storage	11/15/16 20:46	Return to Storage
JC31250-1.1.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-1.1
JC31250-1.1.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-1.1
JC31250-1.1.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-1.1.1	Secured Storage	Eddie Huang	11/09/16 14:44	Retrieve from Storage
JC31250-1.1.1	Eddie Huang	GCMS2V	11/09/16 14:44	Load on Instrument
JC31250-1.1.1	GCMS2V	Eddie Huang	11/10/16 10:42	Unload from Instrument
JC31250-1.1.1	Eddie Huang	Secured Storage	11/10/16 10:42	Return to Storage
JC31250-1.1.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-1.1
JC31250-1.1.2	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-1.1
JC31250-1.1.2	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-1.1.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-1.1
JC31250-1.1.3	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-1.1
JC31250-1.1.3	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-1.1.3	Secured Storage	Radhika Mistry	11/09/16 17:13	Retrieve from Storage
JC31250-1.1.3	Radhika Mistry	Secured Storage	11/09/16 17:16	Return to Storage
JC31250-1.1.4	Vikas Parikh	Organics Prep	11/09/16 04:35	Extract from JC31250-1.1
JC31250-1.1.5	Meilly Arbelo	Organics Prep	11/09/16 08:33	Extract from JC31250-1.1
JC31250-1.1.5	Organics Prep	Steven Zarchy	11/09/16 17:43	Extract from JC31250-1.1
JC31250-1.1.5	Steven Zarchy	Extract Storage	11/09/16 17:43	Return to Storage
JC31250-1.1.5	Extract Storage	William Gonzalez	11/10/16 18:00	Retrieve from Storage
JC31250-1.1.5	William Gonzalez	GCXX	11/10/16 18:00	Load on Instrument
JC31250-1.1.6	Meilly Arbelo	Organics Prep	11/09/16 08:34	Extract from JC31250-1.1
JC31250-1.1.6	Organics Prep	Steven Zarchy	11/09/16 17:44	Extract from JC31250-1.1
JC31250-1.1.6	Steven Zarchy	Extract Storage	11/09/16 17:44	Return to Storage
JC31250-1.1.6	Extract Storage	Kristen Drake	11/17/16 17:02	Retrieve from Storage
JC31250-1.1.6	Kristen Drake	GC1G	11/17/16 17:02	Load on Instrument
JC31250-1.1.7	Radhika Mistry	Metals Digestion	11/09/16 17:15	Digestate from JC31250-1.1.3
JC31250-1.1.7	Metals Digestion	Radhika Mistry	11/09/16 17:15	Digestate from JC31250-1.1.3
JC31250-1.1.7	Radhika Mistry	Metals Digestate Storage	11/09/16 17:15	Return to Storage
JC31250-1.2	Secured Storage	Bernadette Vassilatos	11/08/16 12:39	Retrieve from Storage
JC31250-1.2	Bernadette Vassilatos		11/08/16 12:39	Subcontract
JC31250-1.3	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-1.3	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-1.3	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-1.3	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-1.3.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-1.3
JC31250-1.3.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-1.3
JC31250-1.3.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-1.3.1	Secured Storage	Ryan Fantasia	11/09/16 15:18	Retrieve from Storage
JC31250-1.3.1	Ryan Fantasia	Secured Storage	11/10/16 00:39	Return to Storage
JC31250-1.3.1	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31250-1.3.1	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31250-1.3.1	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31250-1.3.1	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31250-1.3.1	Secured Storage	Yaw Britwum	11/16/16 16:19	Retrieve from Storage
JC31250-1.3.1	Yaw Britwum	Secured Storage	11/16/16 22:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-1.3.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-1.3
JC31250-1.3.2	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-1.3
JC31250-1.3.2	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-1.3.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-1.3
JC31250-1.3.3	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-1.3
JC31250-1.3.3	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-1.3.4	Ryan Fantasia	Organics Prep	11/09/16 15:38	Extract from JC31250-1.3.1
JC31250-1.3.4	Organics Prep	Albert Quayson	11/10/16 17:15	Extract from JC31250-1.3.1
JC31250-1.3.4	Albert Quayson	Extract Storage	11/10/16 17:15	Return to Storage
JC31250-1.3.4	Extract Storage	Joseph Ravino	11/11/16 17:26	Retrieve from Storage
JC31250-1.3.4	Joseph Ravino	GCOA	11/11/16 17:26	Load on Instrument
JC31250-1.3.4	GCOA	Vincent Drago	11/14/16 10:23	Unload from Instrument
JC31250-1.3.4	Vincent Drago	Extract Freezer	11/14/16 10:24	Return to Storage
JC31250-1.3.5	Ryan Fantasia	Organics Prep	11/09/16 15:41	Extract from JC31250-1.3.1
JC31250-1.3.5	Organics Prep	Ryan Fantasia	11/10/16 01:08	Extract from JC31250-1.3.1
JC31250-1.3.5	Ryan Fantasia	Extract Storage	11/10/16 01:08	Return to Storage
JC31250-1.3.5	Extract Storage	Kristen Drake	11/16/16 10:00	Retrieve from Storage
JC31250-1.3.5	Kristen Drake	GC4G	11/16/16 10:00	Load on Instrument
JC31250-1.3.6	Ryan Fantasia	Organics Prep	11/09/16 15:49	Extract from JC31250-1.3.1
JC31250-1.3.6	Organics Prep	Ryan Fantasia	11/10/16 01:18	Extract from JC31250-1.3.1
JC31250-1.3.6	Ryan Fantasia	Extract Storage	11/10/16 01:18	Return to Storage
JC31250-1.3.6	Extract Storage	Arielle Cocozza	11/10/16 11:28	Retrieve from Storage
JC31250-1.3.6	Arielle Cocozza	GCMS6P	11/10/16 11:28	Load on Instrument
JC31250-1.3.6	GCMS6P	Arielle Cocozza	11/14/16 11:02	Unload from Instrument
JC31250-1.3.6	Arielle Cocozza	Extract Freezer	11/14/16 11:02	Return to Storage
JC31250-1.3.7	Nicholas Goydish	Organics Prep	11/10/16 07:45	Extract from JC31250-1.3.1
JC31250-1.3.7	Organics Prep	Albert Quayson	11/10/16 17:13	Extract from JC31250-1.3.1
JC31250-1.3.7	Albert Quayson	Extract Storage	11/10/16 17:13	Return to Storage
JC31250-1.3.8	Yaw Britwum	Organics Prep	11/16/16 16:21	Extract from JC31250-1.3.1
JC31250-1.3.8	Organics Prep	Nicholas Goydish	11/18/16 15:47	Extract from JC31250-1.3.1
JC31250-1.3.8	Nicholas Goydish	Extract Storage	11/18/16 15:47	Return to Storage
JC31250-1.3.9	Yaw Britwum	Organics Prep	11/16/16 16:22	Extract from JC31250-1.3.1
JC31250-1.3.10	Yaw Britwum	Organics Prep	11/16/16 16:28	Extract from JC31250-1.3.1
JC31250-1.4	Secured Storage	Todd Shoemaker	11/08/16 11:50	Retrieve from Storage
JC31250-1.4	Todd Shoemaker	Secured Staging Area	11/08/16 11:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-1.4	Secured Staging Area	Radhika Mistry	11/08/16 16:07	Retrieve from Storage
JC31250-1.4	Radhika Mistry	Secured Storage	11/08/16 16:17	Return to Storage
JC31250-1.4	Secured Storage	Todd Shoemaker	11/09/16 10:28	Retrieve from Storage
JC31250-1.4	Todd Shoemaker	Secured Staging Area	11/09/16 10:29	Return to Storage
JC31250-1.4	Luis Villanueva	Secured Storage	11/09/16 12:46	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-1.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31250-1.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31250-1.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31250-1.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31250-1.4.1	Radhika Mistry	Metals Digestion	11/08/16 16:09	Digestate from JC31250-1.4
JC31250-1.4.1	Metals Digestion	Radhika Mistry	11/08/16 16:09	Digestate from JC31250-1.4
JC31250-1.4.1	Radhika Mistry	Metals Digestate Storage	11/08/16 16:09	Return to Storage
JC31250-1.6	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-1.6	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-1.7	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-1.7	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-1.7	Secured Storage	Prashant Shukla	11/09/16 16:09	Retrieve from Storage
JC31250-1.7	Prashant Shukla	GCMS3C	11/09/16 16:09	Load on Instrument
JC31250-1.7	GCMS3C	Prashant Shukla	11/10/16 09:09	Unload from Instrument
JC31250-1.7	Prashant Shukla		11/10/16 09:09	Depleted
JC31250-1.8	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-1.8	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-1.8	Secured Storage	Prashant Shukla	11/10/16 17:00	Retrieve from Storage
JC31250-1.8	Prashant Shukla	GCMS3C	11/10/16 17:00	Load on Instrument
JC31250-1.8	GCMS3C	Prashant Shukla	11/12/16 08:44	Unload from Instrument
JC31250-1.8	Prashant Shukla		11/12/16 08:45	Depleted
JC31250-2.1	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-2.1	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-2.1	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-2.1	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-2.1	Secured Storage	Vikas Parikh	11/09/16 04:28	Retrieve from Storage
JC31250-2.1	Vikas Parikh	Meilly Arbelo	11/09/16 08:20	Custody Transfer
JC31250-2.1	Meilly Arbelo	Secured Storage	11/09/16 11:11	Return to Storage
JC31250-2.1	Secured Storage	Todd Shoemaker	11/09/16 14:47	Retrieve from Storage
JC31250-2.1	Todd Shoemaker	Secured Staging Area	11/09/16 14:47	Return to Storage
JC31250-2.1	Secured Staging Area	Hans Seignon	11/09/16 15:15	Retrieve from Storage
JC31250-2.1	Hans Seignon	Secured Storage	11/09/16 21:56	Return to Storage
JC31250-2.1	Secured Storage	Courtney Dringus	11/10/16 06:58	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-2.1	Courtney Dringus	Secured Storage	11/10/16 11:21	Return to Storage
JC31250-2.1	Secured Storage	Edwin Gonzalez	11/10/16 18:01	Retrieve from Storage
JC31250-2.1	Edwin Gonzalez	Secured Staging Area	11/10/16 18:01	Return to Storage
JC31250-2.1	Edwin Gonzalez	Secured Storage	11/10/16 19:50	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-2.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31250-2.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31250-2.1	Secured Storage	Jessica Adametz	11/12/16 11:15	Retrieve from Storage
JC31250-2.1	Jessica Adametz	Secured Storage	11/12/16 12:25	Return to Storage
JC31250-2.1	Secured Storage	Sahara Feliciano	11/13/16 07:54	Retrieve from Storage
JC31250-2.1	Sahara Feliciano	Secured Staging Area	11/13/16 07:54	Return to Storage
JC31250-2.1	Secured Staging Area	Chris Brunson	11/13/16 12:44	Retrieve from Storage
JC31250-2.1	Chris Brunson	Secured Storage	11/13/16 17:02	Return to Storage
JC31250-2.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31250-2.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31250-2.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31250-2.1	Sarvadaman Tripathi	Secured Storage	11/15/16 16:21	Return to Storage
JC31250-2.1	Secured Storage	Amir Takla	11/15/16 20:06	Retrieve from Storage
JC31250-2.1	Amir Takla	Secured Storage	11/15/16 20:46	Return to Storage
JC31250-2.1.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-2.1
JC31250-2.1.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-2.1
JC31250-2.1.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-2.1.1	Secured Storage	Eddie Huang	11/09/16 14:44	Retrieve from Storage
JC31250-2.1.1	Eddie Huang	GCMS2V	11/09/16 14:44	Load on Instrument
JC31250-2.1.1	GCMS2V	Eddie Huang	11/10/16 10:42	Unload from Instrument
JC31250-2.1.1	Eddie Huang	Secured Storage	11/10/16 10:42	Return to Storage
JC31250-2.1.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-2.1
JC31250-2.1.2	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-2.1
JC31250-2.1.2	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-2.1.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-2.1
JC31250-2.1.3	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-2.1
JC31250-2.1.3	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-2.1.3	Secured Storage	Ryan Fantasia	11/09/16 15:18	Retrieve from Storage
JC31250-2.1.3	Ryan Fantasia	Secured Storage	11/10/16 00:39	Return to Storage
JC31250-2.1.3	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31250-2.1.3	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31250-2.1.3	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31250-2.1.3	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31250-2.1.3	Secured Storage	Yaw Britwum	11/16/16 17:10	Retrieve from Storage
JC31250-2.1.3	Yaw Britwum	Secured Storage	11/16/16 22:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-2.1.4	Vikas Parikh	Organics Prep	11/09/16 04:35	Extract from JC31250-2.1
JC31250-2.1.5	Meilly Arbelo	Organics Prep	11/09/16 08:33	Extract from JC31250-2.1
JC31250-2.1.5	Organics Prep	Steven Zarchy	11/09/16 17:43	Extract from JC31250-2.1
JC31250-2.1.5	Steven Zarchy	Extract Storage	11/09/16 17:43	Return to Storage
JC31250-2.1.5	Extract Storage	William Gonzalez	11/10/16 18:00	Retrieve from Storage
JC31250-2.1.5	William Gonzalez	GCXX	11/10/16 18:00	Load on Instrument
JC31250-2.1.6	Meilly Arbelo	Organics Prep	11/09/16 08:34	Extract from JC31250-2.1
JC31250-2.1.6	Organics Prep	Steven Zarchy	11/09/16 17:44	Extract from JC31250-2.1
JC31250-2.1.6	Steven Zarchy	Extract Storage	11/09/16 17:44	Return to Storage
JC31250-2.1.6	Extract Storage	Kristen Drake	11/17/16 17:02	Retrieve from Storage
JC31250-2.1.6	Kristen Drake	GC1G	11/17/16 17:02	Load on Instrument
JC31250-2.1.7	Ryan Fantasia	Organics Prep	11/09/16 15:38	Extract from JC31250-2.1.3
JC31250-2.1.7	Organics Prep	Albert Quayson	11/10/16 17:15	Extract from JC31250-2.1.3
JC31250-2.1.7	Albert Quayson	Extract Storage	11/10/16 17:15	Return to Storage
JC31250-2.1.7	Extract Storage	Joseph Ravino	11/11/16 17:26	Retrieve from Storage
JC31250-2.1.7	Joseph Ravino	GCOA	11/11/16 17:26	Load on Instrument
JC31250-2.1.7	GCOA	Vincent Drago	11/14/16 10:23	Unload from Instrument
JC31250-2.1.7	Vincent Drago	Extract Freezer	11/14/16 10:24	Return to Storage
JC31250-2.1.8	Ryan Fantasia	Organics Prep	11/09/16 15:41	Extract from JC31250-2.1.3
JC31250-2.1.8	Organics Prep	Ryan Fantasia	11/10/16 01:08	Extract from JC31250-2.1.3
JC31250-2.1.8	Ryan Fantasia	Extract Storage	11/10/16 01:08	Return to Storage
JC31250-2.1.8	Extract Storage	Christine Phillips	11/14/16 15:52	Retrieve from Storage
JC31250-2.1.8	Christine Phillips	GC4G	11/14/16 15:52	Load on Instrument
JC31250-2.1.9	Ryan Fantasia	Organics Prep	11/09/16 15:49	Extract from JC31250-2.1.3
JC31250-2.1.9	Organics Prep	Ryan Fantasia	11/10/16 01:18	Extract from JC31250-2.1.3
JC31250-2.1.9	Ryan Fantasia	Extract Storage	11/10/16 01:18	Return to Storage
JC31250-2.1.9	Extract Storage	Arielle Cocozza	11/10/16 11:28	Retrieve from Storage
JC31250-2.1.9	Arielle Cocozza	GCMS6P	11/10/16 11:28	Load on Instrument
JC31250-2.1.9	GCMS6P	Arielle Cocozza	11/14/16 11:02	Unload from Instrument
JC31250-2.1.9	Arielle Cocozza	Extract Freezer	11/14/16 11:02	Return to Storage
JC31250-2.1.10	Nicholas Goydish	Organics Prep	11/10/16 07:45	Extract from JC31250-2.1.3
JC31250-2.1.10	Organics Prep	Albert Quayson	11/10/16 17:13	Extract from JC31250-2.1.3
JC31250-2.1.10	Albert Quayson	Extract Storage	11/10/16 17:13	Return to Storage
JC31250-2.1.11	Yaw Britwum	Organics Prep	11/16/16 17:13	Extract from JC31250-2.1.3
JC31250-2.2	Secured Storage	Bernadette Vassilatos	11/08/16 12:39	Retrieve from Storage
JC31250-2.2	Bernadette Vassilatos		11/08/16 12:39	Subcontract

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-2.3	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-2.3	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-2.3	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-2.3	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-2.3.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-2.3
JC31250-2.3.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-2.3
JC31250-2.3.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-2.3.1	Secured Storage	Radhika Mistry	11/09/16 17:13	Retrieve from Storage
JC31250-2.3.1	Radhika Mistry	Secured Storage	11/09/16 17:16	Return to Storage
JC31250-2.3.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-2.3
JC31250-2.3.2	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-2.3
JC31250-2.3.2	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-2.3.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-2.3
JC31250-2.3.3	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-2.3
JC31250-2.3.3	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-2.3.4	Radhika Mistry	Metals Digestion	11/09/16 17:15	Digestate from JC31250-2.3.1
JC31250-2.3.4	Metals Digestion	Radhika Mistry	11/09/16 17:15	Digestate from JC31250-2.3.1
JC31250-2.3.4	Radhika Mistry	Metals Digestate Storage	11/09/16 17:15	Return to Storage
JC31250-2.4	Secured Storage	Todd Shoemaker	11/08/16 11:50	Retrieve from Storage
JC31250-2.4	Todd Shoemaker	Secured Staging Area	11/08/16 11:51	Return to Storage
JC31250-2.4	Secured Staging Area	Radhika Mistry	11/08/16 16:07	Retrieve from Storage
JC31250-2.4	Radhika Mistry	Secured Storage	11/08/16 16:17	Return to Storage
JC31250-2.4	Secured Storage	Todd Shoemaker	11/09/16 10:28	Retrieve from Storage
JC31250-2.4	Todd Shoemaker	Secured Staging Area	11/09/16 10:29	Return to Storage
JC31250-2.4	Luis Villanueva	Secured Storage	11/09/16 12:46	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-2.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31250-2.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31250-2.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31250-2.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31250-2.4.1	Radhika Mistry	Metals Digestion	11/08/16 16:09	Digestate from JC31250-2.4
JC31250-2.4.1	Metals Digestion	Radhika Mistry	11/08/16 16:09	Digestate from JC31250-2.4
JC31250-2.4.1	Radhika Mistry	Metals Digestate Storage	11/08/16 16:09	Return to Storage
JC31250-2.6	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-2.6	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-2.7	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-2.7	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-2.7	Secured Storage	Prashant Shukla	11/09/16 16:09	Retrieve from Storage
JC31250-2.7	Prashant Shukla	GCMS3C	11/09/16 16:09	Load on Instrument
JC31250-2.7	GCMS3C	Prashant Shukla	11/10/16 09:09	Unload from Instrument
JC31250-2.7	Prashant Shukla		11/10/16 09:09	Depleted
JC31250-2.8	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-2.8	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-3.1	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-3.1	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-3.1	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-3.1	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-3.1	Secured Storage	Vikas Parikh	11/09/16 04:28	Retrieve from Storage
JC31250-3.1	Vikas Parikh	Meilly Arbelo	11/09/16 08:20	Custody Transfer
JC31250-3.1	Meilly Arbelo	Secured Storage	11/09/16 11:11	Return to Storage
JC31250-3.1	Secured Storage	Todd Shoemaker	11/09/16 14:47	Retrieve from Storage
JC31250-3.1	Todd Shoemaker	Secured Staging Area	11/09/16 14:47	Return to Storage
JC31250-3.1	Secured Staging Area	Hans Seignon	11/09/16 15:15	Retrieve from Storage
JC31250-3.1	Hans Seignon	Secured Storage	11/09/16 21:56	Return to Storage
JC31250-3.1	Secured Storage	Courtney Dringus	11/10/16 06:58	Retrieve from Storage
JC31250-3.1	Courtney Dringus	Secured Storage	11/10/16 11:21	Return to Storage
JC31250-3.1	Secured Storage	Edwin Gonzalez	11/10/16 18:01	Retrieve from Storage
JC31250-3.1	Edwin Gonzalez	Secured Staging Area	11/10/16 18:01	Return to Storage
JC31250-3.1	Edwin Gonzalez	Secured Storage	11/10/16 19:50	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-3.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31250-3.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31250-3.1	Secured Storage	Jessica Adametz	11/12/16 11:15	Retrieve from Storage
JC31250-3.1	Jessica Adametz	Secured Storage	11/12/16 12:25	Return to Storage
JC31250-3.1	Secured Storage	Sahara Feliciano	11/13/16 07:54	Retrieve from Storage
JC31250-3.1	Sahara Feliciano	Secured Staging Area	11/13/16 07:54	Return to Storage
JC31250-3.1	Secured Staging Area	Chris Brunson	11/13/16 12:44	Retrieve from Storage
JC31250-3.1	Chris Brunson	Secured Storage	11/13/16 17:02	Return to Storage
JC31250-3.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31250-3.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31250-3.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31250-3.1	Sarvadaman Tripathi	Secured Storage	11/15/16 16:21	Return to Storage
JC31250-3.1	Secured Storage	Amir Takla	11/15/16 20:06	Retrieve from Storage
JC31250-3.1	Amir Takla	Secured Storage	11/15/16 20:46	Return to Storage
JC31250-3.1.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-3.1
JC31250-3.1.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-3.1

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-3.1.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-3.1.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-3.1
JC31250-3.1.2	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-3.1
JC31250-3.1.2	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-3.1.2	Secured Storage	Eddie Huang	11/09/16 14:44	Retrieve from Storage
JC31250-3.1.2	Eddie Huang	GCMS2V	11/09/16 14:44	Load on Instrument
JC31250-3.1.2	GCMS2V	Eddie Huang	11/10/16 10:42	Unload from Instrument
JC31250-3.1.2	Eddie Huang	Secured Storage	11/10/16 10:42	Return to Storage
JC31250-3.1.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-3.1
JC31250-3.1.3	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-3.1
JC31250-3.1.3	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-3.1.3	Secured Storage	Radhika Mistry	11/09/16 17:13	Retrieve from Storage
JC31250-3.1.3	Radhika Mistry	Secured Storage	11/09/16 17:16	Return to Storage
JC31250-3.1.4	Vikas Parikh	Organics Prep	11/09/16 04:35	Extract from JC31250-3.1
JC31250-3.1.5	Meilly Arbelo	Organics Prep	11/09/16 08:33	Extract from JC31250-3.1
JC31250-3.1.5	Organics Prep	Steven Zarchy	11/09/16 17:43	Extract from JC31250-3.1
JC31250-3.1.5	Steven Zarchy	Extract Storage	11/09/16 17:43	Return to Storage
JC31250-3.1.5	Extract Storage	William Gonzalez	11/10/16 18:00	Retrieve from Storage
JC31250-3.1.5	William Gonzalez	GCXX	11/10/16 18:00	Load on Instrument
JC31250-3.1.6	Meilly Arbelo	Organics Prep	11/09/16 08:34	Extract from JC31250-3.1
JC31250-3.1.6	Organics Prep	Steven Zarchy	11/09/16 17:44	Extract from JC31250-3.1
JC31250-3.1.6	Steven Zarchy	Extract Storage	11/09/16 17:44	Return to Storage
JC31250-3.1.6	Extract Storage	Kristen Drake	11/17/16 17:02	Retrieve from Storage
JC31250-3.1.6	Kristen Drake	GC1G	11/17/16 17:02	Load on Instrument
JC31250-3.1.7	Radhika Mistry	Metals Digestion	11/09/16 17:15	Digestate from JC31250-3.1.3
JC31250-3.1.7	Metals Digestion	Radhika Mistry	11/09/16 17:15	Digestate from JC31250-3.1.3
JC31250-3.1.7	Radhika Mistry	Metals Digestate Storage	11/09/16 17:15	Return to Storage
JC31250-3.2	Secured Storage	Bernadette Vassilatos	11/08/16 12:39	Retrieve from Storage
JC31250-3.2	Bernadette Vassilatos		11/08/16 12:39	Subcontract
JC31250-3.3	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-3.3	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-3.3	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-3.3	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-3.3.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-3.3
JC31250-3.3.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-3.3

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-3.3.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-3.3.1	Secured Storage	Ryan Fantasia	11/09/16 15:18	Retrieve from Storage
JC31250-3.3.1	Ryan Fantasia	Secured Storage	11/10/16 00:39	Return to Storage
JC31250-3.3.1	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31250-3.3.1	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31250-3.3.1	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31250-3.3.1	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31250-3.3.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-3.3
JC31250-3.3.2	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-3.3
JC31250-3.3.2	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-3.3.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-3.3
JC31250-3.3.3	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-3.3
JC31250-3.3.3	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-3.3.4	Ryan Fantasia	Organics Prep	11/09/16 15:38	Extract from JC31250-3.3.1
JC31250-3.3.4	Organics Prep	Albert Quayson	11/10/16 17:15	Extract from JC31250-3.3.1
JC31250-3.3.4	Albert Quayson	Extract Storage	11/10/16 17:15	Return to Storage
JC31250-3.3.4	Extract Storage	Joseph Ravino	11/11/16 17:26	Retrieve from Storage
JC31250-3.3.4	Joseph Ravino	GCOA	11/11/16 17:26	Load on Instrument
JC31250-3.3.4	GCOA	Vincent Drago	11/14/16 10:23	Unload from Instrument
JC31250-3.3.4	Vincent Drago	Extract Freezer	11/14/16 10:24	Return to Storage
JC31250-3.3.5	Ryan Fantasia	Organics Prep	11/09/16 15:41	Extract from JC31250-3.3.1
JC31250-3.3.5	Organics Prep	Ryan Fantasia	11/10/16 01:08	Extract from JC31250-3.3.1
JC31250-3.3.5	Ryan Fantasia	Extract Storage	11/10/16 01:08	Return to Storage
JC31250-3.3.5	Extract Storage	Kristen Drake	11/16/16 10:00	Retrieve from Storage
JC31250-3.3.5	Kristen Drake	GC4G	11/16/16 10:00	Load on Instrument
JC31250-3.3.6	Ryan Fantasia	Organics Prep	11/09/16 15:49	Extract from JC31250-3.3.1
JC31250-3.3.6	Organics Prep	Ryan Fantasia	11/10/16 01:18	Extract from JC31250-3.3.1
JC31250-3.3.6	Ryan Fantasia	Extract Storage	11/10/16 01:18	Return to Storage
JC31250-3.3.6	Extract Storage	Arielle Cocozza	11/10/16 11:28	Retrieve from Storage
JC31250-3.3.6	Arielle Cocozza	GCMS6P	11/10/16 11:28	Load on Instrument
JC31250-3.3.6	GCMS6P	Arielle Cocozza	11/14/16 11:02	Unload from Instrument
JC31250-3.3.6	Arielle Cocozza	Extract Freezer	11/14/16 11:02	Return to Storage
JC31250-3.3.7	Nicholas Goydish	Organics Prep	11/10/16 07:45	Extract from JC31250-3.3.1
JC31250-3.3.7	Organics Prep	Albert Quayson	11/10/16 17:13	Extract from JC31250-3.3.1
JC31250-3.3.7	Albert Quayson	Extract Storage	11/10/16 17:13	Return to Storage
JC31250-3.4	Secured Storage	Todd Shoemaker	11/08/16 11:50	Retrieve from Storage
JC31250-3.4	Todd Shoemaker	Secured Staging Area	11/08/16 11:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-3.4	Secured Staging Area	Radhika Mistry	11/08/16 16:07	Retrieve from Storage
JC31250-3.4	Radhika Mistry	Secured Storage	11/08/16 16:17	Return to Storage
JC31250-3.4	Secured Storage	Todd Shoemaker	11/09/16 10:28	Retrieve from Storage
JC31250-3.4	Todd Shoemaker	Secured Staging Area	11/09/16 10:29	Return to Storage
JC31250-3.4	Luis Villanueva	Secured Storage	11/09/16 12:46	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-3.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31250-3.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31250-3.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31250-3.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31250-3.4.1	Radhika Mistry	Metals Digestion	11/08/16 16:09	Digestate from JC31250-3.4
JC31250-3.4.1	Metals Digestion	Radhika Mistry	11/08/16 16:09	Digestate from JC31250-3.4
JC31250-3.4.1	Radhika Mistry	Metals Digestate Storage	11/08/16 16:09	Return to Storage
JC31250-3.6	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-3.6	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-3.7	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-3.7	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-3.7	Secured Storage	Prashant Shukla	11/09/16 16:09	Retrieve from Storage
JC31250-3.7	Prashant Shukla	GCMS3C	11/09/16 16:09	Load on Instrument
JC31250-3.7	GCMS3C	Prashant Shukla	11/10/16 09:09	Unload from Instrument
JC31250-3.7	Prashant Shukla		11/10/16 09:09	Depleted
JC31250-3.8	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-3.8	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-4.1	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-4.1	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-4.1	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-4.1	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-4.1	Secured Storage	Vikas Parikh	11/09/16 04:28	Retrieve from Storage
JC31250-4.1	Vikas Parikh	Meilly Arbelo	11/09/16 08:20	Custody Transfer
JC31250-4.1	Meilly Arbelo	Secured Storage	11/09/16 11:11	Return to Storage
JC31250-4.1	Secured Storage	Todd Shoemaker	11/09/16 14:47	Retrieve from Storage
JC31250-4.1	Todd Shoemaker	Secured Staging Area	11/09/16 14:47	Return to Storage
JC31250-4.1	Secured Staging Area	Hans Seignon	11/09/16 15:15	Retrieve from Storage
JC31250-4.1	Hans Seignon	Secured Storage	11/09/16 21:56	Return to Storage
JC31250-4.1	Secured Storage	Courtney Dringus	11/10/16 06:58	Retrieve from Storage
JC31250-4.1	Courtney Dringus	Secured Storage	11/10/16 11:21	Return to Storage
JC31250-4.1	Secured Storage	Edwin Gonzalez	11/10/16 18:01	Retrieve from Storage
JC31250-4.1	Edwin Gonzalez	Secured Staging Area	11/10/16 18:01	Return to Storage
JC31250-4.1	Edwin Gonzalez	Secured Storage	11/10/16 19:50	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-4.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31250-4.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31250-4.1	Secured Storage	Jessica Adametz	11/12/16 11:15	Retrieve from Storage
JC31250-4.1	Jessica Adametz	Secured Storage	11/12/16 12:25	Return to Storage
JC31250-4.1	Secured Storage	Sahara Feliciano	11/13/16 07:54	Retrieve from Storage
JC31250-4.1	Sahara Feliciano	Secured Staging Area	11/13/16 07:54	Return to Storage
JC31250-4.1	Secured Staging Area	Chris Brunson	11/13/16 12:44	Retrieve from Storage
JC31250-4.1	Chris Brunson	Secured Storage	11/13/16 17:02	Return to Storage
JC31250-4.1	Secured Storage	Todd Shoemaker	11/15/16 08:22	Retrieve from Storage
JC31250-4.1	Todd Shoemaker	Secured Staging Area	11/15/16 08:22	Return to Storage
JC31250-4.1	Secured Staging Area	Sarvadaman Tripathi	11/15/16 08:31	Retrieve from Storage
JC31250-4.1	Sarvadaman Tripathi	Secured Storage	11/15/16 16:21	Return to Storage
JC31250-4.1	Secured Storage	Amir Takla	11/15/16 20:06	Retrieve from Storage
JC31250-4.1	Amir Takla	Secured Storage	11/15/16 20:46	Return to Storage
JC31250-4.1.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-4.1
JC31250-4.1.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-4.1
JC31250-4.1.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-4.1.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-4.1
JC31250-4.1.2	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-4.1
JC31250-4.1.2	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-4.1.2	Secured Storage	Eddie Huang	11/09/16 14:44	Retrieve from Storage
JC31250-4.1.2	Eddie Huang	GCMS2V	11/09/16 14:44	Load on Instrument
JC31250-4.1.2	GCMS2V	Eddie Huang	11/10/16 10:42	Unload from Instrument
JC31250-4.1.2	Eddie Huang	Secured Storage	11/10/16 10:42	Return to Storage
JC31250-4.1.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-4.1
JC31250-4.1.3	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-4.1
JC31250-4.1.3	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-4.1.3	Secured Storage	Radhika Mistry	11/09/16 17:13	Retrieve from Storage
JC31250-4.1.3	Radhika Mistry	Secured Storage	11/09/16 17:16	Return to Storage
JC31250-4.1.4	Vikas Parikh	Organics Prep	11/09/16 04:35	Extract from JC31250-4.1
JC31250-4.1.5	Meilly Arbelo	Organics Prep	11/09/16 08:33	Extract from JC31250-4.1
JC31250-4.1.5	Organics Prep	Steven Zarchy	11/09/16 17:43	Extract from JC31250-4.1
JC31250-4.1.5	Steven Zarchy	Extract Storage	11/09/16 17:43	Return to Storage
JC31250-4.1.5	Extract Storage	William Gonzalez	11/10/16 18:00	Retrieve from Storage
JC31250-4.1.5	William Gonzalez	GCXX	11/10/16 18:00	Load on Instrument
JC31250-4.1.6	Meilly Arbelo	Organics Prep	11/09/16 08:34	Extract from JC31250-4.1
JC31250-4.1.6	Organics Prep	Steven Zarchy	11/09/16 17:44	Extract from JC31250-4.1

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/07/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-4.1.6	Steven Zarchy	Extract Storage	11/09/16 17:44	Return to Storage
JC31250-4.1.6	Extract Storage	Kristen Drake	11/17/16 17:02	Retrieve from Storage
JC31250-4.1.6	Kristen Drake	GC1G	11/17/16 17:02	Load on Instrument
JC31250-4.1.7	Radhika Mistry	Metals Digestion	11/09/16 17:15	Digestate from JC31250-4.1.3
JC31250-4.1.7	Metals Digestion	Radhika Mistry	11/09/16 17:15	Digestate from JC31250-4.1.3
JC31250-4.1.7	Radhika Mistry	Metals Digestate Storage	11/09/16 17:15	Return to Storage
JC31250-4.2	Secured Storage	Bernadette Vassilatos	11/08/16 12:39	Retrieve from Storage
JC31250-4.2	Bernadette Vassilatos		11/08/16 12:39	Subcontract
JC31250-4.3	Secured Storage	Todd Shoemaker	11/08/16 09:52	Retrieve from Storage
JC31250-4.3	Todd Shoemaker	Secured Staging Area	11/08/16 09:52	Return to Storage
JC31250-4.3	Secured Staging Area	Mark Setaro	11/08/16 10:28	Retrieve from Storage
JC31250-4.3	Mark Setaro	Secured Storage	11/08/16 16:13	Return to Storage
JC31250-4.3.1	Mark Setaro	TCLP	11/08/16 12:46	Leachate from JC31250-4.3
JC31250-4.3.1	TCLP	Mark Setaro	11/08/16 16:49	Leachate from JC31250-4.3
JC31250-4.3.1	Mark Setaro	Secured Storage	11/08/16 16:58	Return to Storage
JC31250-4.3.1	Secured Storage	Ryan Fantasia	11/09/16 15:18	Retrieve from Storage
JC31250-4.3.1	Ryan Fantasia	Secured Storage	11/10/16 00:39	Return to Storage
JC31250-4.3.1	Secured Storage	Nicholas Goydish	11/10/16 07:41	Retrieve from Storage
JC31250-4.3.1	Nicholas Goydish	Secured Storage	11/10/16 15:17	Return to Storage
JC31250-4.3.1	Secured Storage	Ryan Fantasia	11/10/16 15:18	Retrieve from Storage
JC31250-4.3.1	Ryan Fantasia	Secured Storage	11/10/16 21:30	Return to Storage
JC31250-4.3.2	Mark Setaro	TCLP	11/08/16 15:48	Leachate from JC31250-4.3
JC31250-4.3.2	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-4.3
JC31250-4.3.2	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-4.3.3	Mark Setaro	TCLP	11/08/16 16:13	Leachate from JC31250-4.3
JC31250-4.3.3	TCLP	Gage Donahue	11/09/16 16:19	Leachate from JC31250-4.3
JC31250-4.3.3	Gage Donahue	Secured Storage	11/09/16 16:20	Return to Storage
JC31250-4.3.4	Ryan Fantasia	Organics Prep	11/09/16 15:38	Extract from JC31250-4.3.1
JC31250-4.3.4	Organics Prep	Allan Chung-yew	11/11/16 00:14	Extract from JC31250-4.3.1
JC31250-4.3.4	Allan Chung-yew	Extract Storage	11/11/16 00:15	Return to Storage
JC31250-4.3.4	Extract Storage	Joseph Ravino	11/11/16 17:26	Retrieve from Storage
JC31250-4.3.4	Joseph Ravino	GCOA	11/11/16 17:26	Load on Instrument
JC31250-4.3.4	GCOA	Vincent Drago	11/14/16 10:23	Unload from Instrument
JC31250-4.3.4	Vincent Drago	Extract Freezer	11/14/16 10:24	Return to Storage
JC31250-4.3.5	Ryan Fantasia	Organics Prep	11/09/16 15:41	Extract from JC31250-4.3.1
JC31250-4.3.5	Organics Prep	Ryan Fantasia	11/10/16 01:08	Extract from JC31250-4.3.1

SGS Accutest Internal Chain of Custody

Job Number: JC31250
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31250-4.3.5	Ryan Fantasia	Extract Storage	11/10/16 01:08	Return to Storage
JC31250-4.3.5	Extract Storage	Kristen Drake	11/16/16 17:10	Retrieve from Storage
JC31250-4.3.5	Kristen Drake	GC4G	11/16/16 17:10	Load on Instrument
JC31250-4.3.6	Ryan Fantasia	Organics Prep	11/09/16 15:49	Extract from JC31250-4.3.1
JC31250-4.3.6	Organics Prep	Ryan Fantasia	11/10/16 01:18	Extract from JC31250-4.3.1
JC31250-4.3.6	Ryan Fantasia	Extract Storage	11/10/16 01:18	Return to Storage
JC31250-4.3.6	Extract Storage	Arielle Cocozza	11/10/16 11:28	Retrieve from Storage
JC31250-4.3.6	Arielle Cocozza	GCMS6P	11/10/16 11:28	Load on Instrument
JC31250-4.3.6	GCMS6P	Arielle Cocozza	11/14/16 11:02	Unload from Instrument
JC31250-4.3.6	Arielle Cocozza	Extract Freezer	11/14/16 11:02	Return to Storage
JC31250-4.3.7	Nicholas Goydish	Organics Prep	11/10/16 07:45	Extract from JC31250-4.3.1
JC31250-4.4	Secured Storage	Todd Shoemaker	11/08/16 11:50	Retrieve from Storage
JC31250-4.4	Todd Shoemaker	Secured Staging Area	11/08/16 11:51	Return to Storage
JC31250-4.4	Secured Staging Area	Radhika Mistry	11/08/16 16:07	Retrieve from Storage
JC31250-4.4	Radhika Mistry	Secured Storage	11/08/16 16:17	Return to Storage
JC31250-4.4	Secured Storage	Todd Shoemaker	11/09/16 10:28	Retrieve from Storage
JC31250-4.4	Todd Shoemaker	Secured Staging Area	11/09/16 10:29	Return to Storage
JC31250-4.4	Luis Villanueva	Secured Storage	11/09/16 12:46	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31250-4.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31250-4.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31250-4.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31250-4.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31250-4.4.1	Radhika Mistry	Metals Digestion	11/08/16 16:09	Digestate from JC31250-4.4
JC31250-4.4.1	Metals Digestion	Radhika Mistry	11/08/16 16:09	Digestate from JC31250-4.4
JC31250-4.4.1	Radhika Mistry	Metals Digestate Storage	11/08/16 16:09	Return to Storage
JC31250-4.6	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-4.6	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-4.7	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-4.7	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage
JC31250-4.7	Secured Storage	Prashant Shukla	11/09/16 16:09	Retrieve from Storage
JC31250-4.7	Prashant Shukla	GCMS3C	11/09/16 16:09	Load on Instrument
JC31250-4.7	GCMS3C	Prashant Shukla	11/10/16 09:09	Unload from Instrument
JC31250-4.7	Prashant Shukla		11/10/16 09:09	Depleted
JC31250-4.8	Secured Storage	Jayna Patel	11/08/16 08:45	Retrieve from Storage
JC31250-4.8	Jayna Patel	Secured Storage	11/08/16 08:45	Return to Storage

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e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31250X

Sampling Date: 11/07/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: 22

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31250X

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31250-1X	11/07/16	10:12	MC	11/07/16	SO	Soil	SB30-161107
JC31250-2X	11/07/16	11:17	MC	11/07/16	SO	Soil	SB35-161107
JC31250-3X	11/07/16	12:00	MC	11/07/16	SO	Soil	SB34-161107
JC31250-4X	11/07/16	13:27	MC	11/07/16	SO	Soil	SB32-161107

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Subcontract Lab Data

Report of Analysis

FINAL LAB REPORT

JC31250X

A9416

29-Nov-2016

Prepared by

SGS NORTH AMERICA

Prepared for

Accutest

Tammy McCloskey

Fresh Ponds Crp Village Bldg B 2235 Route 130
Dayton, NJ 08810
Phone: 732.329.0200
Email: Tammy.McCloskey@sgs.com

This report is approved by

Digitally signed by Amy Boehm
Date: 2016.11.29 10:52:19
-05'00'

Amy Boehm

Senior Project Manager

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Results reported relate only to the items tested.

PROJECT INFORMATION SUMMARY *(When applicable, see QC Annotations for details)*

Client Project	JC31250X
SGS Project #	A9416
Analytical Protocol(s)	Method 8290 TCDD only
No. Samples Submitted	4
Additional QC Sample(s)	0
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
Date Received	09-Nov-16
Condition Received	Good
Temperature upon Receipt (ºC)	1.8
Extraction within Holding Time	Yes
Analysis within Holding Time	Yes

QC ANNOTATIONS:

1. Please see Appendices attached for data qualifier/attribute and lab identifier descriptions which may be contained in the project.

APPENDIX A: GENERAL DATA QUALIFIERS / DATA ATTRIBUTES

B	The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
C	Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve) and is an estimated value.
EMPC	Represents an Estimated Maximum Possible Concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
H/h	If the standard recovery is below the method or SOP specified value “H” is assigned. If the obtained value is less than half the specified value “h” is assigned.
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve) and is an estimated value.
ND	Indicates a non-detect.
NR or R	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
SI	Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.

APPENDIX B: DRBC/TMDL SPECIFIC DATA QUALIFIERS / DATA ATTRIBUTES

J	The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL).
U	The analyte was not detected in the sample at the estimated detection limit (EDL).
E	The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).
D	Dilution Data. Result was obtained from the analysis of a dilution.
B	Analyte found in the sample and associated method blank.
C	Co-eluting congener
Cxx	Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. 'Xx' denotes the IUPAC number with the lowest numerical designated congener.
NR	Analyte is not reportable because of problems in sample preparation or analysis.
V	Labeled standard recovery is not within method control limits.
X	Results from re-injection/repeat/second-column analysis.
EMPC	Estimated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

APPENDIX C: LAB IDENTIFIERS

AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

SGS CERTIFICATIONS

Arkansas	88-0682
California (ELAP)	ELAP Cert #2914
CLIA	34D1013708
Connecticut	PH-0258
USDA Soil Permit	P330-14-00135
DoD	2726.01
Florida (Primary NELAP)	E87634
ISO 17025/IEC	2726.01
Louisiana	4115
Maine	#2016028
Massachusetts	M-NC919
Minnesota (Primary NELAP For Method 23)	Lab #037-999-459 Cert #981125
New Jersey	NC100
New York	11685
North Carolina DWR	481
North Dakota	R-197
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	Lab #99029 Cert #99029002
Texas	T104704260-16-9
US Coast Guard	16714/159.317/SGS
Virginia	Lab #460214 Cert #8722
Washington	C913
West Virginia	293

Rev. 12-Sep-2016

Sample ID: SB30-161107 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9416	Date Received:	09-Nov-2016
Project ID:	JC31250X	Weight/Volume:	9.57 g	Lab Sample ID	A9416_14511_DF_001	Date Extracted:	14-Nov-2016
Date Collected:	07-Nov-2016	% Solid:	94.8 %	QC Batch No:	14511	Date Analyzed:	23-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	21:09:18

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.992			ES 2378-TCDD	87.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	97.3	

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Sample ID: SB35-161107 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9416	Date Received:	09-Nov-2016
Project ID:	JC31250X	Weight/Volume:	10.23 g	Lab Sample ID	A9416_14511_DF_002	Date Extracted:	14-Nov-2016
Date Collected:	07-Nov-2016	% Solid:	93.9 %	QC Batch No:	14511	Date Analyzed:	23-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	21:58:28

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		1.7		ES 2378-TCDD	78.4	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	94.6	

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Sample ID: SB34-161107 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9416	Date Received:	09-Nov-2016
Project ID:	JC31250X	Weight/Volume:	9.16 g	Lab Sample ID	A9416_14511_DF_003	Date Extracted:	14-Nov-2016
Date Collected:	07-Nov-2016	% Solid:	90.3 %	QC Batch No:	14511	Date Analyzed:	23-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	22:47:42

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.72				ES 2378-TCDD	87.1	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	105	

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Sample ID: SB32-161107 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9416	Date Received:	09-Nov-2016
Project ID:	JC31250X	Weight/Volume:	9.67 g	Lab Sample ID	A9416_14511_DF_004	Date Extracted:	14-Nov-2016
Date Collected:	07-Nov-2016	% Solid:	92.2 %	QC Batch No:	14511	Date Analyzed:	23-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	23:36:51

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.104			ES 2378-TCDD	83.7	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	99.9	

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Sample ID: Method Blank A9416_14511 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Solid	Lab Project ID:	A9416	Date Received:	n/a
Project ID:	JC31250X	Weight/Volume:	10.00 g	Lab Sample ID	MB1_14511_DF_SDS-RJ	Date Extracted:	14-Nov-2016
Date Collected:	n/a	% Solid:	n/a	QC Batch No:	14511	Date Analyzed:	23-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	20:20:10

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.111			ES 2378-TCDD	89.5	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	111	

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METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P10	Analysis Date:	23-NOV-2016 18:43:33
Lab ID:	OPR1_14511_DF		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	11.3	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 28 Nov 2016 15:12 Analyst: pw

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161123P10	Analysis Date:	23-NOV-2016 18:43:33
Lab ID:	OPR1_14511_DF		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	91.5	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	45	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 28 Nov 2016 15:12 Analyst: pw

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*09-Nov-16 at 09:38*
AP Project name:	*A9416*
Requested TAT:	*14 days*
Projected due date:	*23-Nov-16*
Matrix:	*Soil*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	*Tammy McCloskey*
Company:	*Accutest*
Project Name & Site:	*JC31250X*
Project PO#:	*JC31250X*
QAAP/Contract #:	*N/A*
Requested Analysis:	*Method 8290 TCDD only*
Phone#:	*732-329-0200*
Email Address:	*tammy.mccloskey@sgs.com*

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB30-161107	A9416_001	SO	1	8oz Clear	07-Nov-16	10:12	1.8	1	5633 9349 6310
SB35-161107	A9416_002	SO	1	8oz Clear	07-Nov-16	11:17	1.8	1	5633 9349 6310
SB34-161107	A9416_003	SO	1	8oz Clear	07-Nov-16	12:00	1.8	1	5633 9349 6310
SB32-161107	A9416_004	SO	1	8oz Clear	07-Nov-16	13:27	1.8	1	5633 9349 6310

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact.

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AK 9 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

SGS ACCUTEST

CHAIN OF CUSTODY

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking# 5633 9349 6310
Bottle Order Control #
SGS Accutest Quote #
SGS Accutest Job JC31250X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: Tammy.McCloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR Expansion, Long Island, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet): B8290TCDD

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD	LAB USE ONLY
1X	SB30-161107		11/7/16	10:12:00 AM	MC	SO	1					1				X	001
2X	SB35-161107		11/7/16	11:17:00 AM	MC	SO	1					1				X	002
3X	SB34-161107		11/7/16	12:00:00 PM	MC	SO	1					1				X	003
4X	SB32-161107		11/7/16	1:27:00 PM	MC	SO	1					1				X	004

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other Due 11/21/2016

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

1 Relinquished by Sampler: D Vassalos	Date Time: 11/8/16 17:00	Received By: 1 FedEx	Relinquished By: 2	Date Time:	Received By: 2
3 Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 11/9/16 09:38	Received By: 4 Ashley Owens
5 Relinquished by:	Date Time:	Received By: 5	Custody Seal # 452	X Intact / Not intact	Preserved where applicable / On Ice X / Cooler Temp. 1.8°

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST SLC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
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PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC31250

Client / Reporting Information

Company Name: Matrix NewWorld Engineering
Street Address: 26 Columbia Tpk
City: Florham Park NJ Zip: 07932
Project Contact: Brian Crespi BCrespi@matrixnewworld.com
Phone #: 212-344-4251
Sampler(s) Name(s): M. Clelland Phone #:

Project Information

Project Name: LIRR expansion
Street:
City: Long Island, NY State:
Project #: 16-A4
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)
Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCL/TAL (FULL), TCLP (FULL), DIOXIN, RCRA Char.

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (FULL)	TCLP (FULL)	DIOXIN	RCRA Char.	LAB USE ONLY
1	SB30-161107	0	11/7/16	1012	MC	S	7					4			3	X	X	X	X	D47
2	SB35-161107	0	11/7/16	1117	MC	S	7					4			3	X	X	X	X	H71
3	SB34-161107	0	11/7/16	1200	MC	S	7					4			3	X	X	X	X	P32
4	SB32-161107	0	11/7/16	1327	MC	S	7					4			3	X	X	X	X	14C4
																				4099
																				SUB

INITIAL ASESSMENT BA JK
LABEL VERIFICATION JK

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other _____

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format _____
- [ ] Other _____

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice
o 3 encores received 11/7/16 JK

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	1415 11/7/16	[signature]	[signature]	11/7/16 17:13	[signature]
2	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3						
4	Relinquished by:	Date Time:	Received By:	Custody Seal # 334	Intact / Not intact	Preserved where applicable / On Ice / Cooler Temp. 2.5C°
5						

IG

JC31250X: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31250 **Client:** **Project:**

Date / Time Received: 11/7/2016 5:13:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (0.2);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

JC31250X: Chain of Custody
Page 2 of 2

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e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31431

Sampling Dates: 11/08/16 - 11/09/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **189**

Nancy Cole
Laboratory Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31431-1	11/08/16	09:52	MC	11/09/16	SO	Soil	SB37-161108
JC31431-1A	11/08/16	09:52	MC	11/09/16	SO	Soil	SB37-161108
JC31431-2	11/08/16	11:34	MC	11/09/16	SO	Soil	SB38-161108
JC31431-2A	11/08/16	11:34	MC	11/09/16	SO	Soil	SB38-161108
JC31431-3	11/08/16	12:27	MC	11/09/16	SO	Soil	SB39-161108
JC31431-3A	11/08/16	12:27	MC	11/09/16	SO	Soil	SB39-161108
JC31431-4	11/08/16	13:52	MC	11/09/16	SO	Soil	SB36-161108
JC31431-4A	11/08/16	13:52	MC	11/09/16	SO	Soil	SB36-161108
JC31431-5	11/09/16	09:50	MC	11/09/16	SO	Soil	SB18-161109
JC31431-5A	11/09/16	09:50	MC	11/09/16	SO	Soil	SB18-161109
JC31431-6	11/09/16	10:50	MC	11/09/16	SO	Soil	SB19-161109
JC31431-6A	11/09/16	10:50	MC	11/09/16	SO	Soil	SB19-161109
JC31431-7	11/09/16	11:17	MC	11/09/16	SO	Soil	SB20-161109

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS Accutest

Sample Summary
(continued)

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31431-7A	11/09/16	11:17	MC	11/09/16	SO	Soil	SB20-161109
JC31431-8	11/09/16	12:33	MC	11/09/16	SO	Soil	SB22-161109
JC31431-8A	11/09/16	12:33	MC	11/09/16	SO	Soil	SB22-161109
JC31431-9	11/09/16	13:24	MC	11/09/16	SO	Soil	SB21-161109
JC31431-9A	11/09/16	13:24	MC	11/09/16	SO	Soil	SB21-161109

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

2

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC31431-1	**SB37-161108**					
Acenaphthylene		0.0248 J	0.034	0.017	mg/kg	SW846 8270D
Anthracene		0.0278 J	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0511	0.034	0.0095	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0553	0.034	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0937	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0556	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0308 J	0.034	0.016	mg/kg	SW846 8270D
Chrysene		0.0627	0.034	0.011	mg/kg	SW846 8270D
Fluoranthene		0.0823	0.034	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0516	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0188 J	0.067	0.0076	mg/kg	SW846 8270D
Phenanthrene		0.0426	0.034	0.011	mg/kg	SW846 8270D
Pyrene		0.0997	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.00087	0.00069	0.00033	mg/kg	SW846 8081B
gamma-Chlordane [a]		0.00049 J	0.00069	0.00030	mg/kg	SW846 8081B
4,4'-DDE [a]		0.00050 J	0.00069	0.00036	mg/kg	SW846 8081B
4,4'-DDT		0.0027	0.00069	0.00041	mg/kg	SW846 8081B
Aluminum		2050	50		mg/kg	SW846 6010C
Arsenic		2.0	2.0		mg/kg	SW846 6010C
Calcium		1050	500		mg/kg	SW846 6010C
Chromium		6.9	0.99		mg/kg	SW846 6010C
Copper		8.4	2.5		mg/kg	SW846 6010C
Iron		4780	50		mg/kg	SW846 6010C
Lead		22.5	2.0		mg/kg	SW846 6010C
Magnesium		605	500		mg/kg	SW846 6010C
Manganese		52.8	1.5		mg/kg	SW846 6010C
Nickel		4.4	4.0		mg/kg	SW846 6010C
Zinc		28.7	5.0		mg/kg	SW846 6010C
JC31431-1A	**SB37-161108**					
Corrosivity as pH		7.28 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
Benzene		0.0011 J	0.0025	0.00070	mg/l	SW846 8260C
JC31431-2	**SB38-161108**					
Acenaphthylene		0.0188 J	0.035	0.018	mg/kg	SW846 8270D
Anthracene		0.0317 J	0.035	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0787	0.035	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0832	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.125	0.035	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0717	0.035	0.018	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Benzo(k)fluoranthene	0.0438	0.035	0.016	mg/kg	SW846 8270D
Butyl benzyl phthalate	0.0743	0.070	0.0086	mg/kg	SW846 8270D
Chrysene	0.0960	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0188 J	0.035	0.016	mg/kg	SW846 8270D
Di-n-butyl phthalate	0.0405 J	0.070	0.0057	mg/kg	SW846 8270D
Fluoranthene	0.133	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.0739	0.035	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0240 J	0.070	0.0080	mg/kg	SW846 8270D
Naphthalene	0.0171 J	0.035	0.0099	mg/kg	SW846 8270D
Phenanthrene	0.0785	0.035	0.012	mg/kg	SW846 8270D
Pyrene	0.127	0.035	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]	0.0019	0.00068	0.00032	mg/kg	SW846 8081B
gamma-Chlordane	0.0035	0.00068	0.00030	mg/kg	SW846 8081B
4,4'-DDE [a]	0.0070	0.00068	0.00035	mg/kg	SW846 8081B
4,4'-DDT	0.0214	0.00068	0.00040	mg/kg	SW846 8081B
Aroclor 1254 [b]	0.0858	0.034	0.017	mg/kg	SW846 8082A
Aroclor 1260 [b]	0.0553	0.034	0.014	mg/kg	SW846 8082A
Aluminum	2780	51		mg/kg	SW846 6010C
Arsenic	4.8	2.1		mg/kg	SW846 6010C
Barium	116	21		mg/kg	SW846 6010C
Cadmium	1.9	0.51		mg/kg	SW846 6010C
Calcium	1410	510		mg/kg	SW846 6010C
Chromium	12.9	1.0		mg/kg	SW846 6010C
Copper	70.5	2.6		mg/kg	SW846 6010C
Iron	10600	51		mg/kg	SW846 6010C
Lead	196	2.1		mg/kg	SW846 6010C
Magnesium	866	510		mg/kg	SW846 6010C
Manganese	115	1.5		mg/kg	SW846 6010C
Mercury	0.077	0.034		mg/kg	SW846 7471B
Nickel	10.6	4.1		mg/kg	SW846 6010C
Vanadium	12.3	5.1		mg/kg	SW846 6010C
Zinc	330	5.1		mg/kg	SW846 6010C
JC31431-2A SB38-161108					
Corrosivity as pH	7.10 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31431-3 SB39-161108					
Acenaphthylene	0.0264 J	0.041	0.021	mg/kg	SW846 8270D
Anthracene	0.0493	0.041	0.025	mg/kg	SW846 8270D
Benzo(a)anthracene	0.163	0.041	0.011	mg/kg	SW846 8270D
Benzo(a)pyrene	0.162	0.041	0.018	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.273	0.041	0.018	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Benzo(g,h,i)perylene	0.111	0.041	0.020	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.0858	0.041	0.019	mg/kg	SW846 8270D
Benzaldehyde	0.0261 J	0.20	0.010	mg/kg	SW846 8270D
Carbazole	0.0337 J	0.081	0.0059	mg/kg	SW846 8270D
Chrysene	0.193	0.041	0.013	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0338 J	0.041	0.018	mg/kg	SW846 8270D
Dibenzofuran	0.0227 J	0.081	0.016	mg/kg	SW846 8270D
Di-n-butyl phthalate	0.0939	0.081	0.0066	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate	0.165	0.081	0.0095	mg/kg	SW846 8270D
Fluoranthene	0.258	0.041	0.018	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.121	0.041	0.019	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0695 J	0.081	0.0092	mg/kg	SW846 8270D
Naphthalene	0.0510	0.041	0.011	mg/kg	SW846 8270D
Phenanthrene	0.148	0.041	0.014	mg/kg	SW846 8270D
Pyrene	0.257	0.041	0.013	mg/kg	SW846 8270D
4,4'-DDE [a]	0.0069	0.00080	0.00042	mg/kg	SW846 8081B
4,4'-DDT	0.0138	0.00080	0.00047	mg/kg	SW846 8081B
Aluminum	3830	49		mg/kg	SW846 6010C
Arsenic	2.5	1.9		mg/kg	SW846 6010C
Barium	19.2	19		mg/kg	SW846 6010C
Calcium	1200	490		mg/kg	SW846 6010C
Chromium	9.4	0.97		mg/kg	SW846 6010C
Copper	30.6	2.4		mg/kg	SW846 6010C
Iron	7240	49		mg/kg	SW846 6010C
Lead	31.3	1.9		mg/kg	SW846 6010C
Magnesium	544	490		mg/kg	SW846 6010C
Manganese	105	1.5		mg/kg	SW846 6010C
Nickel	5.0	3.9		mg/kg	SW846 6010C
Vanadium	8.5	4.9		mg/kg	SW846 6010C
Zinc	224	4.9		mg/kg	SW846 6010C
JC31431-3A SB39-161108					
Corrosivity as pH	6.84 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31431-4 SB36-161108					
Benzo(a)anthracene	0.0168 J	0.034	0.0097	mg/kg	SW846 8270D
Benzo(a)pyrene	0.0169 J	0.034	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.0340	0.034	0.015	mg/kg	SW846 8270D
Chrysene	0.0292 J	0.034	0.011	mg/kg	SW846 8270D
Fluoranthene	0.0311 J	0.034	0.015	mg/kg	SW846 8270D
Phenanthrene	0.0241 J	0.034	0.012	mg/kg	SW846 8270D
Pyrene	0.0294 J	0.034	0.011	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
4,4'-DDE		0.0020	0.00063	0.00033	mg/kg	SW846 8081B
4,4'-DDT		0.0035	0.00063	0.00037	mg/kg	SW846 8081B
Aluminum		3600	50		mg/kg	SW846 6010C
Chromium		5.1	1.0		mg/kg	SW846 6010C
Copper		5.7	2.5		mg/kg	SW846 6010C
Iron		5030	50		mg/kg	SW846 6010C
Lead		10.3	2.0		mg/kg	SW846 6010C
Magnesium		520	500		mg/kg	SW846 6010C
Manganese		95.4	1.5		mg/kg	SW846 6010C
Mercury		0.75	0.032		mg/kg	SW846 7471B
Vanadium		6.8	5.0		mg/kg	SW846 6010C
Zinc		955	10		mg/kg	SW846 6010C
JC31431-4A	**SB36-161108**					
Corrosivity as pH		6.85 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31431-5	**SB18-161109**					
Acetone		0.0057 J	0.0092	0.0046	mg/kg	SW846 8260C
Acenaphthene		0.142	0.034	0.012	mg/kg	SW846 8270D
Acenaphthylene		0.0527	0.034	0.017	mg/kg	SW846 8270D
Anthracene		0.464	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.671	0.034	0.0096	mg/kg	SW846 8270D
Benzo(a)pyrene		0.582	0.034	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.669	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.311	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.282	0.034	0.016	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0142 J	0.068	0.0047	mg/kg	SW846 8270D
Carbazole		0.203	0.068	0.0049	mg/kg	SW846 8270D
Chrysene		0.567	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0929	0.034	0.015	mg/kg	SW846 8270D
Dibenzofuran		0.107	0.068	0.014	mg/kg	SW846 8270D
Fluoranthene		1.43	0.034	0.015	mg/kg	SW846 8270D
Fluorene		0.186	0.034	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.357	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0399 J	0.068	0.0077	mg/kg	SW846 8270D
Naphthalene		0.110	0.034	0.0096	mg/kg	SW846 8270D
Phenanthrene		1.38	0.034	0.011	mg/kg	SW846 8270D
Pyrene		1.18	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]		0.0012	0.00065	0.00031	mg/kg	SW846 8081B
Dieldrin		0.00075	0.00065	0.00032	mg/kg	SW846 8081B
Aluminum		2510	53		mg/kg	SW846 6010C
Arsenic		2.1	2.1		mg/kg	SW846 6010C

2

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Calcium	1440	530		mg/kg	SW846 6010C
Chromium	7.0	1.1		mg/kg	SW846 6010C
Copper	9.8	2.7		mg/kg	SW846 6010C
Iron	7200	53		mg/kg	SW846 6010C
Lead	16.4	2.1		mg/kg	SW846 6010C
Magnesium	821	530		mg/kg	SW846 6010C
Manganese	131	1.6		mg/kg	SW846 6010C
Mercury	0.039	0.035		mg/kg	SW846 7471B
Nickel	6.0	4.3		mg/kg	SW846 6010C
Vanadium	7.9	5.3		mg/kg	SW846 6010C
Zinc	41.0	5.3		mg/kg	SW846 6010C
JC31431-5A SB18-161109					
Corrosivity as pH	8.09 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31431-6 SB19-161109					
Acenaphthylene	0.0776	0.036	0.018	mg/kg	SW846 8270D
Anthracene	0.124	0.036	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene	0.206	0.036	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene	0.201	0.036	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.467	0.036	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.174	0.036	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.140	0.036	0.017	mg/kg	SW846 8270D
1,1'-Biphenyl	0.0203 J	0.071	0.0049	mg/kg	SW846 8270D
Benzaldehyde	0.0327 J	0.18	0.0088	mg/kg	SW846 8270D
Carbazole	0.0540 J	0.071	0.0052	mg/kg	SW846 8270D
Chrysene	0.324	0.036	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0565	0.036	0.016	mg/kg	SW846 8270D
Dibenzofuran	0.0422 J	0.071	0.014	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate	0.0979	0.071	0.0083	mg/kg	SW846 8270D
Fluoranthene	0.353	0.036	0.016	mg/kg	SW846 8270D
Fluorene	0.0179 J	0.036	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.188	0.036	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0976	0.071	0.0080	mg/kg	SW846 8270D
Naphthalene	0.0815	0.036	0.010	mg/kg	SW846 8270D
Phenanthrene	0.197	0.036	0.012	mg/kg	SW846 8270D
Pyrene	0.335	0.036	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]	0.0082	0.00068	0.00032	mg/kg	SW846 8081B
gamma-Chlordane	0.0023	0.00068	0.00030	mg/kg	SW846 8081B
Dieldrin [c]	0.0094	0.00068	0.00034	mg/kg	SW846 8081B
4,4'-DDE	0.0039	0.00068	0.00035	mg/kg	SW846 8081B
4,4'-DDT	0.0132	0.00068	0.00041	mg/kg	SW846 8081B

2

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Aroclor 1254	0.191	0.034	0.017	mg/kg	SW846 8082A
Aluminum	5170	51		mg/kg	SW846 6010C
Arsenic	6.5	2.1		mg/kg	SW846 6010C
Barium	25.6	21		mg/kg	SW846 6010C
Beryllium	0.24	0.21		mg/kg	SW846 6010C
Cadmium	0.54	0.51		mg/kg	SW846 6010C
Calcium	695	510		mg/kg	SW846 6010C
Chromium	17.8	1.0		mg/kg	SW846 6010C
Copper	83.1	2.6		mg/kg	SW846 6010C
Iron	13900	51		mg/kg	SW846 6010C
Lead	53.5	2.1		mg/kg	SW846 6010C
Magnesium	888	510		mg/kg	SW846 6010C
Manganese	124	1.5		mg/kg	SW846 6010C
Mercury	0.079	0.035		mg/kg	SW846 7471B
Nickel	15.5	4.1		mg/kg	SW846 6010C
Vanadium	17.3	5.1		mg/kg	SW846 6010C
Zinc	32.5	5.1		mg/kg	SW846 6010C
JC31431-6A SB19-161109					
Corrosivity as pH	5.36 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
Benzene	0.0105	0.0025	0.00070	mg/l	SW846 8260C
JC31431-7 SB20-161109					
Acenaphthylene	0.0832	0.036	0.018	mg/kg	SW846 8270D
Anthracene	0.0924	0.036	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene	0.165	0.036	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene	0.150	0.036	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.358	0.036	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.136	0.036	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.0989	0.036	0.017	mg/kg	SW846 8270D
1,1'-Biphenyl	0.0515 J	0.072	0.0049	mg/kg	SW846 8270D
Benzaldehyde	0.0819 J	0.18	0.0089	mg/kg	SW846 8270D
Carbazole	0.0470 J	0.072	0.0052	mg/kg	SW846 8270D
Chrysene	0.339	0.036	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0409	0.036	0.016	mg/kg	SW846 8270D
Dibenzofuran	0.101	0.072	0.015	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate	0.0863	0.072	0.0084	mg/kg	SW846 8270D
Fluoranthene	0.368	0.036	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.122	0.036	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene	0.302	0.072	0.0081	mg/kg	SW846 8270D
Naphthalene	0.269	0.036	0.010	mg/kg	SW846 8270D
Phenanthrene	0.387	0.036	0.012	mg/kg	SW846 8270D

2

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Pyrene		0.325	0.036	0.011	mg/kg	SW846 8270D
4,4'-DDE [a]		0.0204	0.00071	0.00037	mg/kg	SW846 8081B
Aroclor 1254		0.251	0.035	0.018	mg/kg	SW846 8082A
Aluminum		4260	55		mg/kg	SW846 6010C
Arsenic		6.9	2.2		mg/kg	SW846 6010C
Barium		37.1	22		mg/kg	SW846 6010C
Beryllium		0.26	0.22		mg/kg	SW846 6010C
Calcium		928	550		mg/kg	SW846 6010C
Chromium		17.1	1.1		mg/kg	SW846 6010C
Copper		45.2	2.7		mg/kg	SW846 6010C
Iron		13800	55		mg/kg	SW846 6010C
Lead		43.6	2.2		mg/kg	SW846 6010C
Magnesium		805	550		mg/kg	SW846 6010C
Manganese		151	1.6		mg/kg	SW846 6010C
Mercury		0.033	0.033		mg/kg	SW846 7471B
Nickel		16.3	4.4		mg/kg	SW846 6010C
Vanadium		15.7	5.5		mg/kg	SW846 6010C
Zinc		33.5	5.5		mg/kg	SW846 6010C
JC31431-7A	**SB20-161109**					
Corrosivity as pH		5.38 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31431-8	**SB22-161109**					
Acenaphthene		0.0459	0.034	0.012	mg/kg	SW846 8270D
Acenaphthylene		0.0531	0.034	0.017	mg/kg	SW846 8270D
Acetophenone		0.0362 J	0.17	0.0073	mg/kg	SW846 8270D
Anthracene		0.143	0.034	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.568	0.034	0.0096	mg/kg	SW846 8270D
Benzo(a)pyrene		0.665	0.034	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene		1.02	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.543	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.364	0.034	0.016	mg/kg	SW846 8270D
Butyl benzyl phthalate		0.778	0.068	0.0083	mg/kg	SW846 8270D
1,1'-Biphenyl		0.0172 J	0.068	0.0047	mg/kg	SW846 8270D
Benzaldehyde		0.0300 J	0.17	0.0084	mg/kg	SW846 8270D
Carbazole		0.0802	0.068	0.0049	mg/kg	SW846 8270D
Chrysene		0.711	0.034	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.133	0.034	0.015	mg/kg	SW846 8270D
Dibenzofuran		0.0333 J	0.068	0.014	mg/kg	SW846 8270D
Di-n-butyl phthalate		0.407	0.068	0.0055	mg/kg	SW846 8270D
bis(2-Ethylhexyl)phthalate		0.185	0.068	0.0079	mg/kg	SW846 8270D
Fluoranthene		1.30	0.034	0.015	mg/kg	SW846 8270D

2

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Fluorene	0.0502	0.034	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.604	0.034	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0681	0.068	0.0077	mg/kg	SW846 8270D
Naphthalene	0.0487	0.034	0.0096	mg/kg	SW846 8270D
Phenanthrene	0.617	0.034	0.011	mg/kg	SW846 8270D
Pyrene	1.11	0.034	0.011	mg/kg	SW846 8270D
alpha-Chlordane [a]	0.0054	0.00070	0.00033	mg/kg	SW846 8081B
gamma-Chlordane [a]	0.0014	0.00070	0.00031	mg/kg	SW846 8081B
4,4'-DDD	0.0040	0.00070	0.00045	mg/kg	SW846 8081B
4,4'-DDE [a]	0.0063	0.00070	0.00036	mg/kg	SW846 8081B
4,4'-DDT [a]	0.0475	0.00070	0.00041	mg/kg	SW846 8081B
Heptachlor epoxide [a]	0.00087	0.00070	0.00037	mg/kg	SW846 8081B
Aluminum	5620	50		mg/kg	SW846 6010C
Arsenic	7.3	2.0		mg/kg	SW846 6010C
Barium	73.4	20		mg/kg	SW846 6010C
Beryllium	0.29	0.20		mg/kg	SW846 6010C
Cadmium	1.5	0.50		mg/kg	SW846 6010C
Calcium	4450	500		mg/kg	SW846 6010C
Chromium	26.6	0.99		mg/kg	SW846 6010C
Copper	66.3	2.5		mg/kg	SW846 6010C
Iron	15400	50		mg/kg	SW846 6010C
Lead	378	2.0		mg/kg	SW846 6010C
Magnesium	2190	500		mg/kg	SW846 6010C
Manganese	197	1.5		mg/kg	SW846 6010C
Mercury	0.12	0.033		mg/kg	SW846 7471B
Nickel	23.2	4.0		mg/kg	SW846 6010C
Vanadium	27.2	5.0		mg/kg	SW846 6010C
Zinc	223	5.0		mg/kg	SW846 6010C
Cyanide	0.31	0.24		mg/kg	SW846 9012B/LACHAT
JC31431-8A SB22-161109					
Corrosivity as pH	7.01 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31431-9 SB21-161109					
Acenaphthylene	0.127	0.036	0.018	mg/kg	SW846 8270D
Anthracene	0.236	0.036	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene	0.495	0.036	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene	0.475	0.036	0.017	mg/kg	SW846 8270D
Benzo(b)fluoranthene	1.07	0.036	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.300	0.036	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.374	0.036	0.017	mg/kg	SW846 8270D
Benzaldehyde	0.0391 J	0.18	0.0090	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Carbazole	0.0688 J	0.073	0.0053	mg/kg	SW846 8270D
Chrysene	0.681	0.036	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.103	0.036	0.016	mg/kg	SW846 8270D
Dibenzofuran	0.0177 J	0.073	0.015	mg/kg	SW846 8270D
Fluoranthene	0.540	0.036	0.016	mg/kg	SW846 8270D
Fluorene	0.0284 J	0.036	0.017	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.358	0.036	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0386 J	0.073	0.0082	mg/kg	SW846 8270D
Naphthalene	0.0293 J	0.036	0.010	mg/kg	SW846 8270D
Phenanthrene	0.173	0.036	0.012	mg/kg	SW846 8270D
Pyrene	0.809	0.036	0.012	mg/kg	SW846 8270D
alpha-Chlordane [a]	0.0153	0.00072	0.00034	mg/kg	SW846 8081B
gamma-Chlordane [a]	0.0059	0.00072	0.00032	mg/kg	SW846 8081B
4,4'-DDD	0.0076	0.00072	0.00046	mg/kg	SW846 8081B
4,4'-DDE [a]	0.0235	0.00072	0.00037	mg/kg	SW846 8081B
4,4'-DDT	0.0418	0.00072	0.00043	mg/kg	SW846 8081B
Heptachlor epoxide [d]	0.0071	0.00072	0.00039	mg/kg	SW846 8081B
Aluminum	14900	58		mg/kg	SW846 6010C
Arsenic	13.9	2.3		mg/kg	SW846 6010C
Barium	63.3	23		mg/kg	SW846 6010C
Beryllium	0.42	0.23		mg/kg	SW846 6010C
Calcium	1200	580		mg/kg	SW846 6010C
Chromium	25.5	1.2		mg/kg	SW846 6010C
Copper	38.2	2.9		mg/kg	SW846 6010C
Iron	16000	58		mg/kg	SW846 6010C
Lead	125	2.3		mg/kg	SW846 6010C
Magnesium	1680	580		mg/kg	SW846 6010C
Manganese	237	1.8		mg/kg	SW846 6010C
Mercury	0.21	0.038		mg/kg	SW846 7471B
Nickel	13.2	4.7		mg/kg	SW846 6010C
Vanadium	32.1	5.8		mg/kg	SW846 6010C
Zinc	92.2	5.8		mg/kg	SW846 6010C
Cyanide	0.27	0.26		mg/kg	SW846 9012B/LACHAT
JC31431-9A SB21-161109					
Corrosivity as pH	5.35 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93

(a) More than 40 % RPD for detected concentrations between the two GC columns.
(b) Reported from 1st signal. %D of end check (ECC) on 2nd signal excess method criteria (20 %) so using for confirmation only.
(c) Reported from 2nd signal. %D of check on 1st signal excess method criteria (20 %) so using for confirmation only. More than 40% RPD for detected concentrations between the two GC columns.
(d) Reported from 2nd signal. %D of check on 1st signal excess method criteria (20 %) so using for confirmation

Summary of Hits

Job Number: JC31431
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/08/16 thru 11/09/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

only.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31497.D	1	11/15/16	TDN	11/10/16 07:50	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0053	mg/kg	
71-43-2	Benzene	ND	0.00053	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0053	0.00034	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0053	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0053	0.00051	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0019	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0053	0.00045	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0053	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00058	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0021	0.00051	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00026	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0053	0.00057	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00020	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00046	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00017	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00033	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00021	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0053	0.00051	mg/kg	
591-78-6	2-Hexanone	ND	0.0053	0.0015	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0053	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00053	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00028	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0053	0.00089	mg/kg	
75-09-2	Methylene chloride	ND	0.0053	0.0011	mg/kg	
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.026	0.0032	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00030	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0053	0.00024	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0053	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00018	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00034	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0053	0.00066	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0011	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-122%
17060-07-0	1,2-Dichloroethane-D4	105%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	103%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162510.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.067	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.060	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.067	0.022	mg/kg	
	3&4-Methylphenol	ND	0.067	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.090	mg/kg	
87-86-5	Pentachlorophenol	ND	0.13	0.032	mg/kg	
108-95-2	Phenol	ND	0.067	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0248	0.034	0.017	mg/kg	J
98-86-2	Acetophenone	ND	0.17	0.0072	mg/kg	
120-12-7	Anthracene	0.0278	0.034	0.021	mg/kg	J
1912-24-9	Atrazine	ND	0.067	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.0511	0.034	0.0095	mg/kg	
50-32-8	Benzo(a)pyrene	0.0553	0.034	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0937	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0556	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0308	0.034	0.016	mg/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	0.067	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.067	0.0082	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.067	0.0046	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0083	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.067	0.0080	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	ND	0.067	0.0049	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.067	0.013	mg/kg	
218-01-9	Chrysene	0.0627	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.067	0.0072	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.067	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.067	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.067	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.010	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.067	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	ND	0.067	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.067	0.0055	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.067	0.0084	mg/kg	
84-66-2	Diethyl phthalate	ND	0.067	0.0072	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.067	0.0060	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.067	0.0079	mg/kg	
206-44-0	Fluoranthene	0.0823	0.034	0.015	mg/kg	
86-73-7	Fluorene	ND	0.034	0.015	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.067	0.0085	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0516	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.067	0.0072	mg/kg	
91-57-6	2-Methylnaphthalene	0.0188	0.067	0.0076	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0079	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0084	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0087	mg/kg	
91-20-3	Naphthalene	ND	0.034	0.0095	mg/kg	
98-95-3	Nitrobenzene	ND	0.067	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.067	0.0097	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.0426	0.034	0.011	mg/kg	
129-00-0	Pyrene	0.0997	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0085	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		30-106%
118-79-6	2,4,6-Tribromophenol	74%		24-140%
4165-60-0	Nitrobenzene-d5	69%		26-122%
321-60-8	2-Fluorobiphenyl	70%		36-112%
1718-51-0	Terphenyl-d14	72%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129678.D	1	11/17/16	RK	11/10/16	OP98472	G1G4143
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00069	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00069	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00069	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00069	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00069	0.00030	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.00087	0.00069	0.00033	mg/kg	
5103-74-2	gamma-Chlordane [a]	0.00049	0.00069	0.00030	mg/kg	J
60-57-1	Dieldrin	ND	0.00069	0.00034	mg/kg	
72-54-8	4,4'-DDD	ND	0.00069	0.00044	mg/kg	
72-55-9	4,4'-DDE [a]	0.00050	0.00069	0.00036	mg/kg	J
50-29-3	4,4'-DDT	0.0027	0.00069	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00069	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00069	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00069	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00069	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00069	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00069	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00069	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00034	mg/kg	
53494-70-5	Endrin ketone	ND	0.00069	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	80%		24-136%
877-09-8	Tetrachloro-m-xylene	81%		24-136%
2051-24-3	Decachlorobiphenyl	71%		10-153%
2051-24-3	Decachlorobiphenyl	48%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64854.D	1	11/14/16	WG	11/10/16	OP98471	G5G1504
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.034	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.034	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.034	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.034	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.034	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.034	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.034	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.034	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.034	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	79%		20-152%
877-09-8	Tetrachloro-m-xylene	79%		20-152%
2051-24-3	Decachlorobiphenyl	61%		12-157%
2051-24-3	Decachlorobiphenyl	139%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.8
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2050	50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	< 20	20	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	< 0.20	0.20	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.50	0.50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	1050	500	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	6.9	0.99	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.0	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	8.4	2.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	4780	50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	22.5	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	605	500	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	52.8	1.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	< 0.033	0.033	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [3]
Nickel	4.4	4.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 990	990	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.50	0.50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 990	990	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 0.99	0.99	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	< 5.0	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	28.7	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Prep QC Batch: MP97092
(4) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.8
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.24	0.24	mg/kg	1	11/14/16 14:42	YZ	SW846 9012B/LACHAT
Solids, Percent	96.8		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36554.D	5	11/11/16	EH	11/10/16	GP1377	V2V1429
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	0.0011	D018	0.50	0.0025	0.00070	mg/l	J
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		76-120%
17060-07-0	1,2-Dichloroethane-D4	106%		64-135%
2037-26-5	Toluene-D8	96%		76-117%
460-00-4	4-Bromofluorobenzene	104%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64376.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	28%		14-88%
4165-62-2	Phenol-d5	22%		10-110%
118-79-6	2,4,6-Tribromophenol	55%		39-149%
4165-60-0	Nitrobenzene-d5	68%		32-128%
321-60-8	2-Fluorobiphenyl	62%		35-119%
1718-51-0	Terphenyl-d14	54%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104247.D	1	11/15/16	VDT	11/11/16	OP98496	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	97%		50-142%
19719-28-9	2,4-DCAA	69%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	96.8
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74860.D	1	11/14/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	110%		30-137%
877-09-8	Tetrachloro-m-xylene	106%		30-137%
2051-24-3	Decachlorobiphenyl	96%		10-137%
2051-24-3	Decachlorobiphenyl	88%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.8
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB37-161108		
Lab Sample ID:	JC31431-1A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.8
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.28 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/15/16 15:57	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/16/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/15/16 13:23	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31498.D	1	11/15/16	TDN	11/10/16 07:55	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0051	mg/kg	
71-43-2	Benzene	ND	0.00051	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0051	0.00032	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0020	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0051	0.00027	mg/kg	
74-83-9	Bromomethane	ND	0.0051	0.00049	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0020	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0020	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0020	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0051	0.00044	mg/kg	
67-66-3	Chloroform	ND	0.0020	0.00024	mg/kg	
74-87-3	Chloromethane	ND	0.0051	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00055	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0020	0.00049	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0020	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00025	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00017	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0051	0.00055	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00017	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00044	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0020	0.00031	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0020	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0020	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0051	0.00049	mg/kg	
591-78-6	2-Hexanone	ND	0.0051	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0020	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0051	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0020	0.00051	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00027	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0051	0.00086	mg/kg	
75-09-2	Methylene chloride	ND	0.0051	0.0010	mg/kg	
100-42-5	Styrene	ND	0.0020	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.025	0.0031	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0020	0.00024	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0020	0.00029	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0051	0.00023	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0051	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0020	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0020	0.00033	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00019	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0051	0.00064	mg/kg	
75-01-4	Vinyl chloride	ND	0.0020	0.00021	mg/kg	
	m,p-Xylene	ND	0.0010	0.00022	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	108%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	101%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162511.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.070	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.070	0.022	mg/kg	
	3&4-Methylphenol	ND	0.070	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.070	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0188	0.035	0.018	mg/kg	J
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	0.0317	0.035	0.022	mg/kg	J
1912-24-9	Atrazine	ND	0.070	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0787	0.035	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.0832	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.125	0.035	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0717	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0438	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.070	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	0.0743	0.070	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.070	0.0048	mg/kg	
100-52-7	Benzaldehyde	ND	0.18	0.0087	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.070	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	ND	0.070	0.0051	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.070	0.014	mg/kg	
218-01-9	Chrysene	0.0960	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.070	0.0075	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.070	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.070	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.070	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.070	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0188	0.035	0.016	mg/kg	J
132-64-9	Dibenzofuran	ND	0.070	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	0.0405	0.070	0.0057	mg/kg	J
117-84-0	Di-n-octyl phthalate	ND	0.070	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.070	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.070	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.070	0.0082	mg/kg	
206-44-0	Fluoranthene	0.133	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.070	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0739	0.035	0.017	mg/kg	
78-59-1	Isophorone	ND	0.070	0.0075	mg/kg	
91-57-6	2-Methylnaphthalene	0.0240	0.070	0.0080	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0091	mg/kg	
91-20-3	Naphthalene	0.0171	0.035	0.0099	mg/kg	J
98-95-3	Nitrobenzene	ND	0.070	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.070	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.0785	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.127	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0089	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	66%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%		30-106%
118-79-6	2,4,6-Tribromophenol	82%		24-140%
4165-60-0	Nitrobenzene-d5	71%		26-122%
321-60-8	2-Fluorobiphenyl	75%		36-112%
1718-51-0	Terphenyl-d14	80%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129679.D	1	11/17/16	RK	11/10/16	OP98472	G1G4143
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00068	0.00032	mg/kg	
319-84-6	alpha-BHC	ND	0.00068	0.00036	mg/kg	
319-85-7	beta-BHC	ND	0.00068	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00068	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00068	0.00030	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0019	0.00068	0.00032	mg/kg	
5103-74-2	gamma-Chlordane	0.0035	0.00068	0.00030	mg/kg	
60-57-1	Dieldrin	ND	0.00068	0.00034	mg/kg	
72-54-8	4,4'-DDD	ND	0.00068	0.00043	mg/kg	
72-55-9	4,4'-DDE [a]	0.0070	0.00068	0.00035	mg/kg	
50-29-3	4,4'-DDT	0.0214	0.00068	0.00040	mg/kg	
72-20-8	Endrin	ND	0.00068	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00068	0.00027	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00068	0.00040	mg/kg	
959-98-8	Endosulfan-I	ND	0.00068	0.00035	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00068	0.00035	mg/kg	
76-44-8	Heptachlor	ND	0.00068	0.00033	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00068	0.00036	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00034	mg/kg	
53494-70-5	Endrin ketone	ND	0.00068	0.00052	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0070	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	71%		24-136%
877-09-8	Tetrachloro-m-xylene	77%		24-136%
2051-24-3	Decachlorobiphenyl	60%		10-153%
2051-24-3	Decachlorobiphenyl	60%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64855.D	1	11/14/16	WG	11/10/16	OP98471	G5G1504
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.034	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.034	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.034	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.034	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.034	0.021	mg/kg	
11097-69-1	Aroclor 1254 [a]	0.0858	0.034	0.017	mg/kg	
11096-82-5	Aroclor 1260 [a]	0.0553	0.034	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.034	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.034	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		20-152%
877-09-8	Tetrachloro-m-xylene	79%		20-152%
2051-24-3	Decachlorobiphenyl	65%		12-157%
2051-24-3	Decachlorobiphenyl	85%		12-157%

(a) Reported from 1st signal. %D of end check (ECC) on 2nd signal excess method criteria (20 %) so using for confirmation only.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	94.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2780	51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	4.8	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	116	21	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	< 0.21	0.21	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	1.9	0.51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	1410	510	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	12.9	1.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.1	5.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	70.5	2.6	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	10600	51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	196	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	866	510	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	115	1.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.077	0.034	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [3]
Nickel	10.6	4.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.51	0.51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.0	1.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	12.3	5.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	330	5.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Prep QC Batch: MP97092
(4) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	94.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	11/15/16 15:14	BM	SW846 9012B/LACHAT
Solids, Percent	94.7		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36555.D	5	11/11/16	EH	11/10/16	GP1377	V2V1429
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		76-120%
17060-07-0	1,2-Dichloroethane-D4	106%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	106%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64377.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	42%		14-88%
4165-62-2	Phenol-d5	28%		10-110%
118-79-6	2,4,6-Tribromophenol	68%		39-149%
4165-60-0	Nitrobenzene-d5	78%		32-128%
321-60-8	2-Fluorobiphenyl	69%		35-119%
1718-51-0	Terphenyl-d14	78%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104289.D	1	11/16/16	VDT	11/11/16	OP98496	G3G3645
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	107%		50-142%
19719-28-9	2,4-DCAA	80%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	94.7
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74821.D	1	11/14/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	122%		30-137%
877-09-8	Tetrachloro-m-xylene	119%		30-137%
2051-24-3	Decachlorobiphenyl	88%		10-137%
2051-24-3	Decachlorobiphenyl	93%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	94.7
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB38-161108		
Lab Sample ID:	JC31431-2A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	94.7
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.10 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 15:58	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/16/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 13:23	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31499.D	1	11/15/16	TDN	11/10/16 07:55	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0055	mg/kg	
71-43-2	Benzene	ND	0.00055	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0055	0.00035	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0022	0.00017	mg/kg	
75-25-2	Bromoform	ND	0.0055	0.00029	mg/kg	
74-83-9	Bromomethane	ND	0.0055	0.00053	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0019	mg/kg	
75-15-0	Carbon disulfide	ND	0.0022	0.00019	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0022	0.00018	mg/kg	
108-90-7	Chlorobenzene	ND	0.0022	0.00018	mg/kg	
75-00-3	Chloroethane	ND	0.0055	0.00047	mg/kg	
67-66-3	Chloroform	ND	0.0022	0.00026	mg/kg	
74-87-3	Chloromethane	ND	0.0055	0.00023	mg/kg	
110-82-7	Cyclohexane	ND	0.0022	0.00060	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0022	0.00053	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0022	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00027	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00019	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00017	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0055	0.00060	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00019	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00048	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00017	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0022	0.00034	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0022	0.00022	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0022	0.00024	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0055	0.00053	mg/kg	
591-78-6	2-Hexanone	ND	0.0055	0.0015	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0022	0.00017	mg/kg	
79-20-9	Methyl Acetate	ND	0.0055	0.0022	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0022	0.00055	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00029	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0055	0.00093	mg/kg	
75-09-2	Methylene chloride	ND	0.0055	0.0011	mg/kg	
100-42-5	Styrene	ND	0.0022	0.00016	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.027	0.0033	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0022	0.00026	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0022	0.00031	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00014	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0055	0.00025	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0055	0.00020	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0022	0.00018	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0022	0.00035	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00021	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0055	0.00069	mg/kg	
75-01-4	Vinyl chloride	ND	0.0022	0.00022	mg/kg	
	m,p-Xylene	ND	0.0011	0.00024	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00022	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	111%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	102%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162512.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.081	0.020	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.20	0.025	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.20	0.035	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.20	0.072	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.20	0.15	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.20	0.043	mg/kg	
95-48-7	2-Methylphenol	ND	0.081	0.026	mg/kg	
	3&4-Methylphenol	ND	0.081	0.033	mg/kg	
88-75-5	2-Nitrophenol	ND	0.20	0.027	mg/kg	
100-02-7	4-Nitrophenol	ND	0.41	0.11	mg/kg	
87-86-5	Pentachlorophenol	ND	0.16	0.038	mg/kg	
108-95-2	Phenol	ND	0.081	0.021	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.20	0.027	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.20	0.030	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.20	0.024	mg/kg	
83-32-9	Acenaphthene	ND	0.041	0.014	mg/kg	
208-96-8	Acenaphthylene	0.0264	0.041	0.021	mg/kg	J
98-86-2	Acetophenone	ND	0.20	0.0087	mg/kg	
120-12-7	Anthracene	0.0493	0.041	0.025	mg/kg	
1912-24-9	Atrazine	ND	0.081	0.017	mg/kg	
56-55-3	Benzo(a)anthracene	0.163	0.041	0.011	mg/kg	
50-32-8	Benzo(a)pyrene	0.162	0.041	0.018	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.273	0.041	0.018	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.111	0.041	0.020	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0858	0.041	0.019	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.081	0.016	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.081	0.0099	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.081	0.0055	mg/kg	
100-52-7	Benzaldehyde	0.0261	0.20	0.010	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.081	0.0096	mg/kg	
106-47-8	4-Chloroaniline	ND	0.20	0.015	mg/kg	
86-74-8	Carbazole	0.0337	0.081	0.0059	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.081	0.016	mg/kg	
218-01-9	Chrysene	0.193	0.041	0.013	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.081	0.0087	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.081	0.017	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.081	0.015	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.081	0.013	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.041	0.013	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.041	0.020	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.081	0.034	mg/kg	
123-91-1	1,4-Dioxane	ND	0.041	0.027	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0338	0.041	0.018	mg/kg	J
132-64-9	Dibenzofuran	0.0227	0.081	0.016	mg/kg	J
84-74-2	Di-n-butyl phthalate	0.0939	0.081	0.0066	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.081	0.010	mg/kg	
84-66-2	Diethyl phthalate	ND	0.081	0.0086	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.081	0.0072	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.165	0.081	0.0095	mg/kg	
206-44-0	Fluoranthene	0.258	0.041	0.018	mg/kg	
86-73-7	Fluorene	ND	0.041	0.019	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.081	0.010	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.041	0.016	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.41	0.016	mg/kg	
67-72-1	Hexachloroethane	ND	0.20	0.020	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.121	0.041	0.019	mg/kg	
78-59-1	Isophorone	ND	0.081	0.0087	mg/kg	
91-57-6	2-Methylnaphthalene	0.0695	0.081	0.0092	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.20	0.0096	mg/kg	
99-09-2	3-Nitroaniline	ND	0.20	0.010	mg/kg	
100-01-6	4-Nitroaniline	ND	0.20	0.010	mg/kg	
91-20-3	Naphthalene	0.0510	0.041	0.011	mg/kg	
98-95-3	Nitrobenzene	ND	0.081	0.016	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.081	0.012	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.20	0.015	mg/kg	
85-01-8	Phenanthrene	0.148	0.041	0.014	mg/kg	
129-00-0	Pyrene	0.257	0.041	0.013	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.20	0.010	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	55%		30-106%
118-79-6	2,4,6-Tribromophenol	66%		24-140%
4165-60-0	Nitrobenzene-d5	61%		26-122%
321-60-8	2-Fluorobiphenyl	61%		36-112%
1718-51-0	Terphenyl-d14	63%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129839.D	1	11/21/16	KD	11/10/16	OP98472	G1G4146
Run #2							

	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00080	0.00038	mg/kg	
319-84-6	alpha-BHC	ND	0.00080	0.00043	mg/kg	
319-85-7	beta-BHC	ND	0.00080	0.00050	mg/kg	
319-86-8	delta-BHC	ND	0.00080	0.00036	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00080	0.00035	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00080	0.00038	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00080	0.00035	mg/kg	
60-57-1	Dieldrin	ND	0.00080	0.00040	mg/kg	
72-54-8	4,4'-DDD	ND	0.00080	0.00051	mg/kg	
72-55-9	4,4'-DDE [a]	0.0069	0.00080	0.00042	mg/kg	
50-29-3	4,4'-DDT	0.0138	0.00080	0.00047	mg/kg	
72-20-8	Endrin	ND	0.00080	0.00037	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00080	0.00032	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00080	0.00047	mg/kg	
959-98-8	Endosulfan-I	ND	0.00080	0.00042	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00080	0.00042	mg/kg	
76-44-8	Heptachlor	ND	0.00080	0.00039	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00080	0.00043	mg/kg	
72-43-5	Methoxychlor	ND	0.0016	0.00040	mg/kg	
53494-70-5	Endrin ketone	ND	0.00080	0.00061	mg/kg	
8001-35-2	Toxaphene	ND	0.020	0.0083	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	107%		24-136%
877-09-8	Tetrachloro-m-xylene	83%		24-136%
2051-24-3	Decachlorobiphenyl	81%		10-153%
2051-24-3	Decachlorobiphenyl	92%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64856.D	1	11/14/16	WG	11/10/16	OP98471	G5G1504
Run #2							

	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.040	0.020	mg/kg	
11104-28-2	Aroclor 1221	ND	0.040	0.020	mg/kg	
11141-16-5	Aroclor 1232	ND	0.040	0.016	mg/kg	
53469-21-9	Aroclor 1242	ND	0.040	0.014	mg/kg	
12672-29-6	Aroclor 1248	ND	0.040	0.025	mg/kg	
11097-69-1	Aroclor 1254	ND	0.040	0.020	mg/kg	
11096-82-5	Aroclor 1260	ND	0.040	0.017	mg/kg	
11100-14-4	Aroclor 1268	ND	0.040	0.014	mg/kg	
37324-23-5	Aroclor 1262	ND	0.040	0.027	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	257% [a]		20-152%
877-09-8	Tetrachloro-m-xylene	90%		20-152%
2051-24-3	Decachlorobiphenyl	83%		12-157%
2051-24-3	Decachlorobiphenyl	120%		12-157%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	79.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3830	49	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 1.9	1.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	2.5	1.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	19.2	19	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	< 0.19	0.19	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.49	0.49	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	1200	490	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	9.4	0.97	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 4.9	4.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	30.6	2.4	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	7240	49	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	31.3	1.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	544	490	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	105	1.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	< 0.033	0.033	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [3]
Nickel	5.0	3.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 970	970	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 1.9	1.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.49	0.49	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 970	970	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 0.97	0.97	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	8.5	4.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	224	4.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Prep QC Batch: MP97092
(4) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	79.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.30	0.30	mg/kg	1	11/15/16 15:15	BM	SW846 9012B/LACHAT
Solids, Percent	79.9		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36556.D	5	11/11/16	EH	11/10/16	GP1377	V2V1429
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		76-120%
17060-07-0	1,2-Dichloroethane-D4	107%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	107%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64378.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	41%		14-88%
4165-62-2	Phenol-d5	28%		10-110%
118-79-6	2,4,6-Tribromophenol	71%		39-149%
4165-60-0	Nitrobenzene-d5	75%		32-128%
321-60-8	2-Fluorobiphenyl	67%		35-119%
1718-51-0	Terphenyl-d14	77%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104280.D	1	11/16/16	VDT	11/11/16	OP98496	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	90%		50-142%
19719-28-9	2,4-DCAA	62%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	79.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74861.D	1	11/14/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	105%		30-137%
877-09-8	Tetrachloro-m-xylene	102%		30-137%
2051-24-3	Decachlorobiphenyl	78%		10-137%
2051-24-3	Decachlorobiphenyl	76%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	79.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB39-161108		
Lab Sample ID:	JC31431-3A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	79.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.84 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 13	13	mg/kg	1	11/15/16 16:01	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/16/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 130	130	mg/kg	1	11/15/16 13:23	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31500.D	1	11/15/16	TDN	11/10/16 07:55	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	4.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0055	mg/kg	
71-43-2	Benzene	ND	0.00055	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0055	0.00035	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0022	0.00017	mg/kg	
75-25-2	Bromoform	ND	0.0055	0.00029	mg/kg	
74-83-9	Bromomethane	ND	0.0055	0.00054	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0020	mg/kg	
75-15-0	Carbon disulfide	ND	0.0022	0.00019	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0022	0.00018	mg/kg	
108-90-7	Chlorobenzene	ND	0.0022	0.00018	mg/kg	
75-00-3	Chloroethane	ND	0.0055	0.00048	mg/kg	
67-66-3	Chloroform	ND	0.0022	0.00026	mg/kg	
74-87-3	Chloromethane	ND	0.0055	0.00023	mg/kg	
110-82-7	Cyclohexane	ND	0.0022	0.00061	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0022	0.00054	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0022	0.00017	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00027	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00019	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00017	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0055	0.00060	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00019	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00049	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00018	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0022	0.00034	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0022	0.00022	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0022	0.00024	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00017	mg/kg	
76-13-1	Freon 113	ND	0.0055	0.00054	mg/kg	
591-78-6	2-Hexanone	ND	0.0055	0.0015	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0022	0.00017	mg/kg	
79-20-9	Methyl Acetate	ND	0.0055	0.0022	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0022	0.00056	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00029	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0055	0.00094	mg/kg	
75-09-2	Methylene chloride	ND	0.0055	0.0011	mg/kg	
100-42-5	Styrene	ND	0.0022	0.00016	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.028	0.0034	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0022	0.00026	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0022	0.00031	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00014	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0055	0.00025	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0055	0.00020	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0022	0.00019	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0022	0.00036	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00021	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0055	0.00070	mg/kg	
75-01-4	Vinyl chloride	ND	0.0022	0.00022	mg/kg	
	m,p-Xylene	ND	0.0011	0.00024	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00022	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	103%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162513.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.069	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.069	0.022	mg/kg	
	3&4-Methylphenol	ND	0.069	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.091	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.069	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	ND	0.034	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0074	mg/kg	
120-12-7	Anthracene	ND	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.069	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0168	0.034	0.0097	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0169	0.034	0.016	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0340	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.069	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.069	0.0084	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.069	0.0047	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0085	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.069	0.0082	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	ND	0.069	0.0050	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.069	0.014	mg/kg	
218-01-9	Chrysene	0.0292	0.034	0.011	mg/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	0.069	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.069	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.069	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.069	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.069	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	ND	0.069	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.069	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.069	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.069	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.069	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.069	0.0080	mg/kg	
206-44-0	Fluoranthene	0.0311	0.034	0.015	mg/kg	J
86-73-7	Fluorene	ND	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.069	0.0087	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.069	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.069	0.0077	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0081	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0086	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0089	mg/kg	
91-20-3	Naphthalene	ND	0.034	0.0097	mg/kg	
98-95-3	Nitrobenzene	ND	0.069	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.069	0.0099	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.0241	0.034	0.012	mg/kg	J
129-00-0	Pyrene	0.0294	0.034	0.011	mg/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0087	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%		30-106%
118-79-6	2,4,6-Tribromophenol	74%		24-140%
4165-60-0	Nitrobenzene-d5	64%		26-122%
321-60-8	2-Fluorobiphenyl	70%		36-112%
1718-51-0	Terphenyl-d14	76%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129681.D	1	11/17/16	RK	11/10/16	OP98472	G1G4143
Run #2							

	Initial Weight	Final Volume
Run #1	16.6 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00063	0.00030	mg/kg	
319-84-6	alpha-BHC	ND	0.00063	0.00034	mg/kg	
319-85-7	beta-BHC	ND	0.00063	0.00039	mg/kg	
319-86-8	delta-BHC	ND	0.00063	0.00028	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00063	0.00028	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00063	0.00030	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00063	0.00028	mg/kg	
60-57-1	Dieldrin	ND	0.00063	0.00031	mg/kg	
72-54-8	4,4'-DDD	ND	0.00063	0.00040	mg/kg	
72-55-9	4,4'-DDE	0.0020	0.00063	0.00033	mg/kg	
50-29-3	4,4'-DDT	0.0035	0.00063	0.00037	mg/kg	
72-20-8	Endrin	ND	0.00063	0.00029	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00063	0.00025	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00063	0.00037	mg/kg	
959-98-8	Endosulfan-I	ND	0.00063	0.00033	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00063	0.00033	mg/kg	
76-44-8	Heptachlor	ND	0.00063	0.00031	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00063	0.00034	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00031	mg/kg	
53494-70-5	Endrin ketone	ND	0.00063	0.00048	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0065	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		24-136%
877-09-8	Tetrachloro-m-xylene	77%		24-136%
2051-24-3	Decachlorobiphenyl	65%		10-153%
2051-24-3	Decachlorobiphenyl	69%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64857.D	1	11/14/16	WG	11/10/16	OP98471	G5G1504
Run #2							

	Initial Weight	Final Volume
Run #1	16.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.031	0.015	mg/kg	
11104-28-2	Aroclor 1221	ND	0.031	0.015	mg/kg	
11141-16-5	Aroclor 1232	ND	0.031	0.012	mg/kg	
53469-21-9	Aroclor 1242	ND	0.031	0.011	mg/kg	
12672-29-6	Aroclor 1248	ND	0.031	0.020	mg/kg	
11097-69-1	Aroclor 1254	ND	0.031	0.016	mg/kg	
11096-82-5	Aroclor 1260	ND	0.031	0.013	mg/kg	
11100-14-4	Aroclor 1268	ND	0.031	0.011	mg/kg	
37324-23-5	Aroclor 1262	ND	0.031	0.021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	81%		20-152%
877-09-8	Tetrachloro-m-xylene	79%		20-152%
2051-24-3	Decachlorobiphenyl	79%		12-157%
2051-24-3	Decachlorobiphenyl	80%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3600	50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Antimony	< 2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Arsenic	< 2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Barium	< 20	20	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Beryllium	< 0.20	0.20	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 0.50	0.50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Calcium	< 500	500	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Chromium	5.1	1.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Cobalt	< 5.0	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Copper	5.7	2.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Iron	5030	50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Lead	10.3	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Magnesium	520	500	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Manganese	95.4	1.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Mercury	0.75	0.032	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [4]
Nickel	< 4.0	4.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Potassium	< 1000	1000	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Silver	< 0.50	0.50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Sodium	< 1000	1000	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Thallium	< 1.0	1.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Vanadium	6.8	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Zinc	955	10	mg/kg	2	11/12/16	11/15/16	DE	SW846 6010C [3]	SW846 3050B [5]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Instrument QC Batch: MA40775
(4) Prep QC Batch: MP97092
(5) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	11/15/16 15:16	BM	SW846 9012B/LACHAT
Solids, Percent	96		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36557.D	5	11/11/16	EH	11/10/16	GP1377	V2V1429
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		76-120%
17060-07-0	1,2-Dichloroethane-D4	107%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	106%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64379.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%		14-88%
4165-62-2	Phenol-d5	25%		10-110%
118-79-6	2,4,6-Tribromophenol	57%		39-149%
4165-60-0	Nitrobenzene-d5	70%		32-128%
321-60-8	2-Fluorobiphenyl	62%		35-119%
1718-51-0	Terphenyl-d14	79%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104290.D	1	11/16/16	VDT	11/11/16	OP98496	G3G3645
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	104%		50-142%
19719-28-9	2,4-DCAA	77%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	96.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74862.D	1	11/14/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	114%		30-137%
877-09-8	Tetrachloro-m-xylene	112%		30-137%
2051-24-3	Decachlorobiphenyl	88%		10-137%
2051-24-3	Decachlorobiphenyl	85%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB36-161108		
Lab Sample ID:	JC31431-4A	**Date Sampled:**	11/08/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	96.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.85 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/15/16 16:02	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/16/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/15/16 13:23	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31508.D	1	11/15/16	TDN	11/10/16 08:05	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0057	0.0092	0.0046	mg/kg	J
71-43-2	Benzene	ND	0.00046	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0046	0.00029	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0018	0.00014	mg/kg	
75-25-2	Bromoform	ND	0.0046	0.00025	mg/kg	
74-83-9	Bromomethane	ND	0.0046	0.00045	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0092	0.0016	mg/kg	
75-15-0	Carbon disulfide	ND	0.0018	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0018	0.00015	mg/kg	
108-90-7	Chlorobenzene	ND	0.0018	0.00015	mg/kg	
75-00-3	Chloroethane	ND	0.0046	0.00040	mg/kg	
67-66-3	Chloroform	ND	0.0018	0.00022	mg/kg	
74-87-3	Chloromethane	ND	0.0046	0.00019	mg/kg	
110-82-7	Cyclohexane	ND	0.0018	0.00050	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0018	0.00045	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0018	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00092	0.00022	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00092	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00092	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00092	0.00014	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0046	0.00050	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00092	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00092	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00092	0.00014	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00092	0.00040	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00092	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0018	0.00029	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0018	0.00018	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0018	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00092	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0046	0.00045	mg/kg	
591-78-6	2-Hexanone	ND	0.0046	0.0013	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0018	0.00014	mg/kg	
79-20-9	Methyl Acetate	ND	0.0046	0.0019	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0018	0.00047	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00092	0.00024	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0046	0.00078	mg/kg	
75-09-2	Methylene chloride	ND	0.0046	0.00092	mg/kg	
100-42-5	Styrene	ND	0.0018	0.00013	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.023	0.0028	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0018	0.00022	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0018	0.00026	mg/kg	
108-88-3	Toluene	ND	0.00092	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0046	0.00021	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0046	0.00017	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0018	0.00015	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0018	0.00030	mg/kg	
79-01-6	Trichloroethene	ND	0.00092	0.00018	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0046	0.00058	mg/kg	
75-01-4	Vinyl chloride	ND	0.0018	0.00019	mg/kg	
	m,p-Xylene	ND	0.00092	0.00020	mg/kg	
95-47-6	o-Xylene	ND	0.00092	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.00092	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	112%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	103%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162514.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.068	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.022	mg/kg	
	3&4-Methylphenol	ND	0.068	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.091	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.068	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	0.142	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0527	0.034	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0073	mg/kg	
120-12-7	Anthracene	0.464	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.068	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.671	0.034	0.0096	mg/kg	
50-32-8	Benzo(a)pyrene	0.582	0.034	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.669	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.311	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.282	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.068	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.068	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	0.0142	0.068	0.0047	mg/kg	J
100-52-7	Benzaldehyde	ND	0.17	0.0084	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.068	0.0081	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.203	0.068	0.0049	mg/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.068	0.013	mg/kg	
218-01-9	Chrysene	0.567	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.068	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.068	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.068	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.068	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.068	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0929	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	0.107	0.068	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.068	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.068	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.068	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.068	0.0080	mg/kg	
206-44-0	Fluoranthene	1.43	0.034	0.015	mg/kg	
86-73-7	Fluorene	0.186	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.068	0.0086	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.357	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.068	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	0.0399	0.068	0.0077	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0080	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0085	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0088	mg/kg	
91-20-3	Naphthalene	0.110	0.034	0.0096	mg/kg	
98-95-3	Nitrobenzene	ND	0.068	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.068	0.0098	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	1.38	0.034	0.011	mg/kg	
129-00-0	Pyrene	1.18	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0087	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		30-106%
118-79-6	2,4,6-Tribromophenol	79%		24-140%
4165-60-0	Nitrobenzene-d5	69%		26-122%
321-60-8	2-Fluorobiphenyl	71%		36-112%
1718-51-0	Terphenyl-d14	77%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129840.D	1	11/21/16	KD	11/10/16	OP98472	G1G4146
Run #2 [a]	1G129899.D	5	11/23/16	KD	11/10/16	OP98472	G1G4148

	Initial Weight	Final Volume
Run #1	16.3 g	10.0 ml
Run #2	16.3 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00065	0.00031	mg/kg	
319-84-6	alpha-BHC	ND	0.00065	0.00035	mg/kg	
319-85-7	beta-BHC	ND	0.00065	0.00041	mg/kg	
319-86-8	delta-BHC	ND	0.00065	0.00029	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00065	0.00029	mg/kg	
5103-71-9	alpha-Chlordane [b]	0.0012	0.00065	0.00031	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00065	0.00028	mg/kg	
60-57-1	Dieldrin	0.00075	0.00065	0.00032	mg/kg	
72-54-8	4,4'-DDD	ND	0.00065	0.00041	mg/kg	
72-55-9	4,4'-DDE	ND	0.00065	0.00034	mg/kg	
50-29-3	4,4'-DDT	ND	0.00065	0.00038	mg/kg	
72-20-8	Endrin	ND	0.00065	0.00030	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00065	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00065	0.00038	mg/kg	
959-98-8	Endosulfan-I	ND	0.00065	0.00034	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00065	0.00034	mg/kg	
76-44-8	Heptachlor	ND	0.00065	0.00032	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00065	0.00035	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00032	mg/kg	
53494-70-5	Endrin ketone	ND	0.00065	0.00050	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0067	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%	119%	24-136%
877-09-8	Tetrachloro-m-xylene	90%	99%	24-136%
2051-24-3	Decachlorobiphenyl	69%	110%	10-153%
2051-24-3	Decachlorobiphenyl	76%	120%	10-153%

(a) Confirmation run.
(b) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64862.D	1	11/14/16	WG	11/10/16	OP98471	G5G1504
Run #2							

	Initial Weight	Final Volume
Run #1	16.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.032	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.032	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.032	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.032	0.011	mg/kg	
12672-29-6	Aroclor 1248	ND	0.032	0.020	mg/kg	
11097-69-1	Aroclor 1254	ND	0.032	0.016	mg/kg	
11096-82-5	Aroclor 1260	ND	0.032	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.032	0.011	mg/kg	
37324-23-5	Aroclor 1262	ND	0.032	0.022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%		20-152%
877-09-8	Tetrachloro-m-xylene	99%		20-152%
2051-24-3	Decachlorobiphenyl	85%		12-157%
2051-24-3	Decachlorobiphenyl	99%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2510	53	mg/kg	1	11/12/16	11/15/16	DE	SW846 6010C [3]	SW846 3050B [5]
Antimony	< 2.1	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Arsenic	2.1	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Barium	< 21	21	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Beryllium	< 0.21	0.21	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 0.53	0.53	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Calcium	1440	530	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Chromium	7.0	1.1	mg/kg	1	11/12/16	11/15/16	DE	SW846 6010C [3]	SW846 3050B [5]
Cobalt	< 5.3	5.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Copper	9.8	2.7	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Iron	7200	53	mg/kg	1	11/12/16	11/15/16	DE	SW846 6010C [3]	SW846 3050B [5]
Lead	16.4	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Magnesium	821	530	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Manganese	131	1.6	mg/kg	1	11/12/16	11/15/16	DE	SW846 6010C [3]	SW846 3050B [5]
Mercury	0.039	0.035	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [4]
Nickel	6.0	4.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Potassium	< 1100	1100	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 2.1	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Silver	< 0.53	0.53	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Sodium	< 1100	1100	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Thallium	< 1.1	1.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Vanadium	7.9	5.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]
Zinc	41.0	5.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [5]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Instrument QC Batch: MA40775
(4) Prep QC Batch: MP97092
(5) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	11/15/16 15:17	BM	SW846 9012B/LACHAT
Solids, Percent	95		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36558.D	5	11/11/16	EH	11/10/16	GP1377	V2V1429
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		76-120%
17060-07-0	1,2-Dichloroethane-D4	106%		64-135%
2037-26-5	Toluene-D8	96%		76-117%
460-00-4	4-Bromofluorobenzene	105%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64380.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	31%		14-88%
4165-62-2	Phenol-d5	23%		10-110%
118-79-6	2,4,6-Tribromophenol	61%		39-149%
4165-60-0	Nitrobenzene-d5	64%		32-128%
321-60-8	2-Fluorobiphenyl	55%		35-119%
1718-51-0	Terphenyl-d14	82%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104293.D	1	11/16/16	VDT	11/11/16	OP98496	G3G3645
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	101%		50-142%
19719-28-9	2,4-DCAA	86%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.0
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74863.D	1	11/14/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	113%		30-137%
877-09-8	Tetrachloro-m-xylene	111%		30-137%
2051-24-3	Decachlorobiphenyl	84%		10-137%
2051-24-3	Decachlorobiphenyl	81%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.0
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB18-161109		
Lab Sample ID:	JC31431-5A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.0
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	8.09 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/15/16 16:03	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/16/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/15/16 13:23	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31504.D	1	11/15/16	TDN	11/10/16 08:05	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.010	0.0052	mg/kg	
71-43-2	Benzene	ND	0.00052	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0052	0.00033	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0052	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0052	0.00050	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0052	0.00044	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0052	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00057	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0021	0.00050	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00025	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0052	0.00056	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00045	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00032	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0052	0.00050	mg/kg	
591-78-6	2-Hexanone	ND	0.0052	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0052	0.0021	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00052	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00027	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0052	0.00088	mg/kg	
75-09-2	Methylene chloride	ND	0.0052	0.0010	mg/kg	
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.026	0.0031	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00029	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0052	0.00023	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0052	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00033	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0052	0.00065	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0010	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	109%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	102%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162515.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.071	0.018	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.023	mg/kg	
	3&4-Methylphenol	ND	0.071	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.095	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.071	0.019	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.024	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.036	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0776	0.036	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	0.124	0.036	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.071	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.206	0.036	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.201	0.036	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.467	0.036	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.174	0.036	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.140	0.036	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.071	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.071	0.0087	mg/kg	
92-52-4	1,1'-Biphenyl	0.0203	0.071	0.0049	mg/kg	J
100-52-7	Benzaldehyde	0.0327	0.18	0.0088	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.071	0.0085	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0540	0.071	0.0052	mg/kg	J

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.071	0.014	mg/kg	
218-01-9	Chrysene	0.324	0.036	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.071	0.0076	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.071	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.071	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.071	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.036	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.036	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.071	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.036	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0565	0.036	0.016	mg/kg	
132-64-9	Dibenzofuran	0.0422	0.071	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0058	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.071	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0076	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.071	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0979	0.071	0.0083	mg/kg	
206-44-0	Fluoranthene	0.353	0.036	0.016	mg/kg	
86-73-7	Fluorene	0.0179	0.036	0.016	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.071	0.0090	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.036	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.36	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.188	0.036	0.017	mg/kg	
78-59-1	Isophorone	ND	0.071	0.0076	mg/kg	
91-57-6	2-Methylnaphthalene	0.0976	0.071	0.0080	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0084	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0089	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0092	mg/kg	
91-20-3	Naphthalene	0.0815	0.036	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.071	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.071	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.197	0.036	0.012	mg/kg	
129-00-0	Pyrene	0.335	0.036	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0090	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	60%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	59%		30-106%
118-79-6	2,4,6-Tribromophenol	75%		24-140%
4165-60-0	Nitrobenzene-d5	64%		26-122%
321-60-8	2-Fluorobiphenyl	66%		36-112%
1718-51-0	Terphenyl-d14	71%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129683.D	1	11/18/16	RK	11/10/16	OP98472	G1G4143
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00068	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00068	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00068	0.00043	mg/kg	
319-86-8	delta-BHC	ND	0.00068	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00068	0.00030	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0082	0.00068	0.00032	mg/kg	
5103-74-2	gamma-Chlordane	0.0023	0.00068	0.00030	mg/kg	
60-57-1	Dieldrin [b]	0.0094	0.00068	0.00034	mg/kg	
72-54-8	4,4'-DDD	ND	0.00068	0.00044	mg/kg	
72-55-9	4,4'-DDE	0.0039	0.00068	0.00035	mg/kg	
50-29-3	4,4'-DDT	0.0132	0.00068	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00068	0.00032	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00068	0.00027	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00068	0.00040	mg/kg	
959-98-8	Endosulfan-I	ND	0.00068	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00068	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00068	0.00033	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00068	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00034	mg/kg	
53494-70-5	Endrin ketone	ND	0.00068	0.00053	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0071	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	75%		24-136%
877-09-8	Tetrachloro-m-xylene	81%		24-136%
2051-24-3	Decachlorobiphenyl	77%		10-153%
2051-24-3	Decachlorobiphenyl	93%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.
(b) Reported from 2nd signal. %D of check on 1st signal excess method criteria (20 %) so using for confirmation only. More than 40% RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64863.D	1	11/14/16	WG	11/10/16	OP98471	G5G1504
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.034	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.034	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.034	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.034	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.034	0.022	mg/kg	
11097-69-1	Aroclor 1254	0.191	0.034	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.034	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.034	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.034	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	93%		20-152%
877-09-8	Tetrachloro-m-xylene	91%		20-152%
2051-24-3	Decachlorobiphenyl	93%		12-157%
2051-24-3	Decachlorobiphenyl	142%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5170	51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	6.5	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	25.6	21	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.24	0.21	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	0.54	0.51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	695	510	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	17.8	1.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.1	5.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	83.1	2.6	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	13900	51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	53.5	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	888	510	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	124	1.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.079	0.035	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [3]
Nickel	15.5	4.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.51	0.51	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.0	1.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	17.3	5.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	32.5	5.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Prep QC Batch: MP97092
(4) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/15/16 15:18	BM	SW846 9012B/LACHAT
Solids, Percent	92.9		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36559.D	5	11/12/16	EH	11/10/16	GP1377	V2V1429
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	0.0105	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		76-120%
17060-07-0	1,2-Dichloroethane-D4	107%		64-135%
2037-26-5	Toluene-D8	97%		76-117%
460-00-4	4-Bromofluorobenzene	107%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64381.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		14-88%
4165-62-2	Phenol-d5	25%		10-110%
118-79-6	2,4,6-Tribromophenol	56%		39-149%
4165-60-0	Nitrobenzene-d5	69%		32-128%
321-60-8	2-Fluorobiphenyl	61%		35-119%
1718-51-0	Terphenyl-d14	80%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104294.D	1	11/16/16	VDT	11/11/16	OP98496	G3G3645
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	104%		50-142%
19719-28-9	2,4-DCAA	86%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74864.D	1	11/15/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	69%		30-137%
877-09-8	Tetrachloro-m-xylene	67%		30-137%
2051-24-3	Decachlorobiphenyl	59%		10-137%
2051-24-3	Decachlorobiphenyl	55%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB19-161109		
Lab Sample ID:	JC31431-6A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	5.36 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:04	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/17/16 19:55	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 14:38	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31505.D	1	11/15/16	TDN	11/10/16 08:05	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	4.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.013	0.0066	mg/kg	
71-43-2	Benzene	ND	0.00066	0.00016	mg/kg	
74-97-5	Bromochloromethane	ND	0.0066	0.00042	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0026	0.00020	mg/kg	
75-25-2	Bromoform	ND	0.0066	0.00035	mg/kg	
74-83-9	Bromomethane	ND	0.0066	0.00064	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.013	0.0023	mg/kg	
75-15-0	Carbon disulfide	ND	0.0026	0.00022	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0026	0.00022	mg/kg	
108-90-7	Chlorobenzene	ND	0.0026	0.00021	mg/kg	
75-00-3	Chloroethane	ND	0.0066	0.00056	mg/kg	
67-66-3	Chloroform	ND	0.0026	0.00031	mg/kg	
74-87-3	Chloromethane	ND	0.0066	0.00028	mg/kg	
110-82-7	Cyclohexane	ND	0.0026	0.00072	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0026	0.00064	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0026	0.00020	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0013	0.00032	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0013	0.00023	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0013	0.00018	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0013	0.00020	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0066	0.00072	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0013	0.00025	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0013	0.00023	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0013	0.00020	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0013	0.00058	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0013	0.00021	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0026	0.00041	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0026	0.00026	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0026	0.00029	mg/kg	
100-41-4	Ethylbenzene	ND	0.0013	0.00020	mg/kg	
76-13-1	Freon 113	ND	0.0066	0.00064	mg/kg	
591-78-6	2-Hexanone	ND	0.0066	0.0018	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0026	0.00020	mg/kg	
79-20-9	Methyl Acetate	ND	0.0066	0.0027	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0026	0.00067	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0013	0.00035	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0066	0.0011	mg/kg	
75-09-2	Methylene chloride	ND	0.0066	0.0013	mg/kg	
100-42-5	Styrene	ND	0.0026	0.00019	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.033	0.0040	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0026	0.00031	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0026	0.00037	mg/kg	
108-88-3	Toluene	ND	0.0013	0.00016	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0066	0.00030	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0066	0.00024	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0026	0.00022	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0026	0.00043	mg/kg	
79-01-6	Trichloroethene	ND	0.0013	0.00025	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0066	0.00083	mg/kg	
75-01-4	Vinyl chloride	ND	0.0026	0.00027	mg/kg	
	m,p-Xylene	ND	0.0013	0.00029	mg/kg	
95-47-6	o-Xylene	ND	0.0013	0.00027	mg/kg	
1330-20-7	Xylene (total)	ND	0.0013	0.00027	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-122%
17060-07-0	1,2-Dichloroethane-D4	111%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	103%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162516.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.072	0.018	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.031	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.064	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.072	0.023	mg/kg	
	3&4-Methylphenol	ND	0.072	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.024	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.095	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.034	mg/kg	
108-95-2	Phenol	ND	0.072	0.019	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.024	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.036	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0832	0.036	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0077	mg/kg	
120-12-7	Anthracene	0.0924	0.036	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.072	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.165	0.036	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.150	0.036	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.358	0.036	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.136	0.036	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0989	0.036	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.072	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.072	0.0087	mg/kg	
92-52-4	1,1'-Biphenyl	0.0515	0.072	0.0049	mg/kg	J
100-52-7	Benzaldehyde	0.0819	0.18	0.0089	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.072	0.0085	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0470	0.072	0.0052	mg/kg	J

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.072	0.014	mg/kg	
218-01-9	Chrysene	0.339	0.036	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.072	0.0077	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.072	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.072	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.072	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.036	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.036	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.072	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.036	0.024	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0409	0.036	0.016	mg/kg	
132-64-9	Dibenzofuran	0.101	0.072	0.015	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.072	0.0058	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.072	0.0089	mg/kg	
84-66-2	Diethyl phthalate	ND	0.072	0.0076	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.072	0.0064	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.0863	0.072	0.0084	mg/kg	
206-44-0	Fluoranthene	0.368	0.036	0.016	mg/kg	
86-73-7	Fluorene	ND	0.036	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.072	0.0090	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.036	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.36	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.122	0.036	0.017	mg/kg	
78-59-1	Isophorone	ND	0.072	0.0077	mg/kg	
91-57-6	2-Methylnaphthalene	0.302	0.072	0.0081	mg/kg	
88-74-4	2-Nitroaniline	ND	0.18	0.0084	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0089	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0093	mg/kg	
91-20-3	Naphthalene	0.269	0.036	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.072	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.072	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.387	0.036	0.012	mg/kg	
129-00-0	Pyrene	0.325	0.036	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0091	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%		30-106%
118-79-6	2,4,6-Tribromophenol	61%		24-140%
4165-60-0	Nitrobenzene-d5	56%		26-122%
321-60-8	2-Fluorobiphenyl	56%		36-112%
1718-51-0	Terphenyl-d14	55%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129841.D	1	11/21/16	KD	11/10/16	OP98472	G1G4146
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00071	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00071	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00071	0.00044	mg/kg	
319-86-8	delta-BHC	ND	0.00071	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00071	0.00031	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00071	0.00034	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00071	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00071	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00071	0.00045	mg/kg	
72-55-9	4,4'-DDE [a]	0.0204	0.00071	0.00037	mg/kg	
50-29-3	4,4'-DDT	ND	0.00071	0.00042	mg/kg	
72-20-8	Endrin	ND	0.00071	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00071	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00071	0.00042	mg/kg	
959-98-8	Endosulfan-I	ND	0.00071	0.00037	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00071	0.00037	mg/kg	
76-44-8	Heptachlor	ND	0.00071	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00071	0.00038	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00071	0.00054	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		24-136%
877-09-8	Tetrachloro-m-xylene	87%		24-136%
2051-24-3	Decachlorobiphenyl	82%		10-153%
2051-24-3	Decachlorobiphenyl	115%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64864.D	1	11/14/16	WG	11/10/16	OP98471	G5G1504
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	0.251	0.035	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		20-152%
877-09-8	Tetrachloro-m-xylene	73%		20-152%
2051-24-3	Decachlorobiphenyl	76%		12-157%
2051-24-3	Decachlorobiphenyl	105%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4260	55	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	6.9	2.2	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	37.1	22	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.26	0.22	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	928	550	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	17.1	1.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	45.2	2.7	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	13800	55	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	43.6	2.2	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	805	550	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	151	1.6	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.033	0.033	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [3]
Nickel	16.3	4.4	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.55	0.55	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	15.7	5.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	33.5	5.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Prep QC Batch: MP97092
(4) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/15/16 15:19	BM	SW846 9012B/LACHAT
Solids, Percent	92.6		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36560.D	5	11/12/16	EH	11/10/16	GP1377	V2V1429
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		76-120%
17060-07-0	1,2-Dichloroethane-D4	107%		64-135%
2037-26-5	Toluene-D8	98%		76-117%
460-00-4	4-Bromofluorobenzene	106%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64382.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	33%		14-88%
4165-62-2	Phenol-d5	25%		10-110%
118-79-6	2,4,6-Tribromophenol	59%		39-149%
4165-60-0	Nitrobenzene-d5	72%		32-128%
321-60-8	2-Fluorobiphenyl	62%		35-119%
1718-51-0	Terphenyl-d14	79%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104295.D	1	11/16/16	VDT	11/11/16	OP98496	G3G3645
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	84%		50-142%
19719-28-9	2,4-DCAA	70%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	92.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74865.D	1	11/15/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	70%		30-137%
877-09-8	Tetrachloro-m-xylene	68%		30-137%
2051-24-3	Decachlorobiphenyl	58%		10-137%
2051-24-3	Decachlorobiphenyl	56%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB20-161109		
Lab Sample ID:	JC31431-7A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	92.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	5.38 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:05	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/17/16 19:55	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31506.D	1	11/15/16	TDN	11/10/16 08:05	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0053	mg/kg	
71-43-2	Benzene	ND	0.00053	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0053	0.00034	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0021	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0053	0.00028	mg/kg	
74-83-9	Bromomethane	ND	0.0053	0.00052	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0019	mg/kg	
75-15-0	Carbon disulfide	ND	0.0021	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0021	0.00018	mg/kg	
108-90-7	Chlorobenzene	ND	0.0021	0.00017	mg/kg	
75-00-3	Chloroethane	ND	0.0053	0.00046	mg/kg	
67-66-3	Chloroform	ND	0.0021	0.00025	mg/kg	
74-87-3	Chloromethane	ND	0.0053	0.00022	mg/kg	
110-82-7	Cyclohexane	ND	0.0021	0.00058	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0021	0.00051	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0021	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00026	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00018	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00016	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0053	0.00058	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00020	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00018	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00047	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00017	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0021	0.00033	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0021	0.00021	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0021	0.00024	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0053	0.00051	mg/kg	
591-78-6	2-Hexanone	ND	0.0053	0.0015	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0021	0.00016	mg/kg	
79-20-9	Methyl Acetate	ND	0.0053	0.0022	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0021	0.00054	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00028	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0053	0.00090	mg/kg	
75-09-2	Methylene chloride	ND	0.0053	0.0011	mg/kg	
100-42-5	Styrene	ND	0.0021	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.027	0.0032	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0021	0.00025	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0021	0.00030	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0053	0.00024	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0053	0.00019	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0021	0.00018	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0021	0.00034	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00020	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0053	0.00067	mg/kg	
75-01-4	Vinyl chloride	ND	0.0021	0.00021	mg/kg	
	m,p-Xylene	ND	0.0011	0.00023	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	111%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	105%		72-130%

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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162517.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.068	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.060	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.068	0.022	mg/kg	
	3&4-Methylphenol	ND	0.068	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.091	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.068	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	0.0459	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0531	0.034	0.017	mg/kg	
98-86-2	Acetophenone	0.0362	0.17	0.0073	mg/kg	J
120-12-7	Anthracene	0.143	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.068	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.568	0.034	0.0096	mg/kg	
50-32-8	Benzo(a)pyrene	0.665	0.034	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	1.02	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.543	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.364	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.068	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	0.778	0.068	0.0083	mg/kg	
92-52-4	1,1'-Biphenyl	0.0172	0.068	0.0047	mg/kg	J
100-52-7	Benzaldehyde	0.0300	0.17	0.0084	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.068	0.0081	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0802	0.068	0.0049	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.068	0.013	mg/kg	
218-01-9	Chrysene	0.711	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.068	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.068	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.068	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.068	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.068	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.133	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	0.0333	0.068	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	0.407	0.068	0.0055	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.068	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.068	0.0072	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.068	0.0060	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	0.185	0.068	0.0079	mg/kg	
206-44-0	Fluoranthene	1.30	0.034	0.015	mg/kg	
86-73-7	Fluorene	0.0502	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.068	0.0086	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.604	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.068	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	0.0681	0.068	0.0077	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0080	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0085	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0088	mg/kg	
91-20-3	Naphthalene	0.0487	0.034	0.0096	mg/kg	
98-95-3	Nitrobenzene	ND	0.068	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.068	0.0098	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.617	0.034	0.011	mg/kg	
129-00-0	Pyrene	1.11	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0086	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	49%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	48%		30-106%
118-79-6	2,4,6-Tribromophenol	59%		24-140%
4165-60-0	Nitrobenzene-d5	54%		26-122%
321-60-8	2-Fluorobiphenyl	55%		36-112%
1718-51-0	Terphenyl-d14	57%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129685.D	1	11/18/16	RK	11/10/16	OP98472	G1G4143
Run #2 [a]	1G129846.D	5	11/21/16	KD	11/10/16	OP98472	G1G4146

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2	15.0 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00070	0.00033	mg/kg	
319-84-6	alpha-BHC	ND	0.00070	0.00037	mg/kg	
319-85-7	beta-BHC	ND	0.00070	0.00044	mg/kg	
319-86-8	delta-BHC	ND	0.00070	0.00031	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00070	0.00031	mg/kg	
5103-71-9	alpha-Chlordane [b]	0.0054	0.00070	0.00033	mg/kg	
5103-74-2	gamma-Chlordane [b]	0.0014	0.00070	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00070	0.00035	mg/kg	
72-54-8	4,4'-DDD	0.0040	0.00070	0.00045	mg/kg	
72-55-9	4,4'-DDE [b]	0.0063	0.00070	0.00036	mg/kg	
50-29-3	4,4'-DDT [b]	0.0475	0.00070	0.00041	mg/kg	
72-20-8	Endrin	ND	0.00070	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00070	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00070	0.00041	mg/kg	
959-98-8	Endosulfan-I	ND	0.00070	0.00036	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00070	0.00036	mg/kg	
76-44-8	Heptachlor	ND	0.00070	0.00034	mg/kg	
1024-57-3	Heptachlor epoxide [b]	0.00087	0.00070	0.00037	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00070	0.00054	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0072	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	74%	90%	24-136%
877-09-8	Tetrachloro-m-xylene	58%	69%	24-136%
2051-24-3	Decachlorobiphenyl	77%	78%	10-153%
2051-24-3	Decachlorobiphenyl	69%	86%	10-153%

(a) Confirmation run.
(b) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64804.D	1	11/12/16	KM	11/10/16	OP98471	G5G1503
Run #2							

	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.035	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		20-152%
877-09-8	Tetrachloro-m-xylene	88%		20-152%
2051-24-3	Decachlorobiphenyl	96%		12-157%
2051-24-3	Decachlorobiphenyl	150%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5620	50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	7.3	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	73.4	20	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.29	0.20	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	1.5	0.50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	4450	500	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	26.6	0.99	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.0	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	66.3	2.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	15400	50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	378	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	2190	500	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	197	1.5	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.12	0.033	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [3]
Nickel	23.2	4.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 990	990	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.0	2.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.50	0.50	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 990	990	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 0.99	0.99	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	27.2	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	223	5.0	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Prep QC Batch: MP97092
(4) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.31	0.24	mg/kg	1	11/15/16 15:20	BM	SW846 9012B/LACHAT
Solids, Percent	95.9		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36689.D	5	11/17/16	EH	11/11/16	GP1396	V2V1433
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		76-120%
17060-07-0	1,2-Dichloroethane-D4	112%		64-135%
2037-26-5	Toluene-D8	103%		76-117%
460-00-4	4-Bromofluorobenzene	105%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64383.D	1	11/14/16	AD	11/11/16	OP98494	E2P2823
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	33%		14-88%
4165-62-2	Phenol-d5	25%		10-110%
118-79-6	2,4,6-Tribromophenol	68%		39-149%
4165-60-0	Nitrobenzene-d5	70%		32-128%
321-60-8	2-Fluorobiphenyl	62%		35-119%
1718-51-0	Terphenyl-d14	84%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104296.D	1	11/16/16	VDT	11/11/16	OP98496	G3G3645
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	101%		50-142%
19719-28-9	2,4-DCAA	81%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G74866.D	1	11/15/16	KD	11/11/16	OP98495	G4G1949
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	127%		30-137%
877-09-8	Tetrachloro-m-xylene	122%		30-137%
2051-24-3	Decachlorobiphenyl	86%		10-137%
2051-24-3	Decachlorobiphenyl	79%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [3]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/11/16	11/13/16	DE	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40760
(3) Prep QC Batch: MP97101
(4) Prep QC Batch: MP97106

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB22-161109		
Lab Sample ID:	JC31431-8A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	95.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.01 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/15/16 16:06	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/17/16 19:55	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V31507.D	1	11/15/16	TDN	11/10/16 08:05	n/a	V3V1271
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.011	0.0057	mg/kg	
71-43-2	Benzene	ND	0.00057	0.00014	mg/kg	
74-97-5	Bromochloromethane	ND	0.0057	0.00036	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0023	0.00017	mg/kg	
75-25-2	Bromoform	ND	0.0057	0.00030	mg/kg	
74-83-9	Bromomethane	ND	0.0057	0.00055	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0020	mg/kg	
75-15-0	Carbon disulfide	ND	0.0023	0.00019	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0023	0.00019	mg/kg	
108-90-7	Chlorobenzene	ND	0.0023	0.00018	mg/kg	
75-00-3	Chloroethane	ND	0.0057	0.00049	mg/kg	
67-66-3	Chloroform	ND	0.0023	0.00027	mg/kg	
74-87-3	Chloromethane	ND	0.0057	0.00024	mg/kg	
110-82-7	Cyclohexane	ND	0.0023	0.00062	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0023	0.00055	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0023	0.00017	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00027	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00019	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00016	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00017	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0057	0.00062	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00019	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00050	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00018	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0023	0.00035	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0023	0.00022	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0023	0.00025	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00017	mg/kg	
76-13-1	Freon 113	ND	0.0057	0.00055	mg/kg	
591-78-6	2-Hexanone	ND	0.0057	0.0016	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0023	0.00017	mg/kg	
79-20-9	Methyl Acetate	ND	0.0057	0.0023	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0023	0.00057	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00030	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0057	0.00096	mg/kg	
75-09-2	Methylene chloride	ND	0.0057	0.0011	mg/kg	
100-42-5	Styrene	ND	0.0023	0.00016	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.028	0.0034	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0023	0.00027	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0023	0.00032	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00014	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0057	0.00026	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0057	0.00021	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0023	0.00019	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0023	0.00037	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00022	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0057	0.00071	mg/kg	
75-01-4	Vinyl chloride	ND	0.0023	0.00023	mg/kg	
	m,p-Xylene	ND	0.0011	0.00025	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00023	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-122%
17060-07-0	1,2-Dichloroethane-D4	112%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	103%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162518.D	1	11/11/16	RL	11/10/16	OP98475	EF6839
Run #2							

	Initial Weight	Final Volume
Run #1	31.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.073	0.018	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.031	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.065	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.14	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.039	mg/kg	
95-48-7	2-Methylphenol	ND	0.073	0.023	mg/kg	
	3&4-Methylphenol	ND	0.073	0.030	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.024	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.097	mg/kg	
87-86-5	Pentachlorophenol	ND	0.15	0.034	mg/kg	
108-95-2	Phenol	ND	0.073	0.019	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.024	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.022	mg/kg	
83-32-9	Acenaphthene	ND	0.036	0.013	mg/kg	
208-96-8	Acenaphthylene	0.127	0.036	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0078	mg/kg	
120-12-7	Anthracene	0.236	0.036	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.073	0.016	mg/kg	
56-55-3	Benzo(a)anthracene	0.495	0.036	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.475	0.036	0.017	mg/kg	
205-99-2	Benzo(b)fluoranthene	1.07	0.036	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.300	0.036	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.374	0.036	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.073	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.073	0.0089	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.073	0.0050	mg/kg	
100-52-7	Benzaldehyde	0.0391	0.18	0.0090	mg/kg	J
91-58-7	2-Chloronaphthalene	ND	0.073	0.0086	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0688	0.073	0.0053	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.073	0.014	mg/kg	
218-01-9	Chrysene	0.681	0.036	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.073	0.0078	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.073	0.016	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.073	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.073	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.036	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.036	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.073	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.036	0.024	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.103	0.036	0.016	mg/kg	
132-64-9	Dibenzofuran	0.0177	0.073	0.015	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.073	0.0059	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.073	0.0090	mg/kg	
84-66-2	Diethyl phthalate	ND	0.073	0.0077	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.073	0.0065	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.073	0.0085	mg/kg	
206-44-0	Fluoranthene	0.540	0.036	0.016	mg/kg	
86-73-7	Fluorene	0.0284	0.036	0.017	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.073	0.0092	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.036	0.015	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.36	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.358	0.036	0.017	mg/kg	
78-59-1	Isophorone	ND	0.073	0.0078	mg/kg	
91-57-6	2-Methylnaphthalene	0.0386	0.073	0.0082	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0086	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0091	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0094	mg/kg	
91-20-3	Naphthalene	0.0293	0.036	0.010	mg/kg	J
98-95-3	Nitrobenzene	ND	0.073	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.073	0.011	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.173	0.036	0.012	mg/kg	
129-00-0	Pyrene	0.809	0.036	0.012	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0092	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	44%		30-106%
118-79-6	2,4,6-Tribromophenol	57%		24-140%
4165-60-0	Nitrobenzene-d5	49%		26-122%
321-60-8	2-Fluorobiphenyl	50%		36-112%
1718-51-0	Terphenyl-d14	52%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129686.D	1	11/18/16	RK	11/10/16	OP98472	G1G4143
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00072	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00072	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00072	0.00045	mg/kg	
319-86-8	delta-BHC	ND	0.00072	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00072	0.00032	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0153	0.00072	0.00034	mg/kg	
5103-74-2	gamma-Chlordane [a]	0.0059	0.00072	0.00032	mg/kg	
60-57-1	Dieldrin	ND	0.00072	0.00036	mg/kg	
72-54-8	4,4'-DDD	0.0076	0.00072	0.00046	mg/kg	
72-55-9	4,4'-DDE [a]	0.0235	0.00072	0.00037	mg/kg	
50-29-3	4,4'-DDT	0.0418	0.00072	0.00043	mg/kg	
72-20-8	Endrin	ND	0.00072	0.00034	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00072	0.00029	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00072	0.00043	mg/kg	
959-98-8	Endosulfan-I	ND	0.00072	0.00038	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00072	0.00038	mg/kg	
76-44-8	Heptachlor	ND	0.00072	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide [b]	0.0071	0.00072	0.00039	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00036	mg/kg	
53494-70-5	Endrin ketone	ND	0.00072	0.00055	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0075	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		24-136%
877-09-8	Tetrachloro-m-xylene	62%		24-136%
2051-24-3	Decachlorobiphenyl	69%		10-153%
2051-24-3	Decachlorobiphenyl	75%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.
(b) Reported from 2nd signal. %D of check on 1st signal excess method criteria (20 %) so using for confirmation only.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G64805.D	1	11/12/16	KM	11/10/16	OP98471	G5G1503
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.036	0.018	mg/kg	
11104-28-2	Aroclor 1221	ND	0.036	0.018	mg/kg	
11141-16-5	Aroclor 1232	ND	0.036	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.036	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.036	0.023	mg/kg	
11097-69-1	Aroclor 1254	ND	0.036	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.036	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.036	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.036	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		20-152%
877-09-8	Tetrachloro-m-xylene	83%		20-152%
2051-24-3	Decachlorobiphenyl	91%		12-157%
2051-24-3	Decachlorobiphenyl	101%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	88.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	14900	58	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Arsenic	13.9	2.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Barium	63.3	23	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Beryllium	0.42	0.23	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 0.58	0.58	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Calcium	1200	580	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Chromium	25.5	1.2	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Cobalt	< 5.8	5.8	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Copper	38.2	2.9	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Iron	16000	58	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Lead	125	2.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Magnesium	1680	580	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Manganese	237	1.8	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Mercury	0.21	0.038	mg/kg	1	11/11/16	11/11/16	MS	SW846 7471B [1]	SW846 7471B [3]
Nickel	13.2	4.7	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Potassium	< 1200	1200	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Silver	< 0.58	0.58	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Sodium	< 1200	1200	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Thallium	< 1.2	1.2	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Vanadium	32.1	5.8	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]
Zinc	92.2	5.8	mg/kg	1	11/12/16	11/14/16	ND	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA40745
(2) Instrument QC Batch: MA40769
(3) Prep QC Batch: MP97092
(4) Prep QC Batch: MP97113

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	88.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.27	0.26	mg/kg	1	11/15/16 15:21	BM	SW846 9012B/LACHAT
Solids, Percent	88.2		%	1	11/11/16 16:10	BM	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36688.D	5	11/17/16	EH	11/11/16	GP1396	V2V1433
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		76-120%
17060-07-0	1,2-Dichloroethane-D4	111%		64-135%
2037-26-5	Toluene-D8	102%		76-117%
460-00-4	4-Bromofluorobenzene	104%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P32171.D	1	11/21/16	AC	11/16/16	OP98528	E6P1491
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		14-88%
4165-62-2	Phenol-d5	23%		10-110%
118-79-6	2,4,6-Tribromophenol	61%		39-149%
4165-60-0	Nitrobenzene-d5	53%		32-128%
321-60-8	2-Fluorobiphenyl	53%		35-119%
1718-51-0	Terphenyl-d14	75%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104263.D	1	11/15/16	VDT	11/14/16	OP98537	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	75%		50-142%
19719-28-9	2,4-DCAA	69%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	88.2
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41382.D	1	11/17/16	RK	11/14/16	OP98538	G6G1185
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	97%		30-137%
877-09-8	Tetrachloro-m-xylene	94%		30-137%
2051-24-3	Decachlorobiphenyl	118%		10-137%
2051-24-3	Decachlorobiphenyl	95%		10-137%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	88.2
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/12/16	11/15/16	ND	SW846 6010C [2]	SW846 3010A [4]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/12/16	11/15/16	ND	SW846 6010C [2]	SW846 3010A [4]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/12/16	11/22/16	AB	SW846 6010C [3]	SW846 3010A [4]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/12/16	11/15/16	ND	SW846 6010C [2]	SW846 3010A [4]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/12/16	11/15/16	ND	SW846 6010C [2]	SW846 3010A [4]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [5]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/12/16	11/15/16	ND	SW846 6010C [2]	SW846 3010A [4]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/12/16	11/15/16	ND	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40769
(3) Instrument QC Batch: MA40812
(4) Prep QC Batch: MP97119
(5) Prep QC Batch: MP97129

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB21-161109		
Lab Sample ID:	JC31431-9A	**Date Sampled:**	11/09/16
Matrix:	SO - Soil	**Date Received:**	11/09/16
		Percent Solids:	88.2
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	5.35 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:07	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/17/16 19:55	AT	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Parameter Certification Exceptions

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Cyanide Reactivity		**SW846 CHAP7/9012 B**	SO	Accutest is not certified for this parameter.[a]
Sulfide Reactivity		**SW846 CHAP7/9034**	SO	Accutest is not certified for this parameter.[a]

(a) Reactivity analyzed following SW846 Chapter 7 is no longer recognized by regulatory agencies. Use of results should be verified through the program to which the data is being submitted.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

SGS ACCUTEST

SLC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC31431

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City: Florham Park State: NJ Zip: 07932
Project Contact: Brian Crespi E-mail: Brian.Crespi@matrix-newworld.com
Phone #: 212-324-4251
Sampler(s) Name(s): M. Cleland Phone #:

Project Information

Project Name: LIRR Expansion
Street:
City: Long Island State: NY
Project #: 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)

Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCL/TAL (FULL), TCLP (FULL), Dioxins, RCRA Char

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (FULL)	TCLP (FULL)	Dioxins	RCRA Char							LAB USE ONLY
1	SB37-161108	*	11/8/16	0952	MC	S	7					4			3	X	X	X	X							D48
2	SB38-161108		11/8/16	1024	MC	S	7					4			3	X	X	X	X							H3T2
3	SB39-161108		11/8/16	1227	MC	S	7					4			3	X	X	X	X							P51
4	SB36-161108		11/8/16	1352	MC	S	7					4			3	X	X	X	X							14D2
5	SB18-161109		11/9/16	0950	MC	S	7					4			3	X	X	X	X							40106
6	SB19-161109		11/9/16	1050	MC	S	7					4			3	X	X	X	X							
7	SB20-161109		11/9/16	1117	MC	S	7					4			3	X	X	X	X							
8	SB22-161109		11/9/16	1233	MC	S	7					4			3	X	X	X	X							
9	SB21-161109	*	11/9/16	1324	MC	S	7					4			3	X	X	X	X							

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other _____

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:
INITIAL ASESSMENT 3/25/17
LABEL VERIFICATION OK

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format _____
- [ ] Other _____

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice
* Received 3 Encores

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	1157 11/8/16	1 Chris Lau	2 Chris Lau	11/9/16 1905	2 [signature]
3		3	4		4
5		5			

Custody Seal #: 336,338 [x] Intact [ ] Not intact
Preserved where applicable [ ]
On Ice [x]
Cooler Temp: 3.7°, 3.1°C

JC31431: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31431 **Client:** **Project:**

Date / Time Received: 11/9/2016 7:05:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.7); Cooler 2: (3.1);

Cooler Temps (Corrected) °C: Cooler 1: (1.6); Cooler 2: (1.0);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	2		

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

JC31431: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31431-1 Collected: 08-NOV-16 09:52 By: MC Received: 09-NOV-16 By: AS SB37-161108						
JC31431-1	SW846 7471B	11-NOV-16 10:29	MS	11-NOV-16	MS	HG
JC31431-1	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-1	SW846 8270D	11-NOV-16 17:09	RL	10-NOV-16	HK	AB8270TCL20
JC31431-1	SW846 9012B/LACHAT	14-NOV-16 14:42	YZ	10-NOV-16	DM	CN
JC31431-1	SW846 6010C	14-NOV-16 20:41	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31431-1	SW846 8082A	14-NOV-16 20:46	WG	10-NOV-16	SLM	P8082PCB11AO
JC31431-1	SW846 8260C	15-NOV-16 12:51	TDN			V8260TCL20
JC31431-1	SW846 8081B	17-NOV-16 23:01	RK	10-NOV-16	SLM	P8081PESTTCL
JC31431-2 Collected: 08-NOV-16 11:34 By: MC Received: 09-NOV-16 By: AS SB38-161108						
JC31431-2	SW846 7471B	11-NOV-16 10:30	MS	11-NOV-16	MS	HG
JC31431-2	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-2	SW846 8270D	11-NOV-16 17:38	RL	10-NOV-16	HK	AB8270TCL20
JC31431-2	SW846 6010C	14-NOV-16 20:47	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31431-2	SW846 8082A	14-NOV-16 21:04	WG	10-NOV-16	SLM	P8082PCB11AO
JC31431-2	SW846 8260C	15-NOV-16 13:19	TDN			V8260TCL20
JC31431-2	SW846 9012B/LACHAT	15-NOV-16 15:14	BM	14-NOV-16	MH	CN
JC31431-2	SW846 8081B	17-NOV-16 23:18	RK	10-NOV-16	SLM	P8081PESTTCL
JC31431-3 Collected: 08-NOV-16 12:27 By: MC Received: 09-NOV-16 By: AS SB39-161108						
JC31431-3	SW846 7471B	11-NOV-16 10:31	MS	11-NOV-16	MS	HG
JC31431-3	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-3	SW846 8270D	11-NOV-16 18:07	RL	10-NOV-16	HK	AB8270TCL20
JC31431-3	SW846 6010C	14-NOV-16 21:05	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31431-3	SW846 8082A	14-NOV-16 21:23	WG	10-NOV-16	SLM	P8082PCB11AO
JC31431-3	SW846 8260C	15-NOV-16 13:48	TDN			V8260TCL20
JC31431-3	SW846 9012B/LACHAT	15-NOV-16 15:15	BM	14-NOV-16	MH	CN

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31431-3	SW846 8081B	21-NOV-16 21:36	KD	10-NOV-16	SLM	P8081PESTTCL
JC31431-4	Collected: 08-NOV-16 13:52 By: MC		Received: 09-NOV-16 By: AS			
SB36-161108						
JC31431-4	SW846 7471B	11-NOV-16 10:33	MS	11-NOV-16	MS	HG
JC31431-4	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-4	SW846 8270D	11-NOV-16 18:36	RL	10-NOV-16	HK	AB8270TCL20
JC31431-4	SW846 6010C	14-NOV-16 21:11	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V
JC31431-4	SW846 8082A	14-NOV-16 21:41	WG	10-NOV-16	SLM	P8082PCB11AO
JC31431-4	SW846 8260C	15-NOV-16 14:16	TDN			V8260TCL20
JC31431-4	SW846 9012B/LACHAT	15-NOV-16 15:16	BM	14-NOV-16	MH	CN
JC31431-4	SW846 6010C	15-NOV-16 20:07	DE	12-NOV-16	JA	ZN
JC31431-4	SW846 8081B	17-NOV-16 23:52	RK	10-NOV-16	SLM	P8081PESTTCL
JC31431-5	Collected: 09-NOV-16 09:50 By: MC		Received: 09-NOV-16 By: AS			
SB18-161109						
JC31431-5	SW846 7471B	11-NOV-16 10:34	MS	11-NOV-16	MS	HG
JC31431-5	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-5	SW846 8270D	11-NOV-16 19:05	RL	10-NOV-16	HK	AB8270TCL20
JC31431-5	SW846 6010C	14-NOV-16 21:17	ND	12-NOV-16	JA	AG,AS,BA,BE,CA,CD,CO,CU,K,MG,NA,NI,PB,SB,SE,TL,V,ZN
JC31431-5	SW846 8082A	14-NOV-16 23:13	WG	10-NOV-16	SLM	P8082PCB11AO
JC31431-5	SW846 9012B/LACHAT	15-NOV-16 15:17	BM	14-NOV-16	MH	CN
JC31431-5	SW846 8260C	15-NOV-16 18:02	TDN			V8260TCL20
JC31431-5	SW846 6010C	15-NOV-16 20:12	DE	12-NOV-16	JA	AL,CR,FE,MN
JC31431-5	SW846 8081B	21-NOV-16 21:53	KD	10-NOV-16	SLM	P8081PESTTCL
JC31431-5	SW846 8081B	23-NOV-16 13:17	KD	10-NOV-16	SLM	P8081PESTTCL
JC31431-6	Collected: 09-NOV-16 10:50 By: MC		Received: 09-NOV-16 By: AS			
SB19-161109						
JC31431-6	SW846 7471B	11-NOV-16 10:39	MS	11-NOV-16	MS	HG
JC31431-6	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-6	SW846 8270D	11-NOV-16 19:34	RL	10-NOV-16	HK	AB8270TCL20

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31431-6	SW846 6010C	14-NOV-16 21:23	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31431-6	SW846 8082A	14-NOV-16 23:31	WG	10-NOV-16	SLM	P8082PCB11AO
JC31431-6	SW846 9012B/LACHAT	15-NOV-16 15:18	BM	14-NOV-16	MH	CN
JC31431-6	SW846 8260C	15-NOV-16 16:09	TDN			V8260TCL20
JC31431-6	SW846 8081B	18-NOV-16 00:25	RK	10-NOV-16	SLM	P8081PESTTCL
JC31431-7 Collected: 09-NOV-16 11:17 By: MC Received: 09-NOV-16 By: AS SB20-161109						
JC31431-7	SW846 7471B	11-NOV-16 10:40	MS	11-NOV-16	MS	HG
JC31431-7	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-7	SW846 8270D	11-NOV-16 20:03	RL	10-NOV-16	HK	AB8270TCL20
JC31431-7	SW846 6010C	14-NOV-16 21:29	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31431-7	SW846 8082A	14-NOV-16 23:49	WG	10-NOV-16	SLM	P8082PCB11AO
JC31431-7	SW846 9012B/LACHAT	15-NOV-16 15:19	BM	14-NOV-16	MH	CN
JC31431-7	SW846 8260C	15-NOV-16 16:37	TDN			V8260TCL20
JC31431-7	SW846 8081B	21-NOV-16 22:10	KD	10-NOV-16	SLM	P8081PESTTCL
JC31431-8 Collected: 09-NOV-16 12:33 By: MC Received: 09-NOV-16 By: AS SB22-161109						
JC31431-8	SW846 7471B	11-NOV-16 10:42	MS	11-NOV-16	MS	HG
JC31431-8	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-8	SW846 8270D	11-NOV-16 20:31	RL	10-NOV-16	HK	AB8270TCL20
JC31431-8	SW846 8082A	12-NOV-16 02:49	KM	10-NOV-16	SLM	P8082PCB11AO
JC31431-8	SW846 6010C	14-NOV-16 21:35	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JC31431-8	SW846 9012B/LACHAT	15-NOV-16 15:20	BM	14-NOV-16	MH	CN
JC31431-8	SW846 8260C	15-NOV-16 17:05	TDN			V8260TCL20
JC31431-8	SW846 8081B	18-NOV-16 00:59	RK	10-NOV-16	SLM	P8081PESTTCL
JC31431-8	SW846 8081B	21-NOV-16 23:34	KD	10-NOV-16	SLM	P8081PESTTCL
JC31431-9 Collected: 09-NOV-16 13:24 By: MC Received: 09-NOV-16 By: AS SB21-161109						

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31431-9	SW846 7471B	11-NOV-16 10:43	MS	11-NOV-16	MS	HG
JC31431-9	SM2540 G-97	11-NOV-16 16:10	BM			SOL104
JC31431-9	SW846 8270D	11-NOV-16 21:00	RL	10-NOV-16	HK	AB8270TCL20
JC31431-9	SW846 8082A	12-NOV-16 03:07	KM	10-NOV-16	SLM	P8082PCB11AO
JC31431-9	SW846 6010C	14-NOV-16 21:41	ND	12-NOV-16	JA	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31431-9	SW846 9012B/LACHAT	15-NOV-16 15:21	BM	14-NOV-16	MH	CN
JC31431-9	SW846 8260C	15-NOV-16 17:34	TDN			V8260TCL20
JC31431-9	SW846 8081B	18-NOV-16 01:16	RK	10-NOV-16	SLM	P8081PESTTCL
JC31431-1A	Collected: 08-NOV-16 09:52 By: MC		Received: 09-NOV-16 By: AS			
SB37-161108						
JC31431-1A	SW846 8260C	11-NOV-16 22:08	EH	10-NOV-16	AC	V8260TCLP
JC31431-1A	SW846 6010C	13-NOV-16 01:30	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-1A	SW846 8270D	14-NOV-16 13:13	AD	11-NOV-16	RF	AB8270TCLP
JC31431-1A	SW846 7470A	14-NOV-16 15:47	JPM	14-NOV-16	JPM	EHG
JC31431-1A	SW846 8081B	14-NOV-16 23:12	KD	11-NOV-16	RF	P8081TCLP
JC31431-1A	SW846 8151	15-NOV-16 13:20	VDT	11-NOV-16	RF	H8151TCLP
JC31431-1A	SW846 CHAP7/9034	15-NOV-16 13:23	MP	14-NOV-16	CD	SREAC
JC31431-1A	SW846 CHAP7/9012 B	15-NOV-16 15:57	BM	14-NOV-16	CD	CREAC
JC31431-1A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-1A	SW846 1010A/ASTM D93	16-NOV-16 16:00	PO			IGN
JC31431-2A	Collected: 08-NOV-16 11:34 By: MC		Received: 09-NOV-16 By: AS			
SB38-161108						
JC31431-2A	SW846 8260C	11-NOV-16 22:35	EH	10-NOV-16	AC	V8260TCLP
JC31431-2A	SW846 6010C	13-NOV-16 01:34	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-2A	SW846 8081B	14-NOV-16 12:21	KD	11-NOV-16	RF	P8081TCLP
JC31431-2A	SW846 8270D	14-NOV-16 13:36	AD	11-NOV-16	RF	AB8270TCLP
JC31431-2A	SW846 7470A	14-NOV-16 15:48	JPM	14-NOV-16	JPM	EHG
JC31431-2A	SW846 CHAP7/9034	15-NOV-16 13:23	MP	14-NOV-16	CD	SREAC
JC31431-2A	SW846 CHAP7/9012 B	15-NOV-16 15:58	BM	14-NOV-16	CD	CREAC
JC31431-2A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-2A	SW846 8151	16-NOV-16 13:18	VDT	11-NOV-16	RF	H8151TCLP
JC31431-2A	SW846 1010A/ASTM D93	16-NOV-16 16:00	PO			IGN

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31431-3A	Collected: 08-NOV-16 12:27 By: MC		Received: 09-NOV-16 By: AS			
SB39-161108						
JC31431-3A	SW846 8260C	11-NOV-16 23:02	EH	10-NOV-16	AC	V8260TCLP
JC31431-3A	SW846 6010C	13-NOV-16 01:39	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-3A	SW846 8270D	14-NOV-16 14:00	AD	11-NOV-16	RF	AB8270TCLP
JC31431-3A	SW846 7470A	14-NOV-16 15:52	JPM	14-NOV-16	JPM	EHG
JC31431-3A	SW846 8081B	14-NOV-16 23:26	KD	11-NOV-16	RF	P8081TCLP
JC31431-3A	SW846 CHAP7/9034	15-NOV-16 13:23	MP	14-NOV-16	CD	SREAC
JC31431-3A	SW846 CHAP7/9012 B	15-NOV-16 16:01	BM	14-NOV-16	CD	CREAC
JC31431-3A	SW846 8151	16-NOV-16 06:29	VDT	11-NOV-16	RF	H8151TCLP
JC31431-3A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-3A	SW846 1010A/ASTM D93	16-NOV-16 16:00	PO			IGN
JC31431-4A	Collected: 08-NOV-16 13:52 By: MC		Received: 09-NOV-16 By: AS			
SB36-161108						
JC31431-4A	SW846 8260C	11-NOV-16 23:29	EH	10-NOV-16	AC	V8260TCLP
JC31431-4A	SW846 6010C	13-NOV-16 01:43	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-4A	SW846 8270D	14-NOV-16 14:23	AD	11-NOV-16	RF	AB8270TCLP
JC31431-4A	SW846 7470A	14-NOV-16 15:53	JPM	14-NOV-16	JPM	EHG
JC31431-4A	SW846 8081B	14-NOV-16 23:40	KD	11-NOV-16	RF	P8081TCLP
JC31431-4A	SW846 CHAP7/9034	15-NOV-16 13:23	MP	14-NOV-16	CD	SREAC
JC31431-4A	SW846 CHAP7/9012 B	15-NOV-16 16:02	BM	14-NOV-16	CD	CREAC
JC31431-4A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-4A	SW846 8151	16-NOV-16 13:49	VDT	11-NOV-16	RF	H8151TCLP
JC31431-4A	SW846 1010A/ASTM D93	16-NOV-16 16:00	PO			IGN
JC31431-5A	Collected: 09-NOV-16 09:50 By: MC		Received: 09-NOV-16 By: AS			
SB18-161109						
JC31431-5A	SW846 8260C	11-NOV-16 23:56	EH	10-NOV-16	AC	V8260TCLP
JC31431-5A	SW846 6010C	13-NOV-16 01:47	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-5A	SW846 8270D	14-NOV-16 14:46	AD	11-NOV-16	RF	AB8270TCLP
JC31431-5A	SW846 7470A	14-NOV-16 15:55	JPM	14-NOV-16	JPM	EHG
JC31431-5A	SW846 8081B	14-NOV-16 23:55	KD	11-NOV-16	RF	P8081TCLP
JC31431-5A	SW846 CHAP7/9034	15-NOV-16 13:23	MP	14-NOV-16	CD	SREAC
JC31431-5A	SW846 CHAP7/9012 B	15-NOV-16 16:03	BM	14-NOV-16	CD	CREAC
JC31431-5A	SW846 9045D	16-NOV-16 12:03	ST			CORR

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31431-5A	SW846 8151	16-NOV-16 15:26	VDT	11-NOV-16	RF	H8151TCLP
JC31431-5A	SW846 1010A/ASTM D93	16-NOV-16 16:00	PO			IGN
JC31431-6A	Collected: 09-NOV-16 10:50 By: MC		Received: 09-NOV-16 By: AS			
SB19-161109						
JC31431-6A	SW846 8260C	12-NOV-16 00:23	EH	10-NOV-16	AC	V8260TCLP
JC31431-6A	SW846 6010C	13-NOV-16 01:52	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-6A	SW846 7470A	14-NOV-16 14:38	JPM	14-NOV-16	JPM	EHG
JC31431-6A	SW846 8270D	14-NOV-16 15:10	AD	11-NOV-16	RF	AB8270TCLP
JC31431-6A	SW846 8081B	15-NOV-16 00:09	KD	11-NOV-16	RF	P8081TCLP
JC31431-6A	SW846 CHAP7/9034	15-NOV-16 14:38	MP	14-NOV-16	CD	SREAC
JC31431-6A	SW846 CHAP7/9012 B	15-NOV-16 16:04	BM	14-NOV-16	CD	CREAC
JC31431-6A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-6A	SW846 8151	16-NOV-16 15:57	VDT	11-NOV-16	RF	H8151TCLP
JC31431-6A	SW846 1010A/ASTM D93	17-NOV-16 19:55	AT			IGN
JC31431-7A	Collected: 09-NOV-16 11:17 By: MC		Received: 09-NOV-16 By: AS			
SB20-161109						
JC31431-7A	SW846 8260C	12-NOV-16 00:50	EH	10-NOV-16	AC	V8260TCLP
JC31431-7A	SW846 6010C	13-NOV-16 01:56	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-7A	SW846 7470A	14-NOV-16 14:39	JPM	14-NOV-16	JPM	EHG
JC31431-7A	SW846 8270D	14-NOV-16 15:33	AD	11-NOV-16	RF	AB8270TCLP
JC31431-7A	SW846 8081B	15-NOV-16 00:23	KD	11-NOV-16	RF	P8081TCLP
JC31431-7A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31431-7A	SW846 CHAP7/9012 B	15-NOV-16 16:05	BM	14-NOV-16	CD	CREAC
JC31431-7A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-7A	SW846 8151	16-NOV-16 16:28	VDT	11-NOV-16	RF	H8151TCLP
JC31431-7A	SW846 1010A/ASTM D93	17-NOV-16 19:55	AT			IGN
JC31431-8A	Collected: 09-NOV-16 12:33 By: MC		Received: 09-NOV-16 By: AS			
SB22-161109						
JC31431-8A	SW846 6010C	13-NOV-16 02:01	DE	11-NOV-16	RM	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31431-8A	SW846 7470A	14-NOV-16 14:40	JPM	14-NOV-16	JPM	EHG
JC31431-8A	SW846 8270D	14-NOV-16 15:56	AD	11-NOV-16	RF	AB8270TCLP
JC31431-8A	SW846 8081B	15-NOV-16 00:38	KD	11-NOV-16	RF	P8081TCLP
JC31431-8A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31431-8A	SW846 CHAP7/9012 B	15-NOV-16 16:06	BM	14-NOV-16	CD	CREAC

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31431

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31431-8A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-8A	SW846 8151	16-NOV-16 16:59	VDT	11-NOV-16	RF	H8151TCLP
JC31431-8A	SW846 8260C	17-NOV-16 01:58	EH	11-NOV-16	AC	V8260TCLP
JC31431-8A	SW846 1010A/ASTM D93	17-NOV-16 19:55	AT			IGN
JC31431-9A	Collected: 09-NOV-16 13:24 By: MC		Received: 09-NOV-16 By: AS			
SB21-161109						
JC31431-9A	SW846 7470A	14-NOV-16 15:18	JPM	14-NOV-16	JPM	EHG
JC31431-9A	SW846 6010C	15-NOV-16 05:40	ND	12-NOV-16	JA	EAG,EAS,EBA,ECR,EPB,ESE
JC31431-9A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31431-9A	SW846 CHAP7/9012 B	15-NOV-16 16:07	BM	14-NOV-16	CD	CREAC
JC31431-9A	SW846 8151	15-NOV-16 22:49	VDT	14-NOV-16	NF	H8151TCLP
JC31431-9A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31431-9A	SW846 8260C	17-NOV-16 01:31	EH	11-NOV-16	AC	V8260TCLP
JC31431-9A	SW846 8081B	17-NOV-16 19:11	RK	14-NOV-16	GM	P8081TCLP
JC31431-9A	SW846 1010A/ASTM D93	17-NOV-16 19:55	AT			IGN
JC31431-9A	SW846 8270D	21-NOV-16 11:08	AC	16-NOV-16	NG	AB8270TCLP
JC31431-9A	SW846 6010C	22-NOV-16 03:17	AB	12-NOV-16	JA	ECD

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-1.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-1.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-1.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-1.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-1.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-1.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-1.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-1.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-1.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-1.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-1.1	Secured Storage	Alfredo Crespo	11/14/16 09:25	Retrieve from Storage
JC31431-1.1	Alfredo Crespo	Secured Staging Area	11/14/16 09:25	Return to Storage
JC31431-1.1	Secured Staging Area	Thomas Gabriel	11/14/16 10:45	Retrieve from Storage
JC31431-1.1	Thomas Gabriel	Secured Storage	11/14/16 16:40	Return to Storage
JC31431-1.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
JC31431-1.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-1.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-1.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-1.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-1.1
JC31431-1.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-1.1
JC31431-1.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-1.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-1.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-1.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-1.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-1.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-1.1
JC31431-1.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-1.1
JC31431-1.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-1.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-1.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-1.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-1.1
JC31431-1.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-1.1
JC31431-1.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-1.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-1.1
JC31431-1.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-1.1
JC31431-1.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-1.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-1.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-1.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-1.1

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-1.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-1.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-1.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage
JC31431-1.1.6	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-1.1
JC31431-1.1.6	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-1.1.6	Secured Storage	Eddie Huang	11/11/16 15:30	Retrieve from Storage
JC31431-1.1.6	Eddie Huang	GCMS2V	11/11/16 15:30	Load on Instrument
JC31431-1.1.6	GCMS2V	Eddie Huang	11/14/16 09:31	Unload from Instrument
JC31431-1.1.6	Eddie Huang	Secured Storage	11/14/16 09:31	Return to Storage
JC31431-1.1.7	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-1.1
JC31431-1.1.7	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-1.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-1.1.5
JC31431-1.1.8	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-1.1.8	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-1.1.5
JC31431-1.1.8	Extract Storage	Vincent Drago	11/15/16 17:09	Retrieve from Storage
JC31431-1.1.8	Vincent Drago	GC3G	11/15/16 17:09	Load on Instrument
JC31431-1.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31431-1.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31431-1.1.9	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-1.1.5
JC31431-1.1.9	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-1.1.5
JC31431-1.1.9	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-1.1.9	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-1.1.9	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-1.1.9	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-1.1.9	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-1.1.10	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-1.1.5
JC31431-1.1.10	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-1.1.5
JC31431-1.1.10	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-1.1.10	Extract Storage	Christine Phillips	11/14/16 15:57	Retrieve from Storage
JC31431-1.1.10	Christine Phillips	GC4G	11/14/16 15:57	Load on Instrument
JC31431-1.1.11	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-1.1.4
JC31431-1.1.11	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-1.1.4
JC31431-1.1.11	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-1.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-1.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-1.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-1.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-1.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-1.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-1.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-1.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31431-1.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-1.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-1.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-1.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-1.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-1.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-1.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-1.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage
JC31431-1.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-1.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-1.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-1.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-1.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-1.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-1.4
JC31431-1.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-1.4
JC31431-1.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-1.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-1.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-1.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-1.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-1.7	Secured Storage	Thien Nguyen	11/15/16 12:35	Retrieve from Storage
JC31431-1.7	Thien Nguyen	GCMS3V	11/15/16 12:35	Load on Instrument
JC31431-1.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-1.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-1.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-1.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-1.8	Secured Storage	Thien Nguyen	11/15/16 14:05	Retrieve from Storage
JC31431-1.8	Thien Nguyen	GCMS3V	11/15/16 14:06	Load on Instrument
JC31431-1.8	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-1.8	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-2.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-2.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-2.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-2.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-2.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-2.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-2.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-2.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-2.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-2.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-2.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-2.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31431-2.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-2.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-2.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-2.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-2.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-2.1
JC31431-2.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-2.1
JC31431-2.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-2.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-2.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-2.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-2.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-2.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-2.1
JC31431-2.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-2.1
JC31431-2.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-2.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-2.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-2.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-2.1
JC31431-2.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-2.1
JC31431-2.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-2.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-2.1
JC31431-2.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-2.1
JC31431-2.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-2.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-2.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-2.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-2.1
JC31431-2.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-2.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-2.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-2.1.6	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-2.1
JC31431-2.1.6	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-2.1.6	Secured Storage	Eddie Huang	11/11/16 15:30	Retrieve from Storage
JC31431-2.1.6	Eddie Huang	GCMS2V	11/11/16 15:30	Load on Instrument
JC31431-2.1.6	GCMS2V	Eddie Huang	11/14/16 09:31	Unload from Instrument
JC31431-2.1.6	Eddie Huang	Secured Storage	11/14/16 09:31	Return to Storage
JC31431-2.1.7	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-2.1
JC31431-2.1.7	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-2.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-2.1.5
JC31431-2.1.8	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-2.1.8	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-2.1.5
JC31431-2.1.8	Extract Storage	Vincent Drago	11/16/16 12:03	Retrieve from Storage
JC31431-2.1.8	Vincent Drago	GC3G	11/16/16 12:03	Load on Instrument
JC31431-2.1.8	GC3G	Vincent Drago	11/23/16 09:40	Unload from Instrument
JC31431-2.1.8	Vincent Drago	Extract Freezer	11/23/16 09:40	Return to Storage
JC31431-2.1.9	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-2.1.5
JC31431-2.1.9	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-2.1.5
JC31431-2.1.9	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-2.1.9	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-2.1.9	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-2.1.9	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-2.1.9	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-2.1.10	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-2.1.5
JC31431-2.1.10	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-2.1.5
JC31431-2.1.10	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-2.1.11	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-2.1.4
JC31431-2.1.11	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-2.1.4
JC31431-2.1.11	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-2.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-2.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-2.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-2.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-2.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-2.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-2.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-2.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-2.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-2.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-2.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-2.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-2.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-2.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-2.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-2.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage
JC31431-2.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-2.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-2.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-2.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-2.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-2.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-2.4
JC31431-2.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-2.4
JC31431-2.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-2.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-2.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-2.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-2.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-2.7	Secured Storage	Thien Nguyen	11/15/16 12:35	Retrieve from Storage
JC31431-2.7	Thien Nguyen	GCMS3V	11/15/16 12:35	Load on Instrument
JC31431-2.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-2.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-2.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-2.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-2.8	Secured Storage	Thien Nguyen	11/15/16 14:05	Retrieve from Storage
JC31431-2.8	Thien Nguyen	GCMS3V	11/15/16 14:06	Load on Instrument
JC31431-2.8	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-2.8	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-3.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-3.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-3.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-3.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-3.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-3.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-3.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-3.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-3.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-3.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-3.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-3.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31431-3.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-3.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-3.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-3.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-3.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-3.1
JC31431-3.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-3.1
JC31431-3.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-3.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-3.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-3.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-3.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-3.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-3.1
JC31431-3.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-3.1
JC31431-3.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-3.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-3.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-3.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-3.1
JC31431-3.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-3.1
JC31431-3.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-3.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-3.1
JC31431-3.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.1
JC31431-3.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-3.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-3.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-3.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.1
JC31431-3.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-3.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-3.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage
JC31431-3.1.6	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.1
JC31431-3.1.6	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-3.1.6	Secured Storage	Eddie Huang	11/11/16 15:30	Retrieve from Storage
JC31431-3.1.6	Eddie Huang	GCMS2V	11/11/16 15:30	Load on Instrument
JC31431-3.1.6	GCMS2V	Eddie Huang	11/14/16 09:31	Unload from Instrument
JC31431-3.1.6	Eddie Huang	Secured Storage	11/14/16 09:31	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-3.1.7	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.1
JC31431-3.1.7	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-3.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-3.1.5
JC31431-3.1.8	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-3.1.8	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-3.1.5
JC31431-3.1.8	Extract Storage	Vincent Drago	11/15/16 17:09	Retrieve from Storage
JC31431-3.1.8	Vincent Drago	GC3G	11/15/16 17:09	Load on Instrument
JC31431-3.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31431-3.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31431-3.1.9	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-3.1.5
JC31431-3.1.9	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-3.1.5
JC31431-3.1.9	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-3.1.9	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-3.1.9	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-3.1.9	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-3.1.9	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-3.1.10	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-3.1.5
JC31431-3.1.10	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-3.1.5
JC31431-3.1.10	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-3.1.10	Extract Storage	Christine Phillips	11/14/16 15:57	Retrieve from Storage
JC31431-3.1.10	Christine Phillips	GC4G	11/14/16 15:57	Load on Instrument
JC31431-3.1.11	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-3.1.4
JC31431-3.1.11	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-3.1.4
JC31431-3.1.11	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-3.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-3.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-3.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-3.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-3.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-3.3	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-3.3.1	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-3.3
JC31431-3.3.1	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.3
JC31431-3.3.1	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-3.3.2	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.3
JC31431-3.3.2	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-3.3.3	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.3
JC31431-3.3.3	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-3.3.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-3.3
JC31431-3.3.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-3.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31431-3.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-3.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-3.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-3.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-3.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-3.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-3.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-3.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage
JC31431-3.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-3.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-3.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-3.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-3.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-3.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-3.4
JC31431-3.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-3.4
JC31431-3.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-3.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-3.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-3.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-3.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-3.7	Secured Storage	Thien Nguyen	11/15/16 12:35	Retrieve from Storage
JC31431-3.7	Thien Nguyen	GCMS3V	11/15/16 12:35	Load on Instrument
JC31431-3.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-3.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-3.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-3.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-4.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-4.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-4.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-4.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-4.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-4.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-4.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-4.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-4.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-4.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-4.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-4.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31431-4.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-4.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-4.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-4.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-4.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-4.1
JC31431-4.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-4.1
JC31431-4.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-4.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-4.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-4.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-4.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-4.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-4.1
JC31431-4.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-4.1
JC31431-4.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-4.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-4.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-4.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-4.1
JC31431-4.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-4.1
JC31431-4.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-4.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-4.1
JC31431-4.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-4.1
JC31431-4.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-4.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-4.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-4.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-4.1
JC31431-4.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-4.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-4.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage
JC31431-4.1.6	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-4.1
JC31431-4.1.6	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-4.1.6	Secured Storage	Eddie Huang	11/11/16 15:30	Retrieve from Storage
JC31431-4.1.6	Eddie Huang	GCMS2V	11/11/16 15:30	Load on Instrument
JC31431-4.1.6	GCMS2V	Eddie Huang	11/14/16 09:31	Unload from Instrument
JC31431-4.1.6	Eddie Huang	Secured Storage	11/14/16 09:31	Return to Storage
JC31431-4.1.7	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-4.1
JC31431-4.1.7	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-4.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-4.1.5
JC31431-4.1.8	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-4.1.8	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-4.1.5
JC31431-4.1.8	Extract Storage	Vincent Drago	11/16/16 12:03	Retrieve from Storage
JC31431-4.1.8	Vincent Drago	GC3G	11/16/16 12:03	Load on Instrument
JC31431-4.1.8	GC3G	Vincent Drago	11/23/16 09:40	Unload from Instrument
JC31431-4.1.8	Vincent Drago	Extract Freezer	11/23/16 09:40	Return to Storage
JC31431-4.1.9	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-4.1.5
JC31431-4.1.9	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-4.1.5
JC31431-4.1.9	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-4.1.9	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-4.1.9	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-4.1.9	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-4.1.9	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-4.1.10	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-4.1.5
JC31431-4.1.10	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-4.1.5
JC31431-4.1.10	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-4.1.10	Extract Storage	Christine Phillips	11/14/16 15:57	Retrieve from Storage
JC31431-4.1.10	Christine Phillips	GC4G	11/14/16 15:57	Load on Instrument
JC31431-4.1.11	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-4.1.4
JC31431-4.1.11	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-4.1.4
JC31431-4.1.11	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-4.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-4.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-4.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-4.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-4.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-4.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-4.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-4.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-4.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-4.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-4.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-4.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-4.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-4.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-4.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-4.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage
JC31431-4.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-4.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-4.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-4.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-4.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-4.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-4.4
JC31431-4.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-4.4
JC31431-4.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-4.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-4.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-4.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-4.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-4.7	Secured Storage	Thien Nguyen	11/15/16 12:35	Retrieve from Storage
JC31431-4.7	Thien Nguyen	GCMS3V	11/15/16 12:35	Load on Instrument
JC31431-4.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-4.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-4.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-4.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-5.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-5.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-5.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-5.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-5.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-5.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-5.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-5.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-5.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-5.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-5.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-5.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31431-5.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-5.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-5.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-5.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-5.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-5.1
JC31431-5.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-5.1
JC31431-5.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-5.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-5.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-5.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-5.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-5.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-5.1
JC31431-5.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-5.1
JC31431-5.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-5.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-5.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-5.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-5.1
JC31431-5.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-5.1
JC31431-5.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-5.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-5.1
JC31431-5.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-5.1
JC31431-5.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-5.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-5.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-5.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-5.1
JC31431-5.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-5.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-5.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage
JC31431-5.1.6	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-5.1
JC31431-5.1.6	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-5.1.6	Secured Storage	Eddie Huang	11/11/16 15:30	Retrieve from Storage
JC31431-5.1.6	Eddie Huang	GCMS2V	11/11/16 15:30	Load on Instrument
JC31431-5.1.6	GCMS2V	Eddie Huang	11/14/16 09:31	Unload from Instrument
JC31431-5.1.6	Eddie Huang	Secured Storage	11/14/16 09:31	Return to Storage
JC31431-5.1.7	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-5.1
JC31431-5.1.7	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-5.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-5.1.5
JC31431-5.1.8	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-5.1.8	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-5.1.5
JC31431-5.1.8	Extract Storage	Vincent Drago	11/16/16 14:55	Retrieve from Storage
JC31431-5.1.8	Vincent Drago	GC3G	11/16/16 14:55	Load on Instrument
JC31431-5.1.8	GC3G	Vincent Drago	11/23/16 09:40	Unload from Instrument
JC31431-5.1.8	Vincent Drago	Extract Freezer	11/23/16 09:40	Return to Storage
JC31431-5.1.9	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-5.1.5
JC31431-5.1.9	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-5.1.9	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-5.1.5
JC31431-5.1.9	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-5.1.9	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-5.1.9	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-5.1.9	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-5.1.10	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-5.1.5
JC31431-5.1.10	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-5.1.5
JC31431-5.1.10	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-5.1.10	Extract Storage	Christine Phillips	11/14/16 15:57	Retrieve from Storage
JC31431-5.1.10	Christine Phillips	GC4G	11/14/16 15:57	Load on Instrument
JC31431-5.1.11	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-5.1.4
JC31431-5.1.11	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-5.1.4
JC31431-5.1.11	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-5.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-5.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-5.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-5.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-5.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-5.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-5.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-5.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31431-5.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-5.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-5.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-5.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-5.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-5.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-5.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-5.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-5.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-5.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-5.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-5.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-5.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-5.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-5.4
JC31431-5.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-5.4
JC31431-5.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-5.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-5.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-5.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-5.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-5.7	Secured Storage	Thien Nguyen	11/15/16 14:05	Retrieve from Storage
JC31431-5.7	Thien Nguyen	GCMS3V	11/15/16 14:06	Load on Instrument
JC31431-5.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-5.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-5.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-5.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-6.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-6.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-6.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-6.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-6.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-6.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-6.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-6.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-6.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-6.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-6.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-6.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31431-6.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-6.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-6.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-6.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-6.1	Secured Storage	Alfredo Crespo	11/17/16 07:21	Retrieve from Storage
JC31431-6.1	Alfredo Crespo	Secured Staging Area	11/17/16 07:21	Return to Storage
JC31431-6.1	Secured Staging Area	Paul Ojugo	11/17/16 10:48	Retrieve from Storage
JC31431-6.1	Paul Ojugo	Secured Storage	11/17/16 10:49	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-6.1	Secured Storage	Alfredo Crespo	11/17/16 14:19	Retrieve from Storage
JC31431-6.1	Alfredo Crespo	Secured Staging Area	11/17/16 14:19	Return to Storage
JC31431-6.1	Secured Staging Area	Amir Takla	11/17/16 20:35	Retrieve from Storage
JC31431-6.1	Amir Takla	Secured Storage	11/17/16 22:46	Return to Storage
JC31431-6.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-6.1
JC31431-6.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-6.1
JC31431-6.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-6.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-6.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-6.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-6.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-6.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-6.1
JC31431-6.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-6.1
JC31431-6.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-6.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-6.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-6.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-6.1
JC31431-6.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-6.1
JC31431-6.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-6.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-6.1
JC31431-6.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-6.1
JC31431-6.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-6.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-6.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-6.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-6.1
JC31431-6.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-6.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-6.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage
JC31431-6.1.6	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-6.1
JC31431-6.1.6	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-6.1.6	Secured Storage	Eddie Huang	11/11/16 15:30	Retrieve from Storage
JC31431-6.1.6	Eddie Huang	GCMS2V	11/11/16 15:30	Load on Instrument
JC31431-6.1.6	GCMS2V	Eddie Huang	11/14/16 09:31	Unload from Instrument
JC31431-6.1.6	Eddie Huang	Secured Storage	11/14/16 09:31	Return to Storage
JC31431-6.1.7	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-6.1
JC31431-6.1.7	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-6.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-6.1.5
JC31431-6.1.8	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-6.1.5
JC31431-6.1.8	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-6.1.8	Extract Storage	Vincent Drago	11/16/16 14:55	Retrieve from Storage
JC31431-6.1.8	Vincent Drago	GC3G	11/16/16 14:55	Load on Instrument
JC31431-6.1.8	GC3G	Vincent Drago	11/23/16 09:40	Unload from Instrument
JC31431-6.1.8	Vincent Drago	Extract Freezer	11/23/16 09:40	Return to Storage
JC31431-6.1.9	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-6.1.5
JC31431-6.1.9	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-6.1.5
JC31431-6.1.9	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-6.1.9	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-6.1.9	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-6.1.9	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-6.1.9	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-6.1.10	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-6.1.5
JC31431-6.1.10	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-6.1.5
JC31431-6.1.10	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-6.1.10	Extract Storage	Christine Phillips	11/14/16 15:57	Retrieve from Storage
JC31431-6.1.10	Christine Phillips	GC4G	11/14/16 15:57	Load on Instrument
JC31431-6.1.11	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-6.1.4
JC31431-6.1.11	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-6.1.4
JC31431-6.1.11	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-6.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-6.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-6.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-6.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-6.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-6.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-6.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-6.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31431-6.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-6.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-6.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-6.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-6.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-6.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-6.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-6.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-6.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-6.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-6.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-6.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-6.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-6.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-6.4
JC31431-6.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-6.4
JC31431-6.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-6.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-6.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-6.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-6.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-6.7	Secured Storage	Thien Nguyen	11/15/16 14:05	Retrieve from Storage
JC31431-6.7	Thien Nguyen	GCMS3V	11/15/16 14:06	Load on Instrument
JC31431-6.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-6.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-6.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-6.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-7.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-7.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-7.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-7.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-7.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-7.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-7.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-7.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-7.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-7.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-7.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-7.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31431-7.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-7.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-7.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-7.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-7.1	Secured Storage	Alfredo Crespo	11/17/16 07:21	Retrieve from Storage
JC31431-7.1	Alfredo Crespo	Secured Staging Area	11/17/16 07:21	Return to Storage
JC31431-7.1	Secured Staging Area	Paul Ojugo	11/17/16 10:48	Retrieve from Storage
JC31431-7.1	Paul Ojugo	Secured Storage	11/17/16 10:49	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-7.1	Secured Storage	Alfredo Crespo	11/17/16 14:19	Retrieve from Storage
JC31431-7.1	Alfredo Crespo	Secured Staging Area	11/17/16 14:19	Return to Storage
JC31431-7.1	Secured Staging Area	Amir Takla	11/17/16 20:35	Retrieve from Storage
JC31431-7.1	Amir Takla	Secured Storage	11/17/16 22:46	Return to Storage
JC31431-7.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-7.1
JC31431-7.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-7.1
JC31431-7.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-7.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-7.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-7.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-7.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-7.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-7.1
JC31431-7.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-7.1
JC31431-7.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-7.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-7.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-7.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-7.1
JC31431-7.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-7.1
JC31431-7.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-7.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-7.1
JC31431-7.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-7.1
JC31431-7.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-7.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-7.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-7.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-7.1
JC31431-7.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-7.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-7.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage
JC31431-7.1.6	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-7.1
JC31431-7.1.6	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-7.1.6	Secured Storage	Eddie Huang	11/11/16 15:30	Retrieve from Storage
JC31431-7.1.6	Eddie Huang	GCMS2V	11/11/16 15:30	Load on Instrument
JC31431-7.1.6	GCMS2V	Eddie Huang	11/14/16 09:31	Unload from Instrument
JC31431-7.1.6	Eddie Huang	Secured Storage	11/14/16 09:31	Return to Storage
JC31431-7.1.7	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-7.1
JC31431-7.1.7	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-7.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-7.1.5
JC31431-7.1.8	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-7.1.5
JC31431-7.1.8	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-7.1.8	Extract Storage	Vincent Drago	11/16/16 14:55	Retrieve from Storage
JC31431-7.1.8	Vincent Drago	GC3G	11/16/16 14:55	Load on Instrument
JC31431-7.1.8	GC3G	Vincent Drago	11/23/16 09:40	Unload from Instrument
JC31431-7.1.8	Vincent Drago	Extract Freezer	11/23/16 09:40	Return to Storage
JC31431-7.1.9	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-7.1.5
JC31431-7.1.9	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-7.1.5
JC31431-7.1.9	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-7.1.9	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-7.1.9	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-7.1.9	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-7.1.9	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-7.1.10	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-7.1.5
JC31431-7.1.10	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-7.1.5
JC31431-7.1.10	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-7.1.10	Extract Storage	Christine Phillips	11/14/16 15:57	Retrieve from Storage
JC31431-7.1.10	Christine Phillips	GC4G	11/14/16 15:57	Load on Instrument
JC31431-7.1.11	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-7.1.4
JC31431-7.1.11	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-7.1.4
JC31431-7.1.11	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-7.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-7.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-7.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-7.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-7.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-7.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-7.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-7.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31431-7.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-7.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-7.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-7.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-7.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-7.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-7.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-7.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-7.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-7.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-7.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-7.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-7.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-7.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-7.4
JC31431-7.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-7.4
JC31431-7.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-7.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-7.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-7.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-7.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-7.7	Secured Storage	Thien Nguyen	11/15/16 14:05	Retrieve from Storage
JC31431-7.7	Thien Nguyen	GCMS3V	11/15/16 14:06	Load on Instrument
JC31431-7.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-7.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-7.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-7.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-8.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-8.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-8.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-8.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-8.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-8.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-8.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-8.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-8.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-8.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-8.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-8.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31431-8.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-8.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-8.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-8.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-8.1	Secured Storage	Alfredo Crespo	11/17/16 07:21	Retrieve from Storage
JC31431-8.1	Alfredo Crespo	Secured Staging Area	11/17/16 07:21	Return to Storage
JC31431-8.1	Secured Staging Area	Paul Ojugo	11/17/16 10:48	Retrieve from Storage
JC31431-8.1	Paul Ojugo	Secured Storage	11/17/16 10:49	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-8.1	Secured Storage	Alfredo Crespo	11/17/16 14:19	Retrieve from Storage
JC31431-8.1	Alfredo Crespo	Secured Staging Area	11/17/16 14:19	Return to Storage
JC31431-8.1	Secured Staging Area	Amir Takla	11/17/16 20:35	Retrieve from Storage
JC31431-8.1	Amir Takla	Secured Storage	11/17/16 22:46	Return to Storage
JC31431-8.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-8.1
JC31431-8.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-8.1
JC31431-8.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-8.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-8.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-8.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-8.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-8.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-8.1
JC31431-8.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-8.1
JC31431-8.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-8.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-8.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-8.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-8.1
JC31431-8.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-8.1
JC31431-8.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-8.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-8.1
JC31431-8.1.4	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-8.1
JC31431-8.1.4	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-8.1.4	Secured Storage	Radhika Mistry	11/11/16 16:25	Retrieve from Storage
JC31431-8.1.4	Radhika Mistry	Secured Storage	11/11/16 16:31	Return to Storage
JC31431-8.1.5	TCLP	Andrew Csimbok	11/11/16 08:38	Leachate from JC31431-8.1
JC31431-8.1.5	Andrew Csimbok	Secured Storage	11/11/16 10:51	Return to Storage
JC31431-8.1.5	Secured Storage	Ryan Fantasia	11/11/16 14:53	Retrieve from Storage
JC31431-8.1.5	Ryan Fantasia	Secured Storage	11/11/16 19:15	Return to Storage
JC31431-8.1.6	Ryan Fantasia	Organics Prep	11/11/16 15:03	Extract from JC31431-8.1.5
JC31431-8.1.6	Ryan Fantasia	Extract Storage	11/11/16 22:01	Return to Storage
JC31431-8.1.6	Organics Prep	Ryan Fantasia	11/11/16 22:01	Extract from JC31431-8.1.5
JC31431-8.1.6	Extract Storage	Vincent Drago	11/16/16 14:55	Retrieve from Storage
JC31431-8.1.6	Vincent Drago	GC3G	11/16/16 14:55	Load on Instrument
JC31431-8.1.6	GC3G	Vincent Drago	11/23/16 09:40	Unload from Instrument
JC31431-8.1.6	Vincent Drago	Extract Freezer	11/23/16 09:40	Return to Storage
JC31431-8.1.7	Ryan Fantasia	Organics Prep	11/11/16 15:06	Extract from JC31431-8.1.5
JC31431-8.1.7	Organics Prep	Ryan Fantasia	11/11/16 21:39	Extract from JC31431-8.1.5

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-8.1.7	Ryan Fantasia	Extract Storage	11/11/16 21:39	Return to Storage
JC31431-8.1.7	Extract Storage	Julius Johnson	11/12/16 00:22	Retrieve from Storage
JC31431-8.1.7	Julius Johnson	GCMSP	11/12/16 00:22	Load on Instrument
JC31431-8.1.7	GCMSP	Robert LaPosta	11/16/16 11:56	Unload from Instrument
JC31431-8.1.7	Robert LaPosta	Extract Freezer	11/16/16 11:57	Return to Storage
JC31431-8.1.8	Ryan Fantasia	Organics Prep	11/11/16 15:11	Extract from JC31431-8.1.5
JC31431-8.1.8	Organics Prep	Ryan Fantasia	11/11/16 21:40	Extract from JC31431-8.1.5
JC31431-8.1.8	Ryan Fantasia	Extract Storage	11/11/16 21:40	Return to Storage
JC31431-8.1.8	Extract Storage	Christine Phillips	11/14/16 15:57	Retrieve from Storage
JC31431-8.1.8	Christine Phillips	GC4G	11/14/16 15:57	Load on Instrument
JC31431-8.1.9	Radhika Mistry	Metals Digestion	11/11/16 16:31	Digestate from JC31431-8.1.4
JC31431-8.1.9	Metals Digestion	Radhika Mistry	11/11/16 16:31	Digestate from JC31431-8.1.4
JC31431-8.1.9	Radhika Mistry	Metals Digestate Storage	11/11/16 16:31	Return to Storage
JC31431-8.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-8.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-8.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-8.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-8.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-8.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-8.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-8.3	Secured Storage	Todd Shoemaker	11/11/16 10:58	Retrieve from Storage
JC31431-8.3	Todd Shoemaker	Secured Staging Area	11/11/16 10:58	Return to Storage
JC31431-8.3	Secured Staging Area	Andrew Csimbok	11/11/16 11:51	Retrieve from Storage
JC31431-8.3	Andrew Csimbok	Secured Storage	11/11/16 16:35	Return to Storage
JC31431-8.3.1	Andrew Csimbok	TCLP	11/11/16 15:42	Leachate from JC31431-8.3
JC31431-8.3.1	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31431-8.3
JC31431-8.3.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31431-8.3.1	Secured Storage	Eddie Huang	11/15/16 17:31	Retrieve from Storage
JC31431-8.3.1	Eddie Huang	GCMS2V	11/15/16 17:31	Load on Instrument
JC31431-8.3.1	GCMS2V	Eddie Huang	11/16/16 10:04	Unload from Instrument
JC31431-8.3.1	Eddie Huang	Secured Storage	11/16/16 10:04	Return to Storage
JC31431-8.3.1	Secured Storage	Eddie Huang	11/16/16 17:18	Retrieve from Storage
JC31431-8.3.1	Eddie Huang	Secured Storage	11/16/16 17:27	Return to Storage
JC31431-8.3.2	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31431-8.3
JC31431-8.3.2	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31431-8.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31431-8.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-8.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-8.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-8.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-8.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-8.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-8.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-8.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage
JC31431-8.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-8.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-8.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-8.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-8.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage
JC31431-8.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-8.4
JC31431-8.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-8.4
JC31431-8.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-8.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-8.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-8.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-8.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-8.7	Secured Storage	Thien Nguyen	11/15/16 14:05	Retrieve from Storage
JC31431-8.7	Thien Nguyen	GCMS3V	11/15/16 14:06	Load on Instrument
JC31431-8.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-8.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-8.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-8.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-9.1	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-9.1	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-9.1	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-9.1	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-9.1	Sora Lynn Mathurin	Andrew Csimbok	11/10/16 12:55	Custody Transfer
JC31431-9.1	Andrew Csimbok	Secured Storage	11/10/16 18:10	Return to Storage
JC31431-9.1	Secured Storage	Courtney Dringus	11/11/16 06:55	Retrieve from Storage
JC31431-9.1	Courtney Dringus	Secured Storage	11/11/16 11:08	Return to Storage
JC31431-9.1	Secured Storage	Andrew Csimbok	11/11/16 12:21	Retrieve from Storage
JC31431-9.1	Andrew Csimbok	Secured Storage	11/11/16 16:35	Return to Storage
JC31431-9.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31431-9.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31431-9.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31431-9.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-9.1	Secured Storage	Alfredo Crespo	11/16/16 07:21	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31431-9.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:21	Return to Storage
JC31431-9.1	Secured Staging Area	Paul Ojugo	11/16/16 08:40	Retrieve from Storage
JC31431-9.1	Paul Ojugo	Secured Storage	11/16/16 16:53	Return to Storage
JC31431-9.1	Secured Storage	Alfredo Crespo	11/17/16 07:21	Retrieve from Storage
JC31431-9.1	Alfredo Crespo	Secured Staging Area	11/17/16 07:21	Return to Storage
JC31431-9.1	Secured Staging Area	Paul Ojugo	11/17/16 10:48	Retrieve from Storage
JC31431-9.1	Paul Ojugo	Secured Storage	11/17/16 10:49	Return to Storage
JC31431-9.1	Secured Storage	Alfredo Crespo	11/17/16 14:19	Retrieve from Storage
JC31431-9.1	Alfredo Crespo	Secured Staging Area	11/17/16 14:19	Return to Storage
JC31431-9.1	Secured Staging Area	Amir Takla	11/17/16 20:35	Retrieve from Storage
JC31431-9.1	Amir Takla	Secured Storage	11/17/16 22:46	Return to Storage
JC31431-9.1.1	Sora Lynn Mathurin	Organics Prep	11/10/16 12:20	Extract from JC31431-9.1
JC31431-9.1.1	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-9.1
JC31431-9.1.1	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-9.1.1	Extract Storage	William Gonzalez	11/11/16 18:55	Retrieve from Storage
JC31431-9.1.1	William Gonzalez	GC5G	11/11/16 18:55	Load on Instrument
JC31431-9.1.1	GC5G	William Gonzalez	11/22/16 12:56	Unload from Instrument
JC31431-9.1.1	William Gonzalez	Extract Freezer	11/22/16 12:56	Return to Storage
JC31431-9.1.2	Sora Lynn Mathurin	Organics Prep	11/10/16 12:21	Extract from JC31431-9.1
JC31431-9.1.2	Organics Prep	Sora Lynn Mathurin	11/10/16 20:08	Extract from JC31431-9.1
JC31431-9.1.2	Sora Lynn Mathurin	Extract Storage	11/10/16 20:08	Return to Storage
JC31431-9.1.2	Extract Storage	Kristen Drake	11/17/16 17:01	Retrieve from Storage
JC31431-9.1.2	Kristen Drake	GC1G	11/17/16 17:01	Load on Instrument
JC31431-9.1.3	Sora Lynn Mathurin	Organics Prep	11/10/16 12:24	Extract from JC31431-9.1
JC31431-9.1.3	Organics Prep	Harpreet Kaur	11/10/16 19:29	Extract from JC31431-9.1
JC31431-9.1.3	Harpreet Kaur	Extract Storage	11/10/16 19:56	Return to Storage
JC31431-9.1.4	Andrew Csimbok	TCLP	11/10/16 17:37	Leachate from JC31431-9.1
JC31431-9.1.4	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31431-9.1
JC31431-9.1.4	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31431-9.1.4	Secured Storage	Jessica Adametz	11/12/16 12:20	Retrieve from Storage
JC31431-9.1.4	Jessica Adametz	Secured Storage	11/12/16 12:28	Return to Storage
JC31431-9.1.5	Andrew Csimbok	TCLP	11/11/16 15:42	Leachate from JC31431-9.1
JC31431-9.1.5	TCLP	Minhaj Hashmi	11/12/16 08:15	Leachate from JC31431-9.1
JC31431-9.1.5	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31431-9.1.5	Secured Storage	Eddie Huang	11/15/16 17:31	Retrieve from Storage
JC31431-9.1.5	Eddie Huang	GCMS2V	11/15/16 17:31	Load on Instrument
JC31431-9.1.5	GCMS2V	Eddie Huang	11/16/16 10:04	Unload from Instrument

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-9.1.5	Eddie Huang	Secured Storage	11/16/16 10:04	Return to Storage
JC31431-9.1.5	Secured Storage	Eddie Huang	11/16/16 17:18	Retrieve from Storage
JC31431-9.1.5	Eddie Huang	Secured Storage	11/16/16 17:27	Return to Storage
JC31431-9.1.6	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31431-9.1
JC31431-9.1.6	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31431-9.1.6	Secured Storage	Nicholas Goydish	11/14/16 10:43	Retrieve from Storage
JC31431-9.1.6	Nicholas Goydish	Secured Storage	11/14/16 15:02	Return to Storage
JC31431-9.1.6	Secured Storage	Allan Chung-yew	11/14/16 15:14	Retrieve from Storage
JC31431-9.1.6	Allan Chung-yew	Secured Storage	11/14/16 23:35	Return to Storage
JC31431-9.1.6	Secured Storage	Nicholas Ficarra	11/15/16 23:40	Retrieve from Storage
JC31431-9.1.6	Nicholas Ficarra	Secured Storage	11/15/16 23:57	Return to Storage
JC31431-9.1.6	Secured Storage	Vikas Parikh	11/16/16 04:51	Retrieve from Storage
JC31431-9.1.6	Vikas Parikh	Secured Storage	11/16/16 11:41	Return to Storage
JC31431-9.1.7	TCLP	Minhaj Hashmi	11/12/16 08:15	Leachate from JC31431-9.1
JC31431-9.1.7	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31431-9.1.8	Jessica Adametz	Metals Digestion	11/12/16 12:26	Digestate from JC31431-9.1.4
JC31431-9.1.8	Metals Digestion	Jessica Adametz	11/12/16 12:27	Digestate from JC31431-9.1.4
JC31431-9.1.8	Jessica Adametz	Metals Digestate Storage	11/12/16 12:27	Return to Storage
JC31431-9.1.9	Nicholas Goydish	Organics Prep	11/14/16 10:44	Extract from JC31431-9.1.6
JC31431-9.1.9	Organics Prep	Greg Mayer	11/14/16 17:03	Extract from JC31431-9.1.6
JC31431-9.1.9	Greg Mayer	Extract Storage	11/14/16 17:03	Return to Storage
JC31431-9.1.9	Extract Storage	Christine Phillips	11/17/16 16:54	Retrieve from Storage
JC31431-9.1.9	Christine Phillips	GC6G	11/17/16 16:54	Load on Instrument
JC31431-9.1.10	Allan Chung-yew	Organics Prep	11/14/16 15:16	Extract from JC31431-9.1.6
JC31431-9.1.10	Organics Prep	Nicholas Ficarra	11/15/16 00:02	Extract from JC31431-9.1.6
JC31431-9.1.10	Nicholas Ficarra	Extract Storage	11/15/16 00:02	Return to Storage
JC31431-9.1.10	Extract Storage	Vincent Drago	11/15/16 16:08	Retrieve from Storage
JC31431-9.1.10	Vincent Drago	GC3G	11/15/16 16:08	Load on Instrument
JC31431-9.1.10	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31431-9.1.10	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31431-9.1.11	Allan Chung-yew	Organics Prep	11/14/16 15:21	Extract from JC31431-9.1.6
JC31431-9.1.11	Organics Prep	Allan Chung-yew	11/14/16 21:42	Extract from JC31431-9.1.6
JC31431-9.1.11	Allan Chung-yew	Extract Storage	11/14/16 21:42	Return to Storage
JC31431-9.1.11	Extract Storage	Arielle Cocozza	11/15/16 09:27	Retrieve from Storage
JC31431-9.1.11	Arielle Cocozza	GCMSZ	11/15/16 09:27	Load on Instrument
JC31431-9.1.11	GCMSZ	Arielle Cocozza	11/15/16 10:53	Unload from Instrument
JC31431-9.1.11	Arielle Cocozza	Extract Freezer	11/15/16 10:53	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-9.1.12	Nicholas Ficarra	Organics Prep	11/15/16 23:47	Extract from JC31431-9.1.6
JC31431-9.1.12	Organics Prep	Ryan Fantasia	11/21/16 23:10	Extract from JC31431-9.1.6
JC31431-9.1.12	Ryan Fantasia	Extract Storage	11/21/16 23:10	Return to Storage
JC31431-9.1.13	Vikas Parikh	Organics Prep	11/16/16 04:59	Extract from JC31431-9.1.6
JC31431-9.1.13	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31431-9.1.6
JC31431-9.1.13	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31431-9.1.13	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31431-9.1.13	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31431-9.1.13	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31431-9.1.13	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31431-9.2	Secured Storage	Bernadette Vassilatos	11/10/16 11:10	Retrieve from Storage
JC31431-9.2	Bernadette Vassilatos		11/10/16 11:10	Subcontract
JC31431-9.3	Secured Storage	Alfredo Crespo	11/10/16 11:43	Retrieve from Storage
JC31431-9.3	Alfredo Crespo	Secured Staging Area	11/10/16 11:43	Return to Storage
JC31431-9.3	Secured Staging Area	Andrew Csimbok	11/10/16 12:00	Retrieve from Storage
JC31431-9.3	Andrew Csimbok	Sora Lynn Mathurin	11/10/16 12:12	Custody Transfer
JC31431-9.3	Sora Lynn Mathurin	Secured Storage	11/10/16 20:25	Return to Storage
JC31431-9.3	Secured Storage	Todd Shoemaker	11/11/16 10:58	Retrieve from Storage
JC31431-9.3	Todd Shoemaker	Secured Staging Area	11/11/16 10:58	Return to Storage
JC31431-9.3	Secured Staging Area	Andrew Csimbok	11/11/16 11:51	Retrieve from Storage
JC31431-9.3	Andrew Csimbok	Secured Storage	11/11/16 16:35	Return to Storage
JC31431-9.3.1	Andrew Csimbok	TCLP	11/11/16 15:42	Leachate from JC31431-9.3
JC31431-9.3.1	TCLP	Minhaj Hashmi	11/12/16 08:17	Leachate from JC31431-9.3
JC31431-9.3.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31431-9.4	Secured Storage	Sahara Feliciano	11/10/16 13:15	Retrieve from Storage
JC31431-9.4	Sahara Feliciano	Secured Staging Area	11/10/16 13:15	Return to Storage
JC31431-9.4	Secured Staging Area	Jessica Adametz	11/10/16 13:49	Retrieve from Storage
JC31431-9.4	Jessica Adametz	Secured Storage	11/10/16 14:45	Return to Storage
JC31431-9.4	Secured Storage	Alfredo Crespo	11/10/16 14:57	Retrieve from Storage
JC31431-9.4	Alfredo Crespo	Secured Staging Area	11/10/16 15:07	Return to Storage
JC31431-9.4	Secured Staging Area	Denisse Martinez	11/10/16 15:47	Retrieve from Storage
JC31431-9.4	Denisse Martinez	Secured Storage	11/10/16 22:01	Return to Storage
JC31431-9.4	Secured Storage	Todd Shoemaker	11/11/16 09:58	Retrieve from Storage
JC31431-9.4	Todd Shoemaker	Secured Staging Area	11/11/16 09:58	Return to Storage
JC31431-9.4	Secured Staging Area	Luis Villanueva	11/11/16 13:18	Retrieve from Storage
JC31431-9.4	Luis Villanueva	Secured Storage	11/11/16 13:34	Return to Storage
JC31431-9.4	Secured Storage	Jessica Adametz	11/12/16 06:57	Retrieve from Storage
JC31431-9.4	Jessica Adametz	Secured Storage	11/12/16 08:11	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31431
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/09/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31431-9.4.1	Jessica Adametz	Metals Digestion	11/12/16 08:09	Digestate from JC31431-9.4
JC31431-9.4.1	Metals Digestion	Jessica Adametz	11/12/16 08:11	Digestate from JC31431-9.4
JC31431-9.4.1	Jessica Adametz	Metals Digestate Storage	11/12/16 08:11	Return to Storage
JC31431-9.6	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-9.6	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-9.7	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-9.7	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage
JC31431-9.7	Secured Storage	Thien Nguyen	11/15/16 14:05	Retrieve from Storage
JC31431-9.7	Thien Nguyen	GCMS3V	11/15/16 14:06	Load on Instrument
JC31431-9.7	GCMS3V	Thien Nguyen	11/17/16 11:11	Unload from Instrument
JC31431-9.7	Thien Nguyen		11/17/16 11:11	Depleted
JC31431-9.8	Secured Storage	Jayna Patel	11/10/16 08:04	Retrieve from Storage
JC31431-9.8	Jayna Patel	Secured Storage	11/10/16 08:04	Return to Storage

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Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31431X

Sampling Dates: 11/08/16 - 11/09/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **276**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31431X

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31431-1X	11/08/16	09:52	MC	11/09/16	SO	Soil	SB37-161108
JC31431-2X	11/08/16	11:34	MC	11/09/16	SO	Soil	SB38-161108
JC31431-3X	11/08/16	12:27	MC	11/09/16	SO	Soil	SB39-161108
JC31431-4X	11/08/16	13:52	MC	11/09/16	SO	Soil	SB36-161108
JC31431-5X	11/09/16	09:50	MC	11/09/16	SO	Soil	SB18-161109
JC31431-6X	11/09/16	10:50	MC	11/09/16	SO	Soil	SB19-161109
JC31431-7X	11/09/16	11:17	MC	11/09/16	SO	Soil	SB20-161109
JC31431-8X	11/09/16	12:33	MC	11/09/16	SO	Soil	SB22-161109
JC31431-9X	11/09/16	13:24	MC	11/09/16	SO	Soil	SB21-161109

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Subcontract Lab Data

Report of Analysis

2

FINAL LAB REPORT

JC31431X

A9422

05-Dec-2016

Prepared by

SGS NORTH AMERICA

Prepared for

Accutest

Tammy McCloskey

Fresh Ponds Crp Village Bldg B 2235 Route 130
Dayton, NJ 08810
Phone: 732.329.0200
Email: TammyM@accutest.com

This report is approved by

Tamara Morgan
2016.12.06 11:30:32 -05'00'

Tamara Morgan

Senior Project Manager

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Results reported relate only to the items tested.

PROJECT INFORMATION SUMMARY *(When applicable, see QC Annotations for details)*

Client Project	JC31431X
SGS Project #	A9422
Analytical Protocol(s)	8290 PCDD/F
No. Samples Submitted	9
Additional QC Sample(s)	0
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
Date Received	11-Nov-16
Condition Received	Good
Temperature upon Receipt (ºC)	4.7
Extraction within Holding Time	Yes
Analysis within Holding Time	Yes

QC ANNOTATIONS:

1. Please see Appendices attached for data qualifier/attribute and lab identifier descriptions which may be contained in the project.

APPENDIX A: GENERAL DATA QUALIFIERS / DATA ATTRIBUTES

B	The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
C	Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve) and is an estimated value.
EMPC	Represents an Estimated Maximum Possible Concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
H/h	If the standard recovery is below the method or SOP specified value “H” is assigned. If the obtained value is less than half the specified value “h” is assigned.
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve) and is an estimated value.
ND	Indicates a non-detect.
NR or R	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
SI	Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.

APPENDIX B: DRBC/TMDL SPECIFIC DATA QUALIFIERS / DATA ATTRIBUTES

J	The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL).
U	The analyte was not detected in the sample at the estimated detection limit (EDL).
E	The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).
D	Dilution Data. Result was obtained from the analysis of a dilution.
B	Analyte found in the sample and associated method blank.
C	Co-eluting congener
Cxx	Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. 'Xx' denotes the IUPAC number with the lowest numerical designated congener.
NR	Analyte is not reportable because of problems in sample preparation or analysis.
V	Labeled standard recovery is not within method control limits.
X	Results from re-injection/repeat/second-column analysis.
EMPC	Estimated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

APPENDIX C: LAB IDENTIFIERS

AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

SGS CERTIFICATIONS

Arkansas	88-0682
California (ELAP)	2914
CLIA	34D1013708
Connecticut	PH-0258
USDA Soil Permit	P330-14-00135
DoD	2726.01
Florida (Primary NELAP)	E87634
ISO 17025/IEC	2726.01
Louisiana	04115
Maine	#2014020
Massachusetts	M-NC919
Minnesota (Primary NELAP For Method 23)	Lab #037-999-459 Cert #981125
New Jersey	NC100
New York	11685
North Carolina DEQ	481
North Dakota	R-197
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	Lab #99029 Cert #99029002
Texas	T104704260-13-5
US Coast Guard	16714/159.317/SGS
Virginia	Lab #460214 Cert #8171
Washington	C913
West Virginia	293

Rev. 22-Jan-2016

Sample ID: SB37-161108 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	10.25 g	Lab Sample ID	A9422_14513_DF_001	Date Extracted:	16-Nov-2016
Date Collected:	08-Nov-2016	% Solid:	96.4 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	5:05:29

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		0.148	J	ES 2378-TCDD	113	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	111	

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Sample ID: SB38-161108 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	9.79 g	Lab Sample ID	A9422_14513_DF_002-RJ	Date Extracted:	16-Nov-2016
Date Collected:	08-Nov-2016	% Solid:	94.8 %	QC Batch No:	14513	Date Analyzed:	30-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	4:36:20

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		1.81		ES 2378-TCDD	39.1	V

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	50	

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Sample ID: SB39-161108 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	9.33 g	Lab Sample ID	A9422_14513_DF_003	Date Extracted:	16-Nov-2016
Date Collected:	08-Nov-2016	% Solid:	89.3 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	6:43:55

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.991				ES 2378-TCDD	96.2	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	94.6	

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Sample ID: SB36-161108 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	10.59 g	Lab Sample ID	A9422_14513_DF_004	Date Extracted:	16-Nov-2016
Date Collected:	08-Nov-2016	% Solid:	95.2 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	7:33:09

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.077			ES 2378-TCDD	88.3	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	99.3	

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Sample ID: SB18-161109 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	10.15 g	Lab Sample ID	A9422_14513_DF_005	Date Extracted:	16-Nov-2016
Date Collected:	09-Nov-2016	% Solid:	94.7 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	8:22:17

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.0856			ES 2378-TCDD	92.8	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	100	

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Sample ID: SB19-161109 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	10.32 g	Lab Sample ID	A9422_14513_DF_006	Date Extracted:	16-Nov-2016
Date Collected:	09-Nov-2016	% Solid:	100.0 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	9:11:25

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	1.21				ES 2378-TCDD	92.8	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	105	

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Sample ID: SB20-161109 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	9.71 g	Lab Sample ID	A9422_14513_DF_007	Date Extracted:	16-Nov-2016
Date Collected:	09-Nov-2016	% Solid:	92.6 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	12:34:19

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.621				ES 2378-TCDD	89.3	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	103	

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Sample ID: SB22-161109 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	10.38 g	Lab Sample ID	A9422_14513_DF_008	Date Extracted:	16-Nov-2016
Date Collected:	09-Nov-2016	% Solid:	94.8 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	13:23:32

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	0.773				ES 2378-TCDD	70.8	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	76.2	

SGS
5500 Business Drive
Wilmington, NC 28405, USA
www.us.sgs.com
Tel: +1 910 794-1613; Toll-Free 866 846-8290

Sample ID: SB21-161109 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	11-Nov-2016
Project ID:	JC31431X	Weight/Volume:	9.03 g	Lab Sample ID	A9422_14513_DF_009	Date Extracted:	16-Nov-2016
Date Collected:	09-Nov-2016	% Solid:	88.6 %	QC Batch No:	14513	Date Analyzed:	29-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	14:12:46

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		0.378	J	ES 2378-TCDD	84.1	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	96.7	

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5500 Business Drive
Wilmington, NC 28405, USA
www.us.sgs.com
Tel: +1 910 794-1613; Toll-Free 866 846-8290

Sample ID: Method Blank A9422_14513 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9422	Date Received:	n/a
Project ID:	JC31431X	Weight/Volume:	10.00 g	Lab Sample ID	MB1_14513_DF_SDS-RJ	Date Extracted:	16-Nov-2016
Date Collected:	n/a	% Solid:	n/a	QC Batch No:	14513	Date Analyzed:	30-Nov-2016
		Split:	-	Dilution:	-	Time Analyzed:	1:19:26

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	22.9			ES 2378-TCDD	61.7	

Totals					Standard	CS Recoveries	
					CS 37Cl-2378-TCDD	80.8	

SGS
5500 Business Drive
Wilmington, NC 28405, USA
www.us.sgs.com
Tel: +1 910 794-1613; Toll-Free 866 846-8290

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161128P13	Analysis Date:	29-NOV-2016 01:50:36
Lab ID:	OPR1_14513_DF-RJ		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	8.98	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 02 Dec 2016 11:11 Analyst: JJ

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161128P13	Analysis Date:	29-NOV-2016 01:50:36
Lab ID:	OPR1_14513_DF-RJ		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	87.2	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	38	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 02 Dec 2016 11:11 Analyst: JJ

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*11-Nov-16 at 09:33*
AP Project name:	*A9422*
Requested TAT:	*14 days*
Projected due date:	*28-Nov-16*
Matrix:	*Soil*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	*Tammy McCloskey*
Company:	*Accutest*
Project Name & Site:	*JC31431X*
Project PO#:	*JC31431X*
QAAP/Contract #:	*N/A*
Requested Analysis:	*Method 8290 TCDD only*
Phone#:	*732-329-0200*
Email Address:	*tammy.mccloskey@sgs.com*

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB37-161108	A9422_001	SO	1	8oz Clear	08-Nov-16	09:52	4.7	1	5633 9349 6398
SB38-161108	A9422_002	SO	1	8oz Clear	08-Nov-16	11:34	4.7	1	5633 9349 6398
SB39-161108	A9422_003	SO	1	8oz Clear	08-Nov-16	12:27	4.7	1	5633 9349 6398
SB36-161108	A9422_004	SO	1	8oz Clear	08-Nov-16	13:52	4.7	1	5633 9349 6398
SB18-161109	A9422_005	SO	1	8oz Clear	09-Nov-16	09:50	4.7	1	5633 9349 6398
SB19-161109	A9422_006	SO	1	8oz Clear	09-Nov-16	10:50	4.7	1	5633 9349 6398
SB20-161109	A9422_007	SO	1	8oz Clear	09-Nov-16	11:17	4.7	1	5633 9349 6398
SB22-161109	A9422_008	SO	1	8oz Clear	09-Nov-16	12:33	4.7	1	5633 9349 6398
SB21-161109	A9422_009	SO	1	8oz Clear	09-Nov-16	13:24	4.7	1	5633 9349 6398

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact.

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AK 11 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

CHAIN OF CUSTODY

SGS ACCUTEST

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking # 5633 9349 6398
SGS Accutest Quote #
Bottle Order Control #
SGS Accutest Job JC31431X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: Tammy.McCloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR Expansion, Long Island, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD	LAB USE ONLY
1X	SB37-161108		11/8/16	9:52:00 AM	MC	SO	1					1				X	
2X	SB38-161108		11/8/16	11:34:00 AM	MC	SO	1					1				X	
3X	SB39-161108		11/8/16	12:27:00 PM	MC	SO	1					1				X	
4X	SB36-161108		11/8/16	1:52:00 PM	MC	SO	1					1				X	
5X	SB18-161109		11/9/16	9:50:00 AM	MC	SO	1					1				X	
6X	SB19-161109		11/9/16	10:50:00 AM	MC	SO	1					1				X	
7X	SB20-161109		11/9/16	11:17:00 AM	MC	SO	1					1				X	
8X	SB22-161109		11/9/16	12:33:00 PM	MC	SO	1					1				X	
9X	SB21-161109		11/9/16	1:24:00 PM	MC	SO	1					1				X	

Turnaround Time (Business days)

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [x] other Due 11/23/2016

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [x] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 B Vasilakos	11/10/16 17:00	1 FedEx	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 11/11/16 09:33	Received By: 4 Ashley Owens
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[x] Intact [ ] Not intact	Preserved where applicable [ ]

On Ice [x] Cooler Temp 4.1

2

SGS

Project Initiation Form

Project Number: A9422

Initiation Date: 11-Nov-16

Client Name: Accutest

Analysis Method: 8290 PCDD/F

Sample Matrix: Soil

TAT: 14 days

Project Manager: Tamara

Special Instructions

8290 w/ OPR
2378 TCDD only

Reporting Instructions

8290 w/ OPR
2378 TCDD only

PM Initials: akornega Date: 11-Nov-2016

SGS

Methods: PCB / PAH; RCDD/F / WHO-2; QUANTICS / USV; PEST

Extraction Type: SDS / CLL; TALEX / Carbon SPE

Solid

Final Volume: 20mL

Batch# 14513 | Split: 1/2 1/4 | Extract Initial/Date: KW 11/16/16 | Clean-up Initial/Date: MM 11/21/16 | Transfer Init/Date: SEE LIMS KL 12/6/16

Lab Sample ID	Extraction Position / Solvent: 10%	Extraction Weight/Volume mL	Initial	~~ASECS #~~	Observations	Supply IDs	
A9410_14513_001	3	10.39	MM	MM	black, pm, smelly	Toluene	158853
A9412_14513_001	4	10.32	MM	MM	brown soil, om, rocks	McCHL	163037
A9412_14513_002	5	12.34	MM	MM	brown moist soil, om, rocks	Florisil	7537201
A9412_14513_003	6	10.00	MM	MM	brown soil, om, rocks	Hexane	163429
A9412_14513_004	13	10.32	MM	MM	brown soil, om, rocks	Silica	06272016
A9412_14513_005	14	10.24	MM	MM	brown soil, om	S Nitrate	11172016
A9412_14513_006	15	11.16	MM	MM	brown, wet soil, om, rocks	Base Silica	10212016
A9412_14513_006MS	16	11.41	MM	MM	brown, wet soil, om, rocks	HydroMatrix	—
A9412_14513_006MSD	17	10.07	MM	MM	brown, wet soil, om, rocks	Tetradecane	78042016
A9422_14513_001	18	10.63	MM	MM	brown, sand-like, rocks	H_2SO_4	—
A9422_14513_002	19	10.32	MM	MM	brown, sand-like, rocks	A Silica	10182016
A9422_14513_003	20	10.44	MM	MM	dark brown, sand-like, rocks	Sodium Sulfate	06302016
A9422_14513_004	21	11.12	MM	MM	brown, sand-like, rocks		
A9422_14513_005	22	10.72	MM	MM	brown, sand-like, rocks	**Additional Cleanup**	
A9422_14513_006	24	10.32	MM	MM	dark brown, sand-like, om, rocks	Acid Partition Date/Initial:	
A9422_14513_007	25	10.48	MM	MM	dark brown, sand-like, rocks	Mini-Acid Date/Initial:	
A9422_14513_008	26	10.95	MM	MM	brown soil, rocks, om	Carbon Column Date/Initial:	
A9422_14513_009	27	10.19	MM	MM	brown soil, rocks, om	GPC Date/Initial:	
MB1_14513	1	10.00	MM	MM	hydromatrix (6325673-0	Bond-Elute Date/Initial:	
OPR1_14513	2	10.00	MM	MM	Hydromatrix 6325673-01	**Cycle Time**	
			11/21/16	11/21/16		TOL	Start: 1240 Stop: 0928
						HEX	Start: Stop:
						DCM	Start: Stop:

2

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Wt. Volume Results

Batch #: A9422

14513

Comments:

Lab Sample ID	Boat WT.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	% Solid	Average % Solid	RSD	Qtest Ratio (if Applicable)	Dry Wt. Equiv.	Extracted Wt.	Final Wt.
A9422_001	1.08	3.61	3.52	96.44%	96.44%			10.37	10.63	10.25
A9422_002	1.09	4.38	4.21	94.83%	94.83%			10.54	10.32	9.79
A9422_003	1.11	3.45	3.2	89.32%	89.32%			11.2	10.44	9.33
A9422_004	1.09	4.43	4.27	95.21%	95.21%			10.5	11.12	10.59
A9422_005	1.1	3.16	3.05	94.66%	94.66%			10.56	10.72	10.15
A9422_006	1.11	3.81	3.81	100.00%	100.00%			10	10.32	10.32
A9422_007	1.12	4.51	4.26	92.63%	92.63%			10.8	10.48	9.71
A9422_008	1.1	3.22	3.11	94.81%	94.81%			10.55	10.95	10.38
A9422_009	1.1	3.21	2.97	88.63%	88.63%			11.28	10.19	9.03

JM 12/2/16

% Solid Determination WorkSheet

Batch

Lab Sample ID	Boat Wt.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	Comments	DWE (g)
A9410_14513_001	1.11	3.77	1.71g	22.56%	2.34
A9412_14513_001	1.10	4.93	4.39g	85.90%	8.86
A9412_14513_002	1.10	4.83	~~4.39g~~ 3.63g	67.83%	8.37
A9412_14513_003	1.10	3.41	2.92g	78.79%	7.879
A9412_14513_004	1.10	3.25	2.78g	78.14%	8.06
A9412_14513_005	1.09	3.49	2.94g	77.08%	7.91
A9412_14513_006	1.10	5.27	4.07g	71.22%	7.95
A9412_14513_006MS	1.11	3.67	3.02g	74.61%	8.51
A9412_14513_006MSD	1.10	4.84	3.74g	71.93%	7.24
A9422_14513_001	1.08	3.61	3.52g	96.44%	10.25
A9422_14513_002	1.09	4.38	4.24g	94.83%	9.79
A9422_14513_003	1.11	3.45	3.20g	89.32%	9.33
A9422_14513_004	1.09	4.43	4.27g	95.21%	10.59
A9422_14513_005	1.10	3.16	3.05g	94.66%	10.15
A9422_14513_006	1.11	3.87	3.81g	100%	10.32
A9422_14513_007	1.12	4.51	4.26g	92.63%	9.71
A9422_14513_008	1.10	3.22	3.11g	94.81%	10.38
A9422_14513_009	1.10	3.21	2.97g	88.43%	9.03
Date/Initials:					

SGS

Methods: PCB PAH PCDD/F WHO-2 QUANTICS USV PEST

Solid

Batch # 14513

Spiker Initials/Date:	Amount: 20 µl	Amount: 20 µl	Amount: 20 µl	Amount: 20 µl	Amount: 20 µl	Amount:	Amount:
Lab Sample ID	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials
A9410_14513_001	—	—	AW		VS		
A9412_14513_001	—	—	AW		VS		
A9412_14513_002	—	—	AW		VS		
A9412_14513_003	—	—	AW		VS		
A9412_14513_004	—	—	AW		VS		
[illegible]_005	—	—	AW		VS		
[illegible]_14513_006	—	—	AW		VS		
A9412_14513_006MS	AW	—	AW		VS		
A9412_14513_006MSD	AW	—	AW		VS		
A9422_14513_001	—	—	AW		VS		
[illegible]_002	—	—	AW		VS		
A9422_14513_003	—	—	AW		VS		
A9422_14513_004	—	—	AW		VS		
A9422_14513_005	—	—	AW		VS		
A9422_14513_006	—	—	AW		VS		
[illegible]_007	—	—	AW		VS		
[illegible]_008	—	—	AW		VS		
[illegible]_009	—	—	AW		VS		
MB1_14513	—	—	AW		VS		
OPR1_14513	AW	AW	AW		VS		
	11/14/16	11/14/16	11/14/16	11/21/16	[illegible]		

Standard Information

Spike ID	DF A-17	DF A-B	DF SS	DF CS/SS		DF [illegible]	
SIL #	2163	15-175-2	2230	~~15-144-1~~	15-152-1	[illegible]	
Concentration	16 µg/mL	16 µg/mL	100 µg/L	~~100 µg/mL~~	40 µg/mL	[illegible]	
Expiration Date	11/17/17	7/27/17	11/2021	~~4/7/2017~~	6/17/17	[illegible]	

SGS

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	Tamara Morgan
Receipt Date & Time:	11-Nov-16 at 09:33
AP Project name:	A9422
Requested TAT:	14 days ✓
Projected due date:	28 ~~25~~-Nov-16
Matrix:	Soil
Phone#:	910-794-1613
Email Address:	Tamara.Morgan@sgs.com

Company Contact:	~~Viktoriya Pushkova~~ Tammy McCloskey
Company:	Accutest
Project Name & Site:	JC31431X ✓
Project PO#:	JC31431X ✓
QAAP/Contract #:	
Requested Analysis:	M8290 TCDD only
Phone#:	732-329-0200
Email Address:	~~viktoriya.pushkova~~ tammy.mccloskey@sgs.com

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB37-161108 ✓	A9422_001	SO	1	8oz Clear	08-Nov-16 ✓	09:52 ✓	4.7	1	5633 9349 6398
SB38-161108 ✓	A9422_002	SO	1	8oz Clear	08-Nov-16 ✓	11:34 ✓	4.7	1	5633 9349 6398
SB39-161108 ✓	A9422_003	SO	1	8oz Clear	08-Nov-16 ✓	12:27 ✓	4.7	1	5633 9349 6398
SB36-161108 ✓	A9422_004	SO	1	8oz Clear	08-Nov-16 ✓	13:52 ✓	4.7	1	5633 9349 6398
SB18-161109 ✓	A9422_005	SO	1	8oz Clear	09-Nov-16 ✓	09:50 ✓	4.7	1	5633 9349 6398
SB19-161109 ✓	A9422_006	SO	1	8oz Clear	09-Nov-16 ✓	10:50 ✓	4.7	1	5633 9349 6398
SB20-161109 ✓	A9422_007	SO	1	8oz Clear	09-Nov-16 ✓	11:17 ✓	4.7	1	5633 9349 6398
SB22-161109 ✓	A9422_008	SO	1	8oz Clear	09-Nov-16 ✓	12:33 ✓	4.7	1	5633 9349 6398
SB21-161109 ✓	A9422_009	SO	1	8oz Clear	09-Nov-16 ✓	13:24 ✓	4.7	1	5633 9349 6398

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact.

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AL 11 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

 A9422

CHAIN OF CUSTODY

SGS ACCUTEST

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking # 5633 9349 6398
Bottle Order Control #
SGS Accutest Quote #
SGS Accutest Job JC31431X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City State Zip: Dayton NJ 08810
Project Contact E-mail: Tammy.McCloskey@sgs.com
Phone # 732-329-0200 Fax #
Sampler(s) Name(s) MC Phone

Project Information

Project Name: LIRR Expansion, Long Island, NY
Street
City State
Project #
Client Purchase Order #
Project Manager

Billing Information (if different from Report to)

Company Name
Street Address
City State Zip
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD.	LAB USE ONLY
1X	SB37-161108		11/8/16	9:52:00 AM	MC	SO	1					1				X	
2X	SB38-161108		11/8/16	11:34:00 AM	MC	SO	1					1				X	
3X	SB39-161108		11/8/16	12:27:00 PM	MC	SO	1					1				X	
4X	SB36-161108		11/8/16	1:52:00 PM	MC	SO	1					1				X	
5X	SB18-161109		11/9/16	9:50:00 AM	MC	SO	1					1				X	
6X	SB19-161109		11/9/16	10:50:00 AM	MC	SO	1					1				X	
7X	SB20-161109		11/9/16	11:17:00 AM	MC	SO	1					1				X	
8X	SB22-161109		11/9/16	12:33:00 PM	MC	SO	1					1				X	
9X	SB21-161109		11/9/16	1:24:00 PM	MC	SO	1					1				X	

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other Due 11/23/2016

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Tir	Received By:	Relinquished By:	Date Time:	Received By:
1	11/10/16 17:00	1 FedEx	2		2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time: 11/11/16 09:33	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[X] Intact [ ] Not intact	Preserved where applicable [ ]

On Ice [X] Cooler Temp. 4.1 °C

SGS Environmental Services — Run Log **Project: A9422_14513_DF**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: zb5-ms_60m

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
12	161128P12	3	CS3_161128_DF_PB	1.00	SIL 15-104-2	PSW, JLJ	187-115	29-Nov-2016	00:53:20
13	161128P13	10	OPR1_14513_DF-RJ	1.00	0_14513_OPR001	PSW, JLJ	650-018	29-Nov-2016	01:50:36
17	161128P17	21	A9422_14513_DF_001	10.25	SB37-161108	PSW, JLJ	231-460	29-Nov-2016	05:05:29
19	161128P19	23	A9422_14513_DF_003	9.33	SB39-161108	PSW, JLJ	416-754	29-Nov-2016	06:43:55
20	161128P20	24	A9422_14513_DF_004	10.59	SB36-161108	PSW, JLJ	571-963	29-Nov-2016	07:33:09
21	161128P21	25	A9422_14513_DF_005	10.15	SB18-161109	PSW, JLJ	932-557	29-Nov-2016	08:22:17
22	161128P22	26	A9422_14513_DF_006	10.32	SB19-161109	PSW, JLJ	248-913	29-Nov-2016	09:11:25
23	161128P23	2	SBS_161128_DF_PC	1.00	SIL 15-49-1	PSW, JLJ	088-819	29-Nov-2016	10:00:34
24	161128P24	3	CS3_161128_DF_PC	1.00	SIL 15-104-2	PSW, JLJ	823-219	29-Nov-2016	10:49:48
25	161128P25	10	OPR1_14513_DF-RJ2	1.00	0_14513_OPR001	PSW, JLJ	797-985	29-Nov-2016	11:47:03
26	161128P26	27	A9422_14513_DF_007	9.71	SB20-161109	PSW, JLJ	429-932	29-Nov-2016	12:34:19
27	161128P27	28	A9422_14513_DF_008	10.38	SB22-161109	PSW, JLJ	736-735	29-Nov-2016	13:23:32
28	161128P28	29	A9422_14513_DF_009	9.03	SB21-161109	PSW, JLJ	066-736	29-Nov-2016	14:12:46
29	161128P29	2	SBS_161128_DF_PD	1.00	SIL 15-49-1	PSW, JLJ	262-517	29-Nov-2016	15:02:00
30	161128P30	3	CS3_161128_DF_PD	1.00	SIL 15-104-2	PSW, JLJ	456-934	29-Nov-2016	15:51:08
8	161129P08	3	CS3_161129_DF_PA	1.00	SIL 15-104-2	PSW, JLJ	912-957	29-Nov-2016	22:53:41
9	161129P09	10	OPR1_14513_DF-RJ3	1.00	0_14513_OPR001	PSW, JLJ	704-661	29-Nov-2016	23:41:04
10	161129P10	2	SBS_161129_DF_PC	1.00	SIL 15-49-1	PSW, JLJ	577-920	30-Nov-2016	00:30:17
11	161129P11	11	MB1_14513_DF_SDS-RJ	10.00	Method Blank	PSW, JLJ	773-619	30-Nov-2016	01:19:26
15	161129P15	22	A9422_14513_DF_002-RJ	9.79	SB38-161108	PSW, JLJ	287-741	30-Nov-2016	04:36:20
16	161129P16	2	SBS_161129_DF_PD	1.00	SIL 15-49-1	PSW, JLJ	265-365	30-Nov-2016	05:25:33
17	161129P17	3	CS3_161129_DF_PB	1.00	SIL 15-104-2	PSW, JLJ	589-887	30-Nov-2016	06:14:47

REVIEWED
By Jerry Jones at 9:39 am, Dec 05, 2016

APPROVED
By Tamara Morgan at 10:14 am, Dec 05, 2016

Project file: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF.utp_prj, saved 05-Dec-2016 09:34
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547

Printed: 05-Dec-2016 09:38

Lab ID: MB1_14513_DF_SDS-RJ | Acq'd: 30 Nov 2016 01:19 PSW | Wt/Vol: 10.00 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: Method Blank A9422_14513 | UTP: 05-Dec-2016 09:18:04 JLJ | J-level: 0.5 pg/g | Split: 1 | Checkcode: 773-619-LTF

Datafile: 161129P11 | Report: 05 Dec 2016 09:29 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0008	-		-	-	-	1.04	-	64156	22.9

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.68	1.0243	1.0244	+0.2	5.67E+06	0.76	Y	1.04	61.7

Lab ID: MB1_14513_DF_SDS-RJ | Acq'd: 30 Nov 2016 01:19 PSW | Wt/Vol: 10.00 g | ICAL: MM1_DF_12212015_14JUL2016

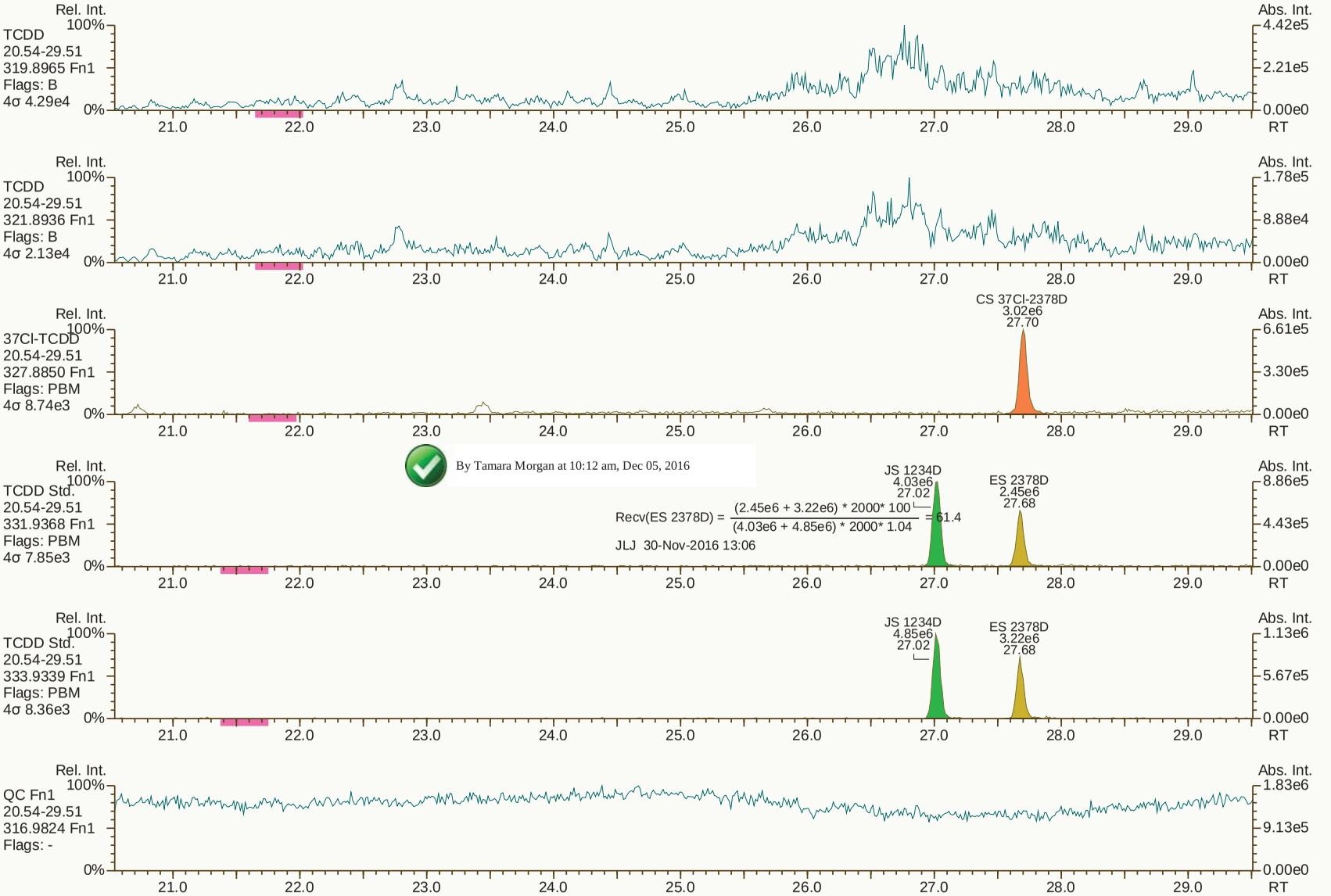
Client ID: Method Blank A9422_14513 | UTP: 05-Dec-2016 09:18:04 JLJ | J-level: 0.5 pg/g | Split: 1 | Checkcode: 773-619-LTF

Datafile: 161129P11 | Report: 05 Dec 2016 09:29 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	27.02		-	-	-	8.88E+06	0.83	Y	-	-
JS 123467-HxCDD	37.34		-	-	-	2.40E+06	1.20	Y	-	-
CS 37Cl-2378-TCDD	27.70		1.0252	1.0254	+0.3	3.02E+06	n/a	-	1.05	80.8

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: MB1_14513_DF_SDS-RJ | **Sample ID: Method Blank** | **Acq: 30-Nov-2016 01:19:26**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: PSW Datafile: 161129P11**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\MB1_14513_DF_SDS-RJ.utp_res, saved 05-Dec-2016 09:18 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 1987, 4889, 1936 scc: 773-619 *Revised: 30-Nov-2016 09:38 (PSW) Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_001 | Acq'd: 29 Nov 2016 05:05 PSW | Wt/Vol: 10.25 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB37-161108 | UTP: 05-Dec-2016 09:17:05 JLJ | J-level: 0.488 pg/g | Split: 1 | Checkcode: 231-460-XKQ

Datafile: 161128P17 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.63	J EMPC	1.0008	1.0007	-0.2	2.58E+04	0.98	N	1.04	0.148	1762	0.104

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.62	1.0243	1.0244	+0.2	3.27E+07	0.77	Y	1.04	113

Lab ID: A9422_14513_DF_001 | Acq'd: 29 Nov 2016 05:05 PSW | Wt/Vol: 10.25 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB37-161108 | UTP: 05-Dec-2016 09:17:05 JLJ | J-level: 0.488 pg/g | Split: 1 | Checkcode: 231-460-XKQ
Datafile: 161128P17 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.96		-	-	-	2.79E+07	0.76	Y	-	-
JS 123467-HxCDD	37.31		-	-	-	1.02E+07	1.24	Y	-	-
CS 37Cl-2378-TCDD	27.64		1.0252	1.0251	-0.2	1.31E+07	n/a	-	1.05	111

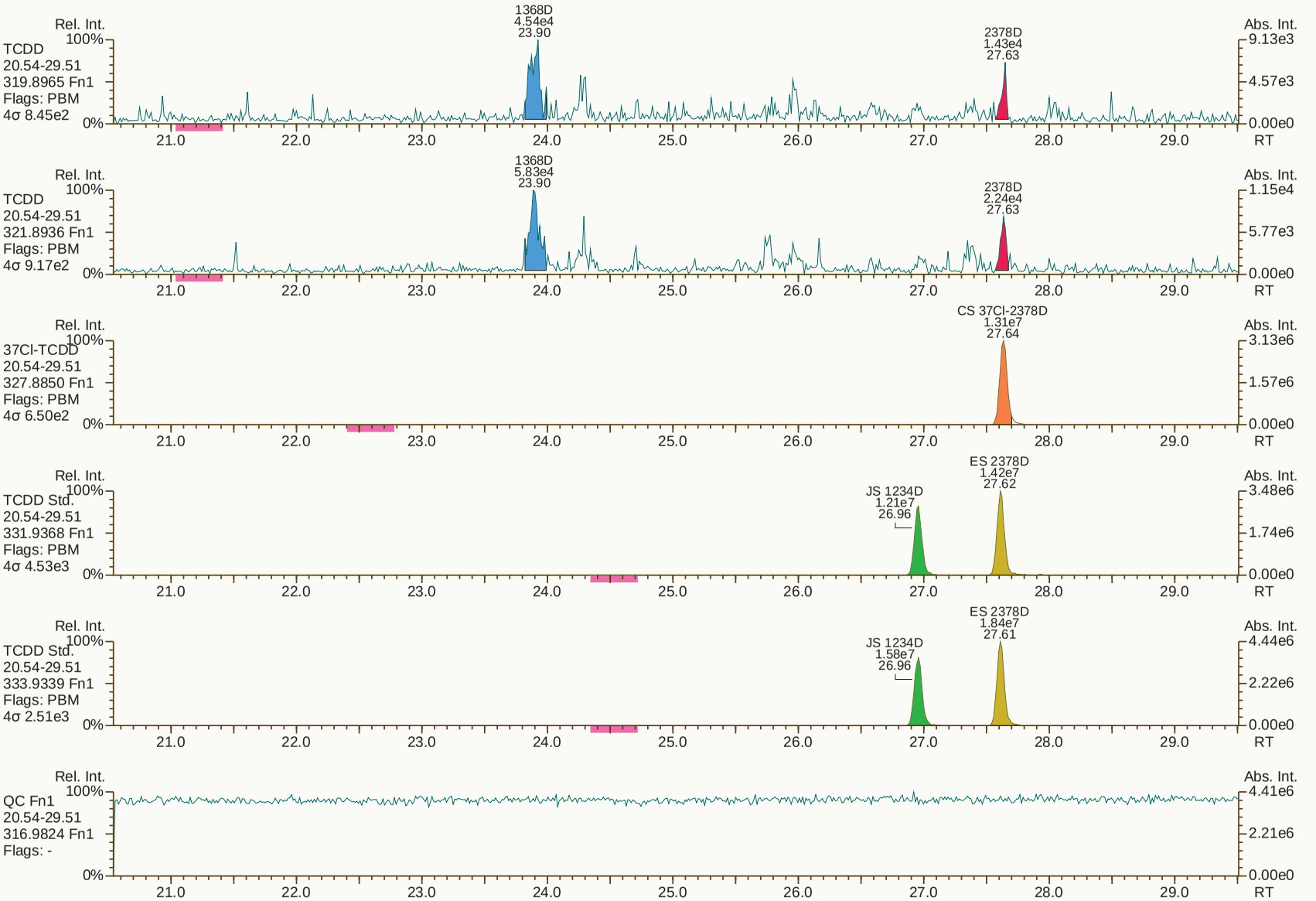
Totals	Conc	EMPC
Total TCDD	0.595	0.743

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.64	0.98
Response	3.68E+04	2.89E+04

SGS ID: A9422_14513_DF_001 | **Sample ID: SB37-161108** | **Acq: 29-Nov-2016 05:05:29**

Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 21** | **User: PSW Datafile: 161128P17**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_001.utp_res, saved 05-Dec-2016 09:17 (JLJ) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 3439, 9582, 6144 scc: 231-460 *Revised: 30-Nov-2016 12:48 (JLJ) Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_002-RJ | Acq'd: 30 Nov 2016 04:36 PSW | Wt/Vol: 9.79 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB38-161108 | UTP: 05-Dec-2016 09:18:06 JLJ | J-level: 0.511 pg/g | Split: 1 | Checkcode: 287-741-HVK

Datafile: 161129P15 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.68	EMPC	1.0008	1.0007	-0.2	5.57E+04	0.93	N	1.04	1.81	2044	0.747

Name	Act RT		Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.66	V	1.0243	1.0248	+0.8	6.05E+06	0.79	Y	1.04	39.1

Lab ID: A9422_14513_DF_002-RJ | Acq'd: 30 Nov 2016 04:36 PSW | Wt/Vol: 9.79 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB38-161108 | UTP: 05-Dec-2016 09:18:06 JLJ | J-level: 0.511 pg/g | Split: 1 | Checkcode: 287-741-HVK
Datafile: 161129P15 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.99		-	-	-	1.50E+07	0.80	Y	-	-
JS 123467-HxCDD	37.41		-	-	-	8.02E+05	1.08	Y	-	-
CS 37Cl-2378-TCDD	27.68		1.0252	1.0257	+0.8	3.15E+06	n/a	-	1.05	50

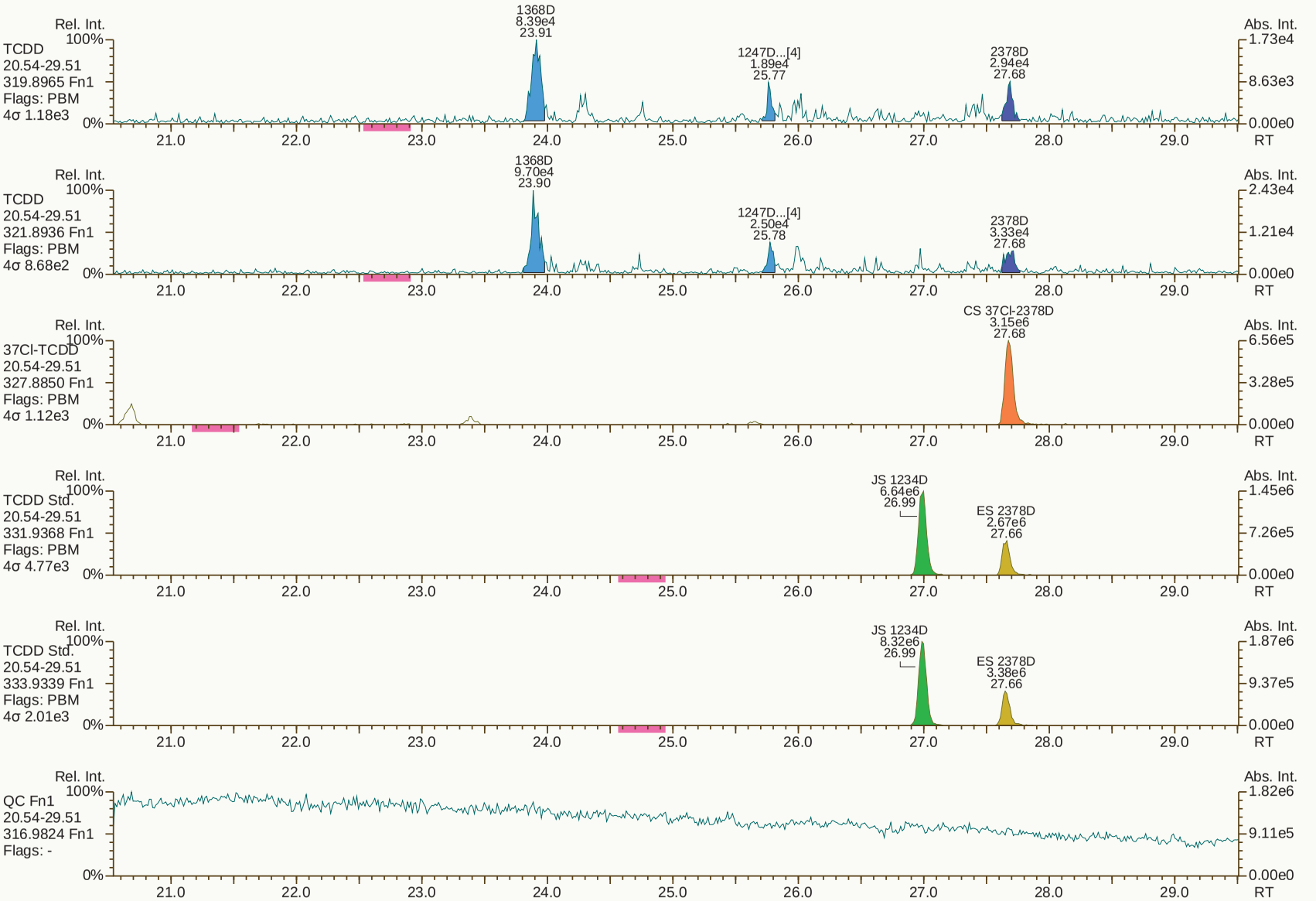
Totals	Conc	EMPC
Total TCDD	7.3	9.1

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.88	0.93
Response	6.27E+04	6.08E+04

SGS ID: A9422_14513_DF_002-RJ | **Sample ID: SB38-161108** | **Acq: 30-Nov-2016 04:36:20**

Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 22** | **User: PSW Datafile: 161129P15**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_002-RJ.utp_res, saved 05-Dec-2016 09:18 (JLJ) | *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 5273, 8762, 3385 scc: 287-741 | *PKD: 30-Nov-2016 08:41 Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_003 | Acq'd: 29 Nov 2016 06:43 PSW | Wt/Vol: 9.33 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB39-161108 | UTP: 05-Dec-2016 09:17:15 JLJ | J-level: 0.536 pg/g | Split: 1 | Checkcode: 416-754-NCZ

Datafile: 161128P19 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.63		1.0008	1.0008	0	1.75E+05	0.67	Y	1.04	0.991	1695	0.102

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.61	1.0243	1.0244	+0.2	3.64E+07	0.75	Y	1.04	96.2

Lab ID: A9422_14513_DF_003 | Acq'd: 29 Nov 2016 06:43 PSW | Wt/Vol: 9.33 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB39-161108 | UTP: 05-Dec-2016 09:17:15 JLJ | J-level: 0.536 pg/g | Split: 1 | Checkcode: 416-754-NCZ
Datafile: 161128P19 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

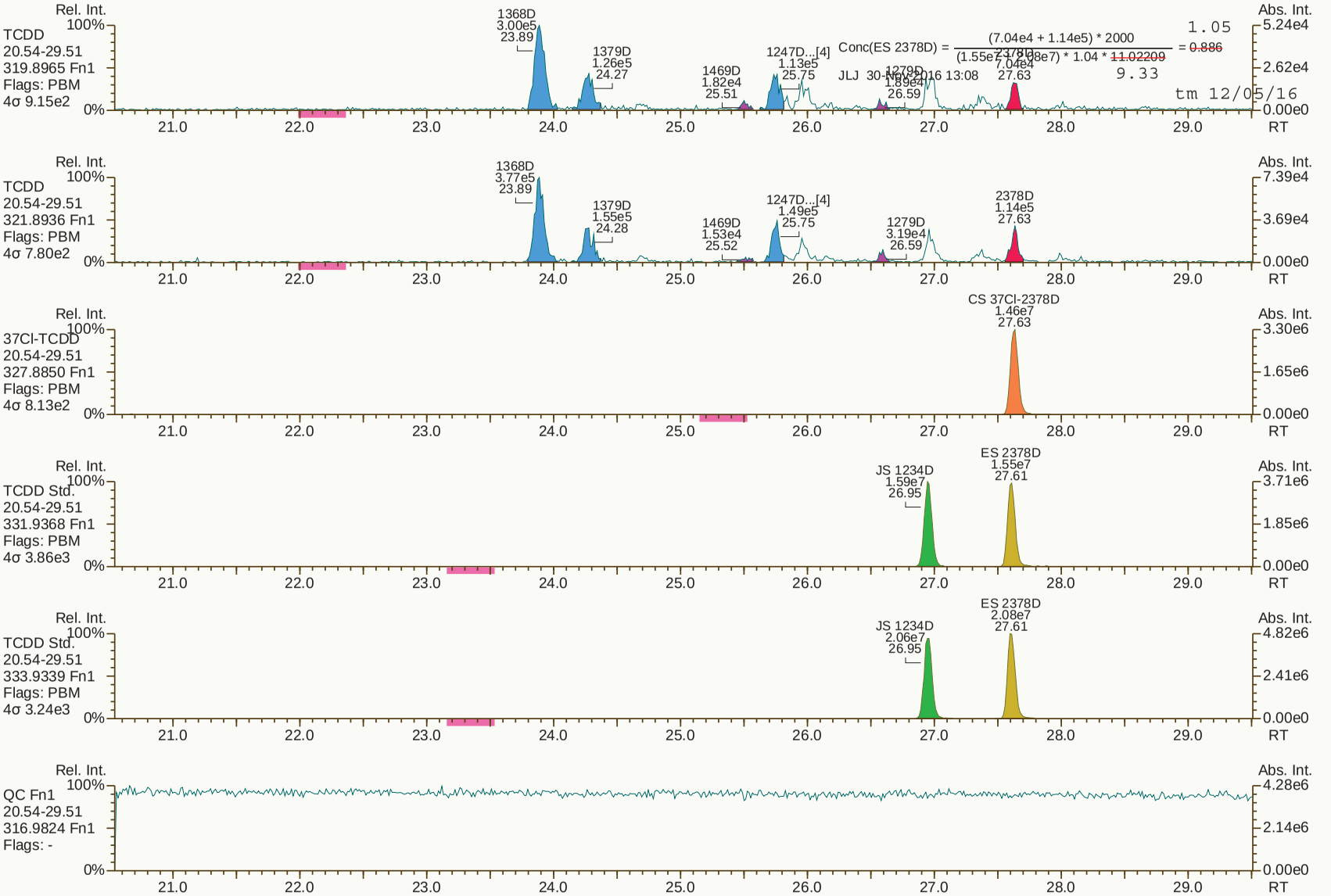
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.95		-	-	-	3.65E+07	0.77	Y	-	-
JS 123467-HxCDD	37.31		-	-	-	1.32E+07	1.25	Y	-	-
CS 37Cl-2378-TCDD	27.63		1.0252	1.0253	+0.2	1.46E+07	n/a	-	1.05	94.6

Totals	Conc	EMPC
Total TCDD	7.9	8.29

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.62	0.67
Response	1.84E+05	1.75E+05

SGS ID: A9422_14513_DF_003 | **Sample ID: SB39-161108** | **Acq: 29-Nov-2016 06:43:55**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 23** | **User: PSW Datafile: 161128P19**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_003.utp_res, saved 05-Dec-2016 09:17 (JLJ)
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 3469, 1814, 5759 scc: 416-754

Peak annotation: Areas, Centroids
PKD: 30-Nov-2016 12:51 Printed: 05-Dec-2016 09:19 Page 1 of 1

Lab ID: A9422_14513_DF_004 | Acq'd: 29 Nov 2016 07:33 PSW | Wt/Vol: 10.59 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB36-161108 | UTP: 05-Dec-2016 09:17:20 JLJ | J-level: 0.472 pg/g | Split: 1 | Checkcode: 571-963-LDR

Datafile: 161128P20 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0008	-		-	-	-	1.04	-	1969	0.077

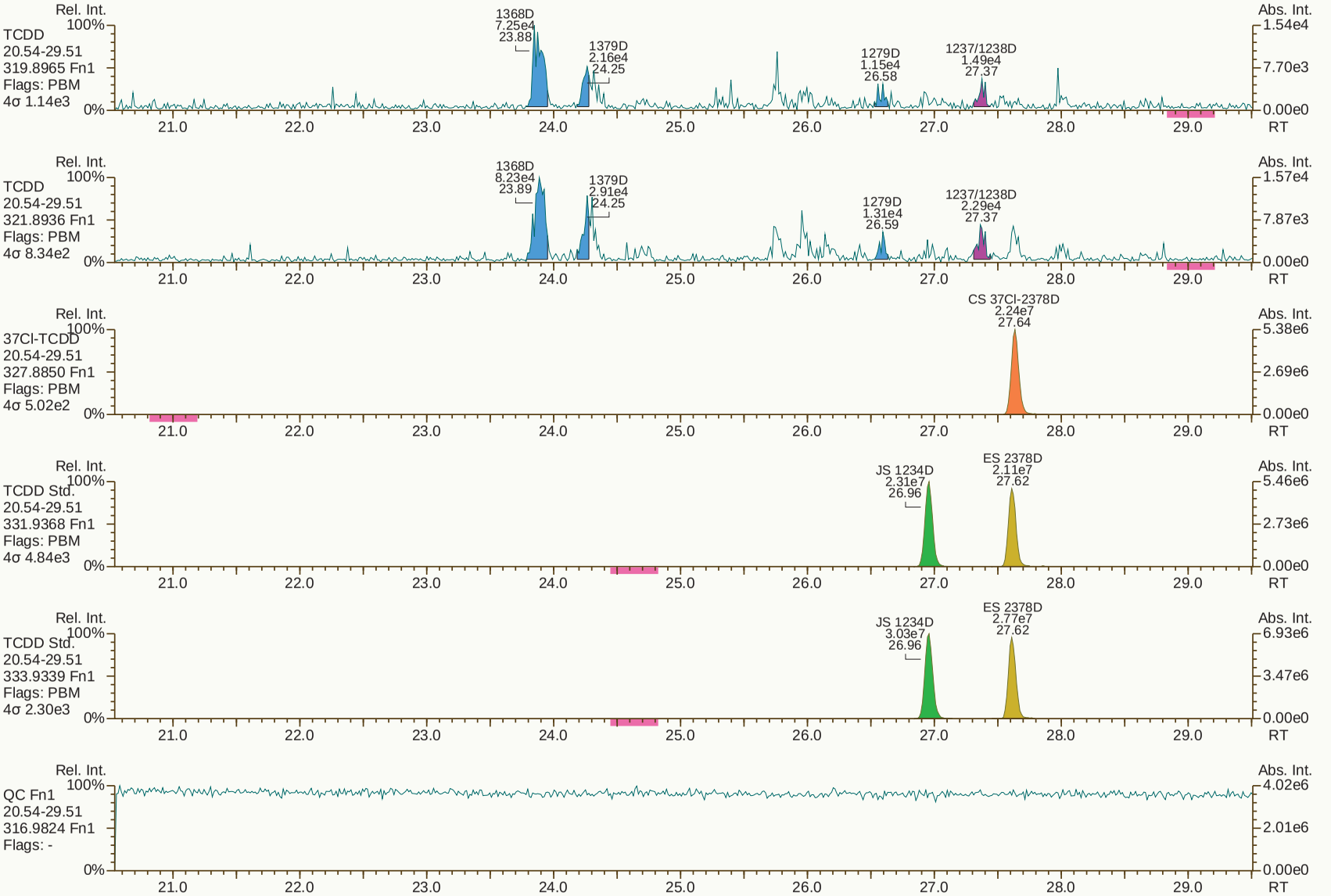
Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.62	1.0243	1.0244	+0.2	4.88E+07	0.76	Y	1.04	88.3

Lab ID: A9422_14513_DF_004 | Acq'd: 29 Nov 2016 07:33 PSW | Wt/Vol: 10.59 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB36-161108 | UTP: 05-Dec-2016 09:17:20 JLJ | J-level: 0.472 pg/g | Split: 1 | Checkcode: 571-963-LDR
Datafile: 161128P20 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.96		-	-	-	5.34E+07	0.76	Y	-	-
JS 123467-HxCDD	37.32		-	-	-	1.85E+07	1.20	Y	-	-
CS 37Cl-2378-TCDD	27.64		1.0252	1.0253	+0.2	2.24E+07	n/a	-	1.05	99.3

Totals	Conc	EMPC
Total TCDD	0.855	0.983

SGS ID: A9422_14513_DF_004 | **Sample ID: SB36-161108** | **Acq: 29-Nov-2016 07:33:09**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 24** | **User: PSW Datafile: 161128P20**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_004.utp_res, saved 05-Dec-2016 09:17 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 9103, 4111, 5444 scc: 571-963 | *PKD: 29-Nov-2016 14:15 Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_005 | Acq'd: 29 Nov 2016 08:22 PSW | Wt/Vol: 10.15 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB18-161109 | UTP: 05-Dec-2016 09:17:25 JLJ | J-level: 0.493 pg/g | Split: 1 | Checkcode: 932-557-KRN

Datafile: 161128P21 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0008	-		-	-	-	1.04	-	1784	0.0856

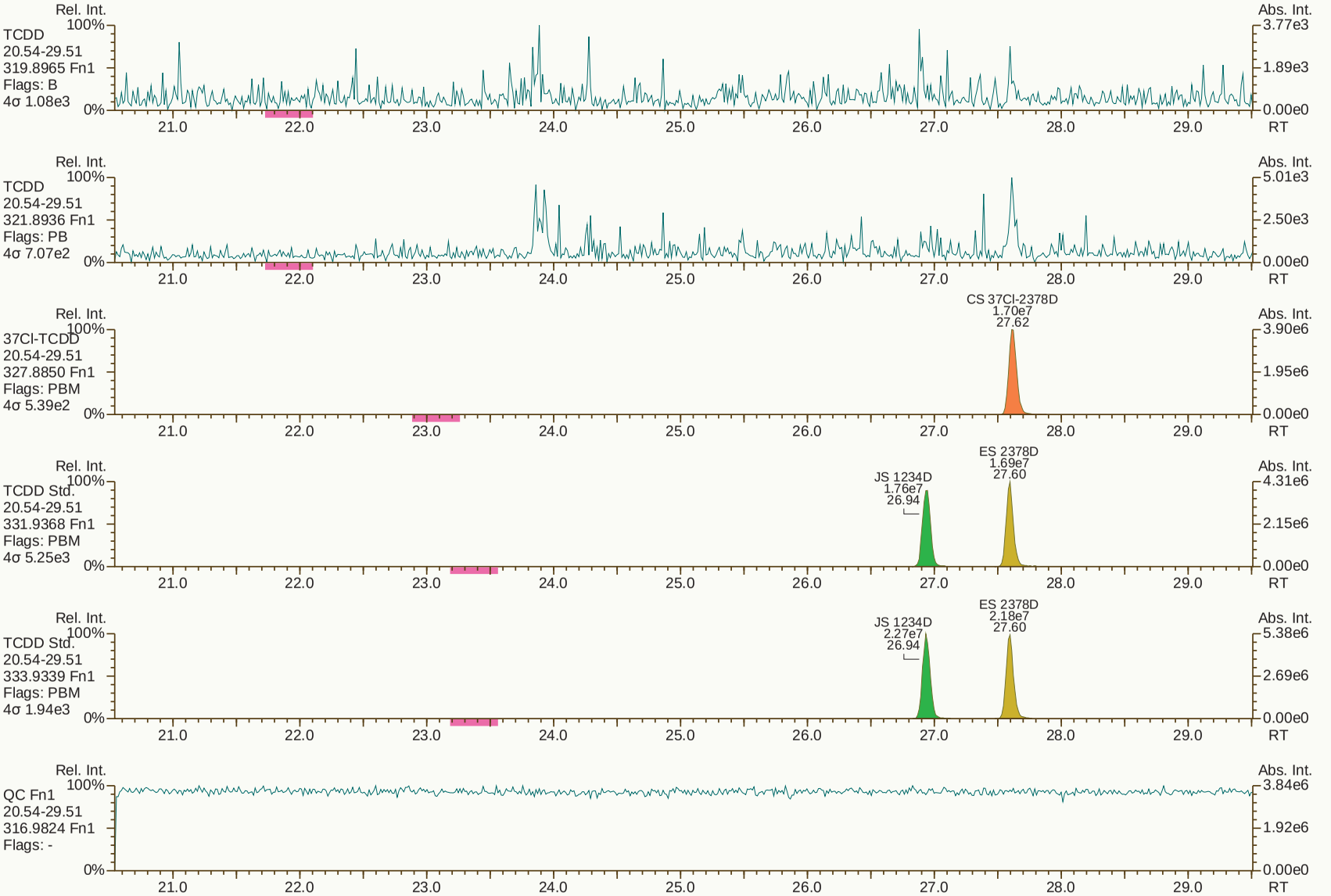
Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.60	1.0243	1.0244	+0.2	3.86E+07	0.77	Y	1.04	92.8

Lab ID: A9422_14513_DF_005 | Acq'd: 29 Nov 2016 08:22 PSW | Wt/Vol: 10.15 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB18-161109 | UTP: 05-Dec-2016 09:17:25 JLJ | J-level: 0.493 pg/g | Split: 1 | Checkcode: 932-557-KRN
Datafile: 161128P21 | Report: 05 Dec 2016 09:30 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	4.02E+07	0.77	Y	-	-
JS 123467-HxCDD	37.29		-	-	-	1.43E+07	1.19	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0253	+0.2	1.70E+07	n/a	-	1.05	100

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: A9422_14513_DF_005 | **Sample ID: SB18-161109** | **Acq: 29-Nov-2016 08:22:17**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 25** | **User: PSW Datafile: 161128P21**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_005.utp_res, saved 05-Dec-2016 09:17 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 7270, 3190, 5065 scc: 932-557 *PKD: 30-Nov-2016 12:49 Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_006 | Acq'd: 29 Nov 2016 09:11 PSW | Wt/Vol: 10.32 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB19-161109 | UTP: 05-Dec-2016 09:17:31 JLJ | J-level: 0.484 pg/g | Split: 1 | Checkcode: 248-913-MFH

Datafile: 161128P22 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.63		1.0008	1.0012	+0.7	2.40E+05	0.83	Y	1.04	1.21	1615	0.0798

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.60	1.0243	1.0244	+0.2	3.70E+07	0.75	Y	1.04	92.8

Lab ID: A9422_14513_DF_006 | Acq'd: 29 Nov 2016 09:11 PSW | Wt/Vol: 10.32 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB19-161109 | UTP: 05-Dec-2016 09:17:31 JLJ | J-level: 0.484 pg/g | Split: 1 | Checkcode: 248-913-MFH
Datafile: 161128P22 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

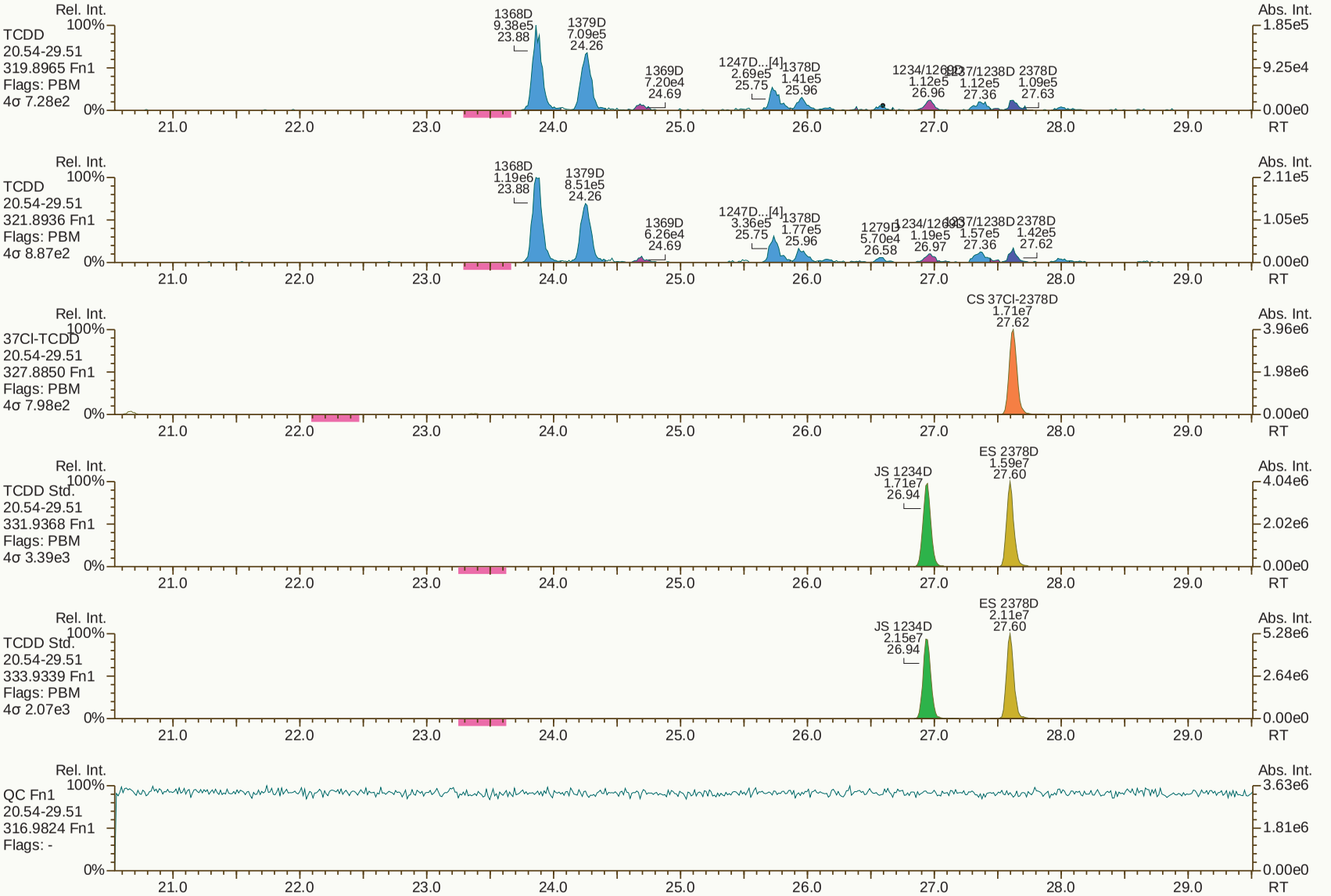
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	3.85E+07	0.80	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	1.42E+07	1.23	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0253	+0.2	1.71E+07	n/a	-	1.05	105

Totals	Conc	EMPC
Total TCDD	27.1	29.1

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.77	0.83
Response	2.50E+05	2.40E+05

SGS ID: A9422_14513_DF_006 | **Sample ID: SB19-161109** | **Acq: 29-Nov-2016 09:11:25**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 26** | **User: PSW Datafile: 161128P22**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_006.utp_res, saved 05-Dec-2016 09:17 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 4898, 2045, 2695 scc: 248-913 | *PKD: 29-Nov-2016 14:18 Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_007 | Acq'd: 29 Nov 2016 12:34 PSW | Wt/Vol: 9.71 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB20-161109 | UTP: 05-Dec-2016 09:17:42 JLJ | J-level: 0.515 pg/g | Split: 1 | Checkcode: 429-932-JJT

Datafile: 161128P26 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.62		1.0008	1.0008	0	9.08E+04	0.68	Y	1.04	0.621	1496	0.109

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.60	1.0243	1.0245	+0.3	2.89E+07	0.76	Y	1.04	89.3

Lab ID: A9422_14513_DF_007 | Acq'd: 29 Nov 2016 12:34 PSW | Wt/Vol: 9.71 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB20-161109 | UTP: 05-Dec-2016 09:17:42 JLJ | J-level: 0.515 pg/g | Split: 1 | Checkcode: 429-932-JJT
Datafile: 161128P26 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

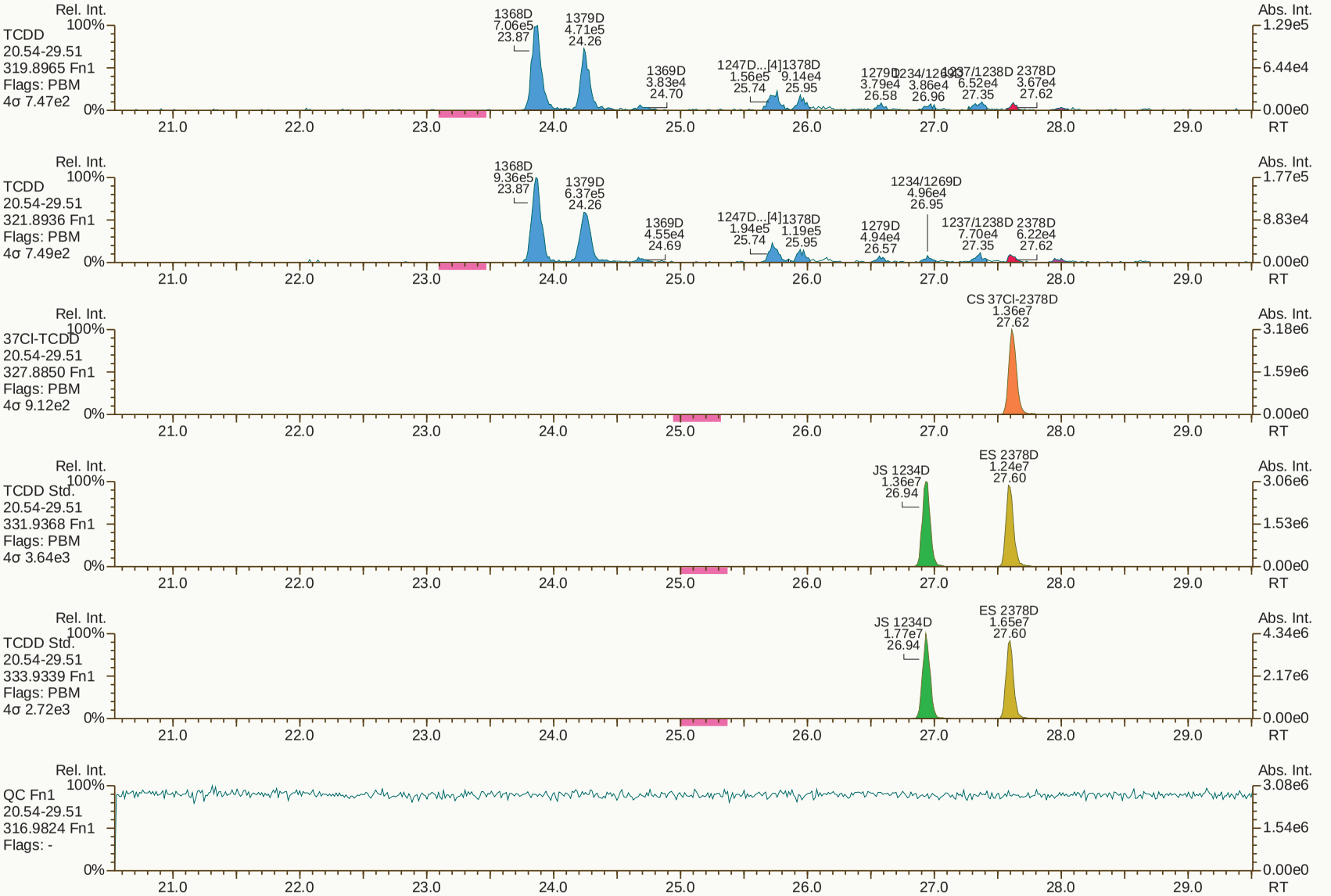
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	3.13E+07	0.76	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	1.06E+07	1.22	Y	-	-
CS 37Cl-2378-TCDD	27.62		1.0252	1.0253	+0.2	1.36E+07	n/a	-	1.05	103

Totals	Conc	EMPC
Total TCDD	26	26.3

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.59	0.68
Response	9.89E+04	9.08E+04

SGS ID: A9422_14513_DF_007 | **Sample ID: SB20-161109** | **Acq: 29-Nov-2016 12:34:19**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 27** | **User: PSW Datafile: 161128P26**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_007.utp_res, saved 05-Dec-2016 09:17 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 2000, 1183, 2137 scc: 429-932 *PKD: 29-Nov-2016 14:22 Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_008 | Acq'd: 29 Nov 2016 13:23 PSW | Wt/Vol: 10.38 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB22-161109 | UTP: 05-Dec-2016 09:17:49 JLJ | J-level: 0.482 pg/g | Split: 1 | Checkcode: 736-735-WHJ

Datafile: 161128P27 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.62		1.0008	1.0006	-0.3	6.23E+04	0.70	Y	1.04	0.773	1622	0.207

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.61	1.0243	1.0246	+0.5	1.49E+07	0.75	Y	1.04	70.8

Lab ID: A9422_14513_DF_008 | Acq'd: 29 Nov 2016 13:23 PSW | Wt/Vol: 10.38 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB22-161109 | UTP: 05-Dec-2016 09:17:49 JLJ | J-level: 0.482 pg/g | Split: 1 | Checkcode: 736-735-WHJ
Datafile: 161128P27 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	2.03E+07	0.77	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	3.46E+06	1.21	Y	-	-
CS 37Cl-2378-TCDD	27.63		1.0252	1.0254	+0.3	6.53E+06	n/a	-	1.05	76.2

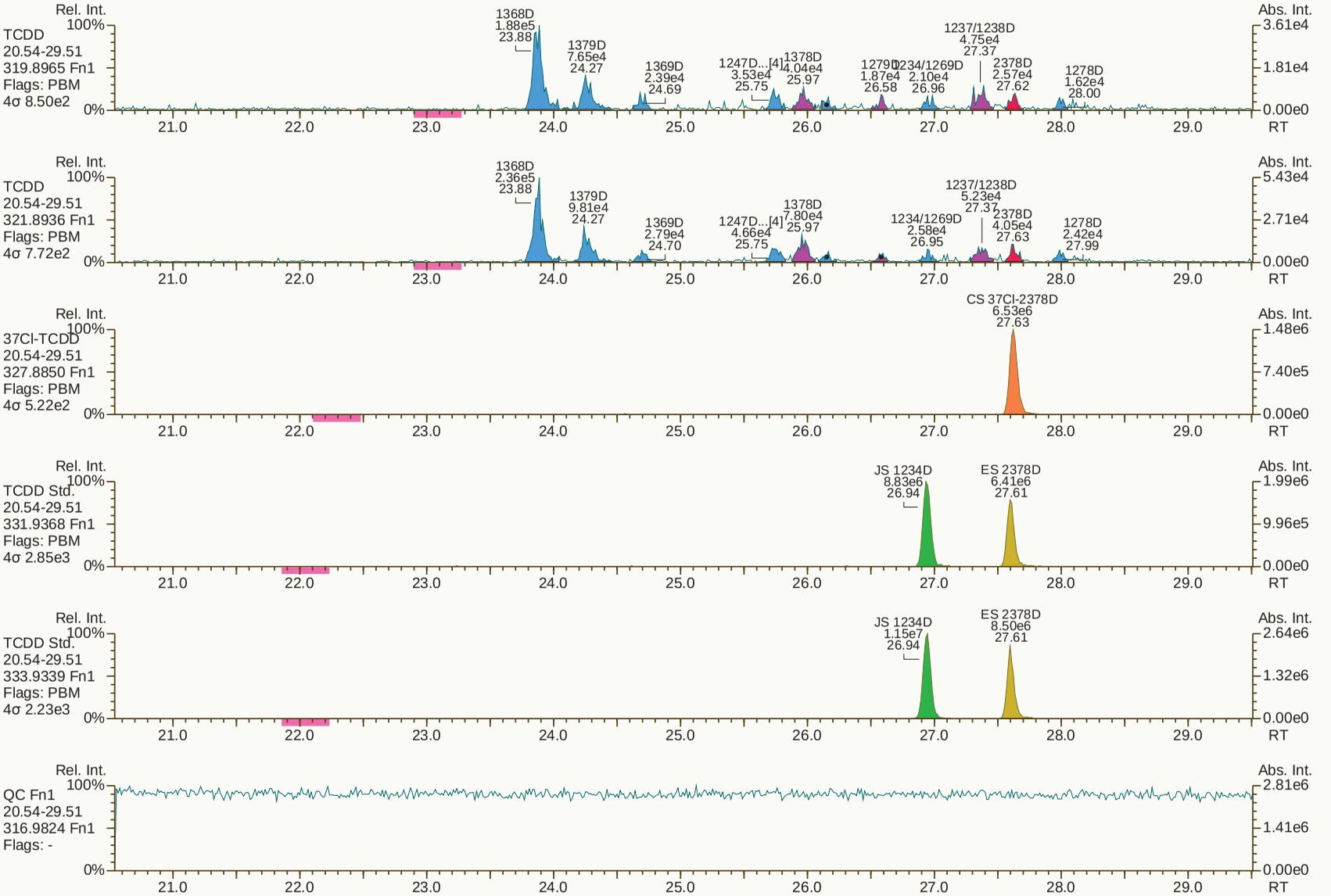
Totals	Conc	EMPC
Total TCDD	11.4	14.1

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.64	0.70
Response	6.62E+04	6.23E+04

SGS ID: A9422_14513_DF_008 | **Sample ID: SB22-161109** | **Acq: 29-Nov-2016 13:23:32**

Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 28** | **User: PSW Datafile: 161128P27**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_008.utp_res, saved 05-Dec-2016 09:17 (JLJ) | *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 8809, 5644, 0296 scc: 736-735 | *Revised: 29-Nov-2016 14:25 (PSW) Printed: 05-Dec-2016 09:19 Page 1 of 1*

Lab ID: A9422_14513_DF_009 | Acq'd: 29 Nov 2016 14:12 PSW | Wt/Vol: 9.03 g | ICAL: MM1_DF_12212015_14JUL2016

Client ID: SB21-161109 | UTP: 05-Dec-2016 09:17:57 JLJ | J-level: 0.554 pg/g | Split: 1 | Checkcode: 066-736-TZP

Datafile: 161128P28 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.63	J EMPC	1.0008	1.0006	-0.3	4.27E+04	0.98	N	1.04	0.378	1612	0.148

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.61	1.0243	1.0245	+0.3	2.40E+07	0.79	Y	1.04	84.1

Lab ID: A9422_14513_DF_009 | Acq'd: 29 Nov 2016 14:12 PSW | Wt/Vol: 9.03 g | ICAL: MM1_DF_12212015_14JUL2016
Client ID: SB21-161109 | UTP: 05-Dec-2016 09:17:57 JLJ | J-level: 0.554 pg/g | Split: 1 | Checkcode: 066-736-TZP
Datafile: 161128P28 | Report: 05 Dec 2016 09:31 JJ | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

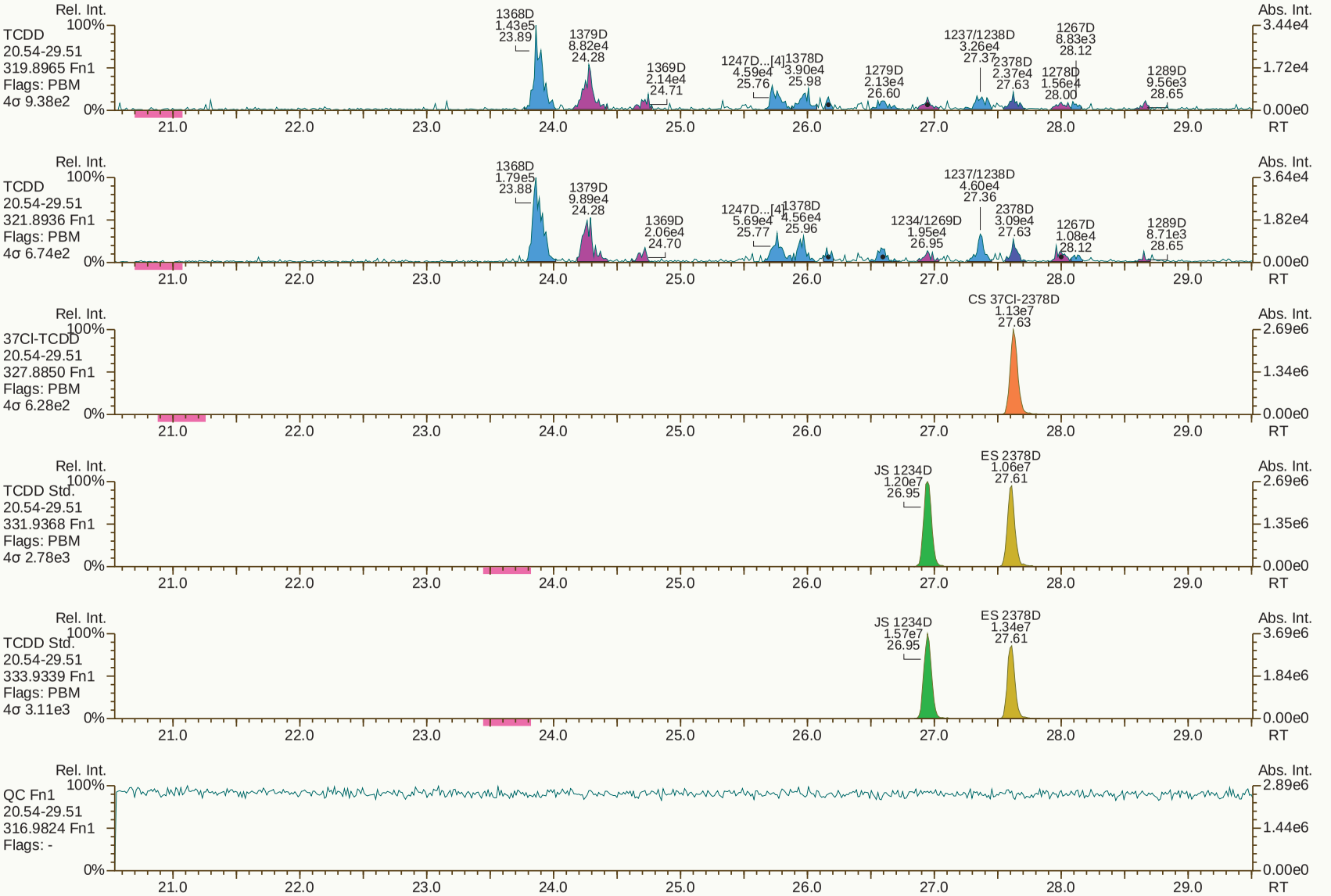
Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.95		-	-	-	2.76E+07	0.76	Y	-	-
JS 123467-HxCDD	37.31		-	-	-	9.28E+06	1.20	Y	-	-
CS 37Cl-2378-TCDD	27.63		1.0252	1.0253	+0.2	1.13E+07	n/a	-	1.05	96.7

Totals	Conc	EMPC
Total TCDD	6.05	9.06

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.77	0.98
Response	5.46E+04	4.79E+04

SGS ID: A9422_14513_DF_009 | **Sample ID: SB21-161109** | **Acq: 29-Nov-2016 14:12:46**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 29** | **User: PSW Datafile: 161128P28**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF_009.utp_res, saved 05-Dec-2016 09:17 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 6568, 5143, 8470 scc: 066-736 | *PKD: 29-Nov-2016 15:43 Printed: 05-Dec-2016 09:19 Page 1 of 1*

SGS Environmental Services — Run Log **Project: A9422_14513_DF**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: zb5-ms_60m

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
12	161128P12	3	CS3_161128_DF_PB	1.00	SIL 15-104-2	PSW, JLJ	187-115	29-Nov-2016	00:53:20
13	161128P13	10	OPR1_14513_DF-RJ	1.00	0_14513_OPR001	PSW, JLJ	650-018	29-Nov-2016	01:50:36
17	161128P17	21	A9422_14513_DF_001	10.02	SB37-161108	PSW, JLJ	228-162	29-Nov-2016	05:05:29
19	161128P19	23	A9422_14513_DF_003	11.02	SB39-161108	PSW, JLJ	417-446	29-Nov-2016	06:43:55
20	161128P20	24	A9422_14513_DF_004	9.52	SB36-161108	PSW, JLJ	570-804	29-Nov-2016	07:33:09
21	161128P21	25	A9422_14513_DF_005	9.77	SB18-161109	PSW, JLJ	938-747	29-Nov-2016	08:22:17
22	161128P22	26	A9422_14513_DF_006	10.26	SB19-161109	PSW, JLJ	248-853	29-Nov-2016	09:11:25
23	161128P23	2	SBS_161128_DF_PC	1.00	SIL 15-49-1	PSW, JLJ	088-819	29-Nov-2016	10:00:34
24	161128P24	3	CS3_161128_DF_PC	1.00	SIL 15-104-2	PSW, JLJ	823-219	29-Nov-2016	10:49:48
25	161128P25 *	10	OPR1_14513_DF-RJ2	1.00	0_14513_OPR001	PSW, JLJ	797-985	29-Nov-2016	11:47:03
26	161128P26	27	A9422_14513_DF_007	10.34	SB20-161109	PSW, JLJ	420-559	29-Nov-2016	12:34:19
27	161128P27	28	A9422_14513_DF_008	10.82	SB22-161109	PSW, JLJ	740-113	29-Nov-2016	13:23:32
28	161128P28	29	A9422_14513_DF_009	8.93	SB21-161109	PSW, JLJ	065-786	29-Nov-2016	14:12:46
29	161128P29	2	SBS_161128_DF_PD	1.00	SIL 15-49-1	PSW, JLJ	262-517	29-Nov-2016	15:02:00
30	161128P30	3	CS3_161128_DF_PD	1.00	SIL 15-104-2	PSW, JLJ	456-934	29-Nov-2016	15:51:08
8	161129P08	3	CS3_161129_DF_PA	1.00	SIL 15-104-2	PSW, JLJ	912-957	29-Nov-2016	22:53:41
9	161129P09 *	10	OPR1_14513_DF-RJ3	1.00	0_14513_OPR001	PSW, JLJ	704-661	29-Nov-2016	23:41:04
10	161129P10	2	SBS_161129_DF_PC	1.00	SIL 15-49-1	PSW, JLJ	577-920	30-Nov-2016	00:30:17
11	161129P11	11	MB1_14513_DF_SDS-RJ	10.00	Method Blank	PSW, JLJ	773-619	30-Nov-2016	01:19:26
15	161129P15	22	A9422_14513_DF_002-RJ	9.79	SB38-161108	PSW, JLJ	287-741	30-Nov-2016	04:36:20
16	161129P16	2	SBS_161129_DF_PD	1.00	SIL 15-49-1	PSW, JLJ	265-365	30-Nov-2016	05:25:33
17	161129P17	3	CS3_161129_DF_PB	1.00	SIL 15-104-2	PSW, JLJ	589-887	30-Nov-2016	06:14:47

*CPSM ONLY

APPROVED
By Tamara Morgan at 2:14 pm, Dec 02, 2016

REVIEWED
By Jerry Jones at 11:22 am, Dec 02, 2016

Project file: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\A9422_14513_DF.utp_prj, saved 02-Dec-2016 11:20
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547

Printed: 02-Dec-2016 11:21

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 00:53 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161128_DF_PB | **UTP: 30-Nov-2016 13:02:01 JLJ** | **Checkcode: 187-115-FWH**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161128P12**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.64	2.20E+06	0.72	Y	1.04	0.90	-13%
ES 2378-TCDD	27.61	2.44E+07	0.76	Y	1.04	1.04	1%

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 00:53 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161128_DF_PB | **UTP: 30-Nov-2016 13:02:01 JLJ** | **Checkcode: 187-115-FWH**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161128P12**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.95	2.34E+07	0.76	Y	-	-	-
CS 37Cl-2378-TCDD	27.63	2.34E+06	n/a	-	1.05	1.00	-5%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016

Instrument ID: MM1 GC Column ID: ZB-5ms

VER Data Filename: 161128P12 Analysis Date: 29-NOV-2016 00:53:20

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.72	0.65 - 0.89	Y	8.66	8 - 12	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161128P12 Analysis Date: 29-NOV-2016 00:53:20

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65 - 0.89	Y	101	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.47	7.9 - 12.7	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

SGS ID: CS3_161128_DF_PB | **Sample ID: SIL 15-104-2** | **Acq: 29-Nov-2016 00:53:20**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161128P12**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\CS3_161128_DF_PB.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 3304, 2410, 5467 scc: 187-115 *PKD: 29-Nov-2016 11:04 Printed: 02-Dec-2016 11:04 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 10:49 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161128_DF_PC | **UTP: 30-Nov-2016 13:02:08 JLJ** | **Checkcode: 823-219-TJB**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161128P24**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.64	1.07E+06	0.79	Y	1.04	0.88	-15%
ES 2378-TCDD	27.61	1.21E+07	0.75	Y	1.04	1.01	-2%

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 10:49 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161128_DF_PC | **UTP: 30-Nov-2016 13:02:08 JLJ** | **Checkcode: 823-219-TJB**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161128P24**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.95	1.19E+07	0.73	Y	-	-	-
CS 37Cl-2378-TCDD	27.63	1.14E+06	n/a	-	1.05	0.96	-9%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016

Instrument ID: MM1 GC Column ID: ZB-5ms

VER Data Filename: 161128P24 Analysis Date: 29-NOV-2016 10:49:48

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.79	0.65 - 0.89	Y	8.48	8 - 12	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161128P24 Analysis Date: 29-NOV-2016 10:49:48

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.75	0.65 - 0.89	Y	98	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.08	7.9 - 12.7	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

SGS ID: CS3_161128_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 29-Nov-2016 10:49:48**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161128P24**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\CS3_161128_DF_PC.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 6639, 0738, 0996 scc: 823-219 *PKD: 29-Nov-2016 11:54 Printed: 02-Dec-2016 11:05 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 15:51 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161128_DF_PD | **UTP: 30-Nov-2016 13:02:14 JLJ** | **Checkcode: 456-934-BCS**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161128P30**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.62	1.74E+06	0.81	Y	1.04	0.84	-20%
ES 2378-TCDD	27.60	2.08E+07	0.77	Y	1.04	1.03	-1%

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 15:51 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161128_DF_PD | **UTP: 30-Nov-2016 13:02:14 JLJ** | **Checkcode: 456-934-BCS**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161128P30**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.94	2.02E+07	0.76	Y	-	-	-
CS 37Cl-2378-TCDD	27.62	1.86E+06	n/a	-	1.05	0.92	-13%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016

Instrument ID: MM1 GC Column ID: ZB-5ms

VER Data Filename: 161128P30 Analysis Date: 29-NOV-2016 15:51:08

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.81	0.65 - 0.89	Y	8.03	8 - 12	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161128P30 Analysis Date: 29-NOV-2016 15:51:08

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65 - 0.89	Y	99.2	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				8.72	7.9 - 12.7	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

SGS ID: CS3_161128_DF_PD | **Sample ID: SIL 15-104-2** | **Acq: 29-Nov-2016 15:51:08**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161128P30**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\CS3_161128_DF_PD.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 9544, 8865, 0701 scc: 456-934 *PKD: 29-Nov-2016 16:27 Printed: 02-Dec-2016 11:05 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 22:53 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161129_DF_PA | **UTP: 30-Nov-2016 13:02:15 JLJ** | **Checkcode: 912-957-HVJ**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161129P08**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.63	2.24E+06	0.82	Y	1.04	1.02	-2%
ES 2378-TCDD	27.60	2.21E+07	0.78	Y	1.04	1.03	0%

Dioxin/Furan QC Summary | **Acq'd: 29 Nov 2016 22:53 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161129_DF_PA | **UTP: 30-Nov-2016 13:02:15 JLJ** | **Checkcode: 912-957-HVJ**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:10 JJ** | **Datafile: 161129P08**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.94	2.14E+07	0.78	Y	-	-	-
CS 37Cl-2378-TCDD	27.62	2.25E+06	n/a	-	1.05	1.05	0%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016

Instrument ID: MM1 GC Column ID: ZB-5ms

VER Data Filename: 161129P08 Analysis Date: 29-NOV-2016 22:53:41

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.82	0.65 - 0.89	Y	9.77	8 - 12	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161129P08 Analysis Date: 29-NOV-2016 22:53:41

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	99.9	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.99	7.9 - 12.7	Y

Processed: 02 Dec 2016 11:10 Analyst: JJ

SGS ID: CS3_161129_DF_PA | **Sample ID: SIL 15-104-2** | **Acq: 29-Nov-2016 22:53:41**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161129P08**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\CS3_161129_DF_PA.utp_res, saved 30-Nov-2016 13:02 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 4191, 6515, 7156 scc: 912-957 | *PKD: 30-Nov-2016 08:27 Printed: 02-Dec-2016 11:05 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 30 Nov 2016 06:14 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161129_DF_PB | **UTP: 30-Nov-2016 13:02:20 JLJ** | **Checkcode: 589-887-SKC**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:11 JJ** | **Datafile: 161129P17**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.63	2.44E+06	0.73	Y	1.04	1.08	3%
ES 2378-TCDD	27.60	2.26E+07	0.79	Y	1.04	1.02	-2%

Dioxin/Furan QC Summary | **Acq'd: 30 Nov 2016 06:14 PSW** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_161129_DF_PB | **UTP: 30-Nov-2016 13:02:20 JLJ** | **Checkcode: 589-887-SKC**

Sample ID: SIL 15-104-2 | **Report: 02 Dec 2016 11:11 JJ** | **Datafile: 161129P17**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.94	2.23E+07	0.78	Y	-	-	-
CS 37Cl-2378-TCDD	27.62	2.35E+06	n/a	-	1.05	1.06	0%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America

Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016

Instrument ID: MM1 GC Column ID: ZB-5ms

VER Data Filename: 161129P17 Analysis Date: 30-NOV-2016 06:14:47

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.73	0.65 - 0.89	Y	10.3	8 - 12	Y

Processed: 02 Dec 2016 11:11 Analyst: JJ

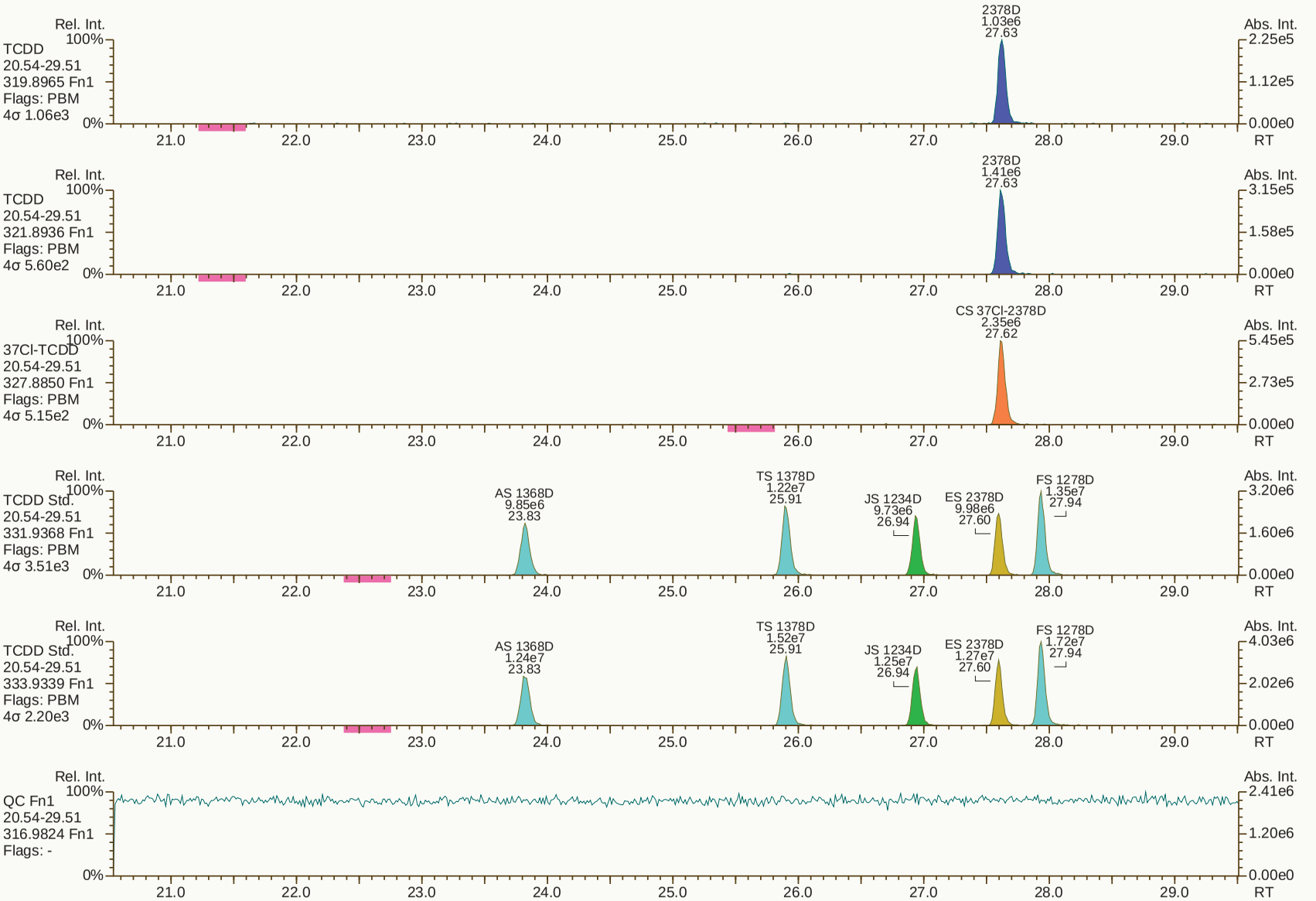
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: MM1_DF_12212015_14JUL2016
Instrument ID: MM1 GC Column ID: ZB-5ms
VER Data Filename: 161129P17 Analysis Date: 30-NOV-2016 06:14:47

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65 - 0.89	Y	98.2	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				10	7.9 - 12.7	Y

Processed: 02 Dec 2016 11:11 Analyst: JJ

SGS ID: CS3_161129_DF_PB | **Sample ID: SIL 15-104-2** | **Acq: 30-Nov-2016 06:14:47**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 3** | **User: PSW Datafile: 161129P17**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\CS3_161129_DF_PB.utp_res, saved 30-Nov-2016 13:02 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 8721, 5945, 5641 scc: 589-887 | *PKD: 30-Nov-2016 09:35 Printed: 02-Dec-2016 11:06 Page 1 of 1*

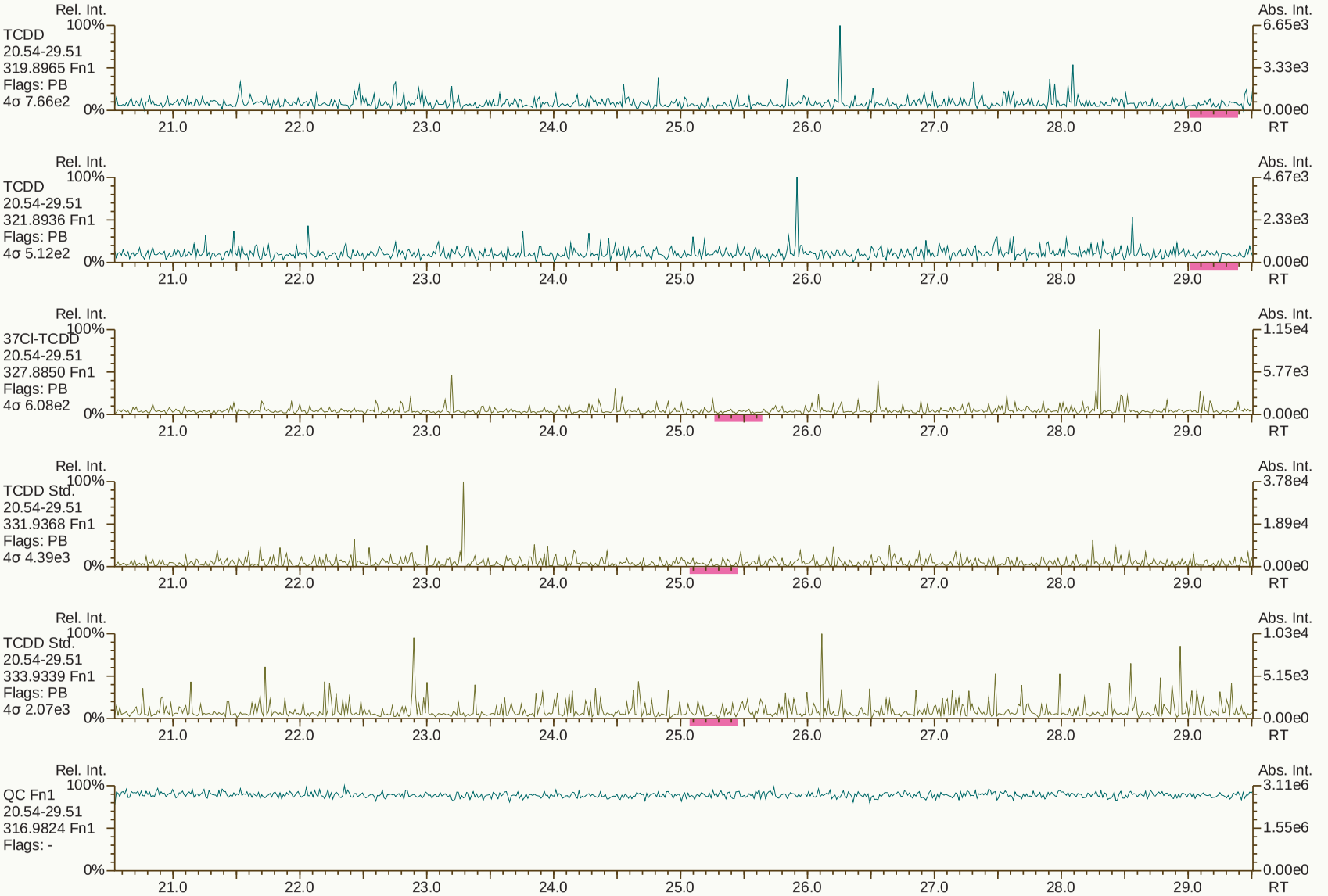
SGS ID: SBS_161128_DF_PC | **Sample ID: SIL 15-49-1** | **Acq: 29-Nov-2016 10:00:34**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: PSW Datafile: 161128P23**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\SBS_161128_DF_PC.utp_res, saved 30-Nov-2016 12:47 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 6134, 3197, 1080 scc: 088-819 | *PKD: 29-Nov-2016 14:19 Printed: 02-Dec-2016 11:05 Page 1 of 1*

SGS ID: SBS_161128_DF_PD | **Sample ID: SIL 15-49-1** | **Acq: 29-Nov-2016 15:02:00**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: PSW Datafile: 161128P29**

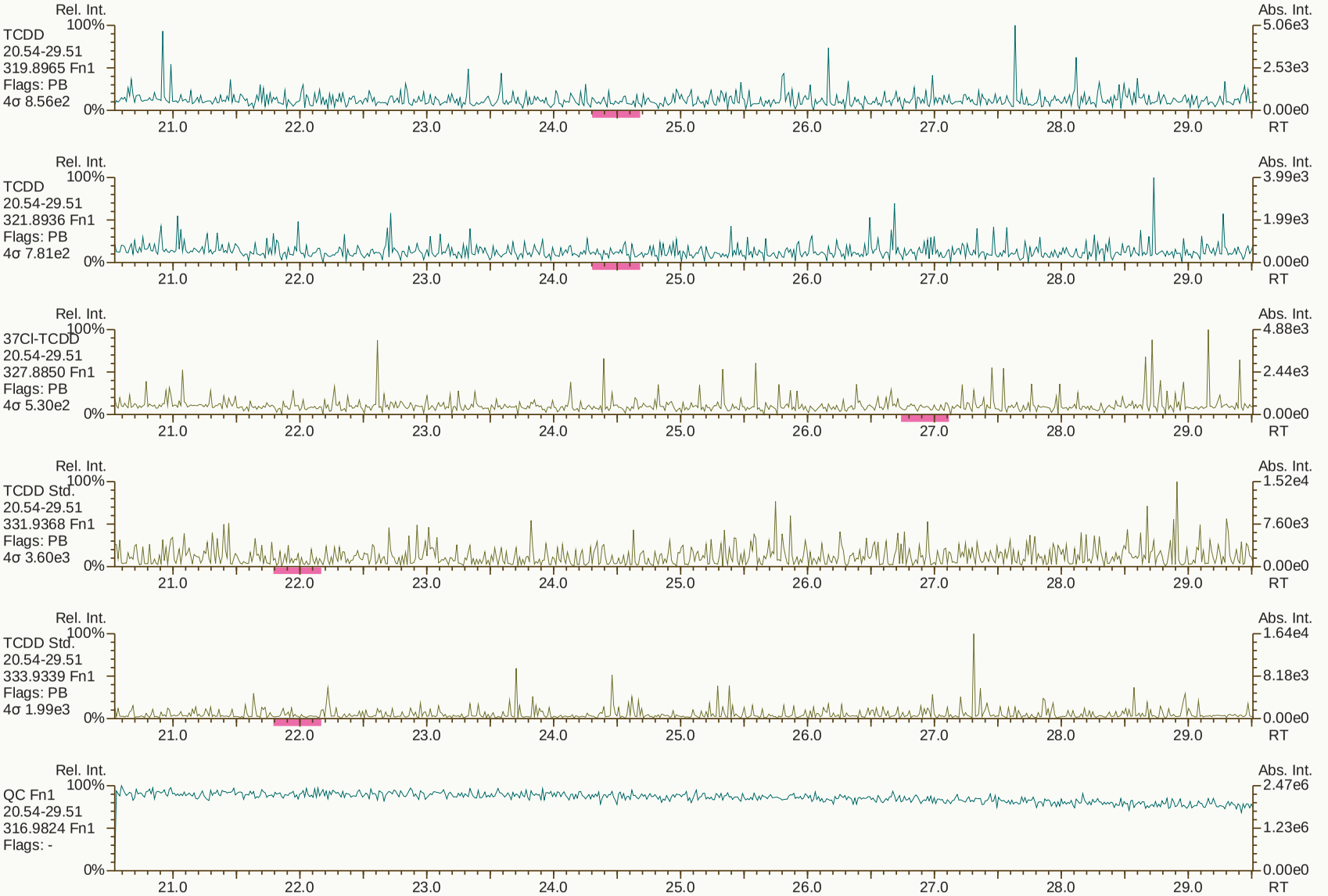
Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\SBS_161128_DF_PD.utp_res, saved 30-Nov-2016 12:47 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 1614, 9894, 7759 scc: 262-517 | *PKD: 29-Nov-2016 15:43 Printed: 02-Dec-2016 11:05 Page 1 of 1*

SGS ID: SBS_161129_DF_PC | **Sample ID: SIL 15-49-1** | **Acq: 30-Nov-2016 00:30:17**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: PSW Datafile: 161129P10**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\SBS_161129_DF_PC.utp_res, saved 30-Nov-2016 12:47 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 7663, 1062, 5577 scc: 577-920 *PKD: 30-Nov-2016 10:14 Printed: 02-Dec-2016 11:05 Page 1 of 1*

SGS ID: SBS_161129_DF_PD | **Sample ID: SIL 15-49-1** | **Acq: 30-Nov-2016 05:25:33**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: PSW Datafile: 161129P16**



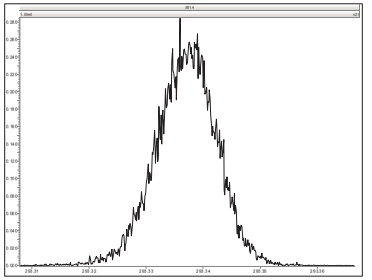
Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\SBS_161129_DF_PD.utp_res, saved 30-Nov-2016 12:47 (JLJ) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 9926, 0546, 1735 scc: 265-365 | *PKD: 30-Nov-2016 10:14 Printed: 02-Dec-2016 11:06 Page 1 of 1*

Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

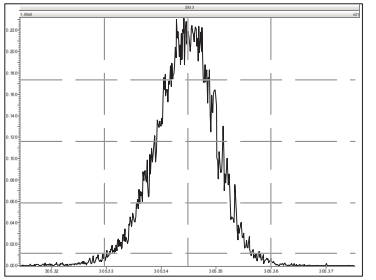
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 1 @ 200 (ppm)

Printed: Monday, November 28, 2016 15:13:13 Eastern Standard Time

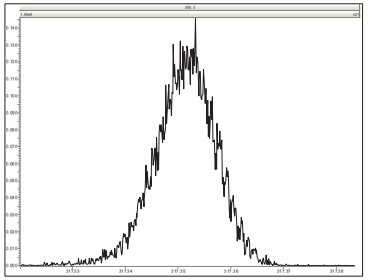
M 292.9824 R 12257



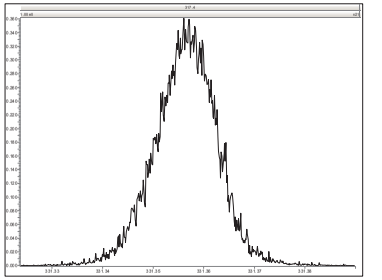
M 304.9824 R 11793



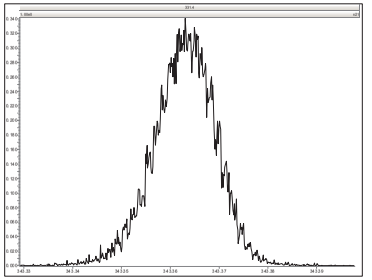
M 316.9824 R 13659



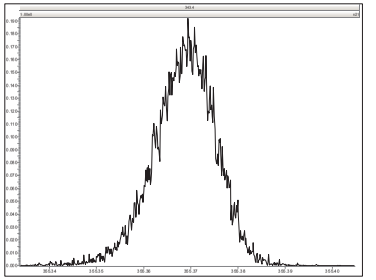
M 330.9792 R 12258



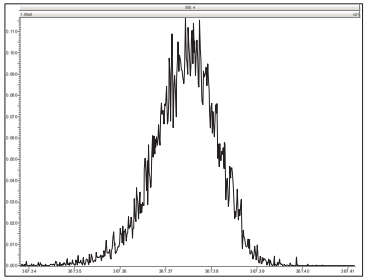
M 342.9792 R 12196



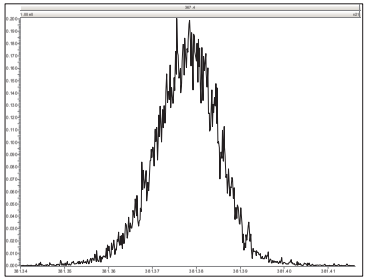
M 354.9792 R 11792



M 366.9792 R 11846



M 380.9760 R 11850

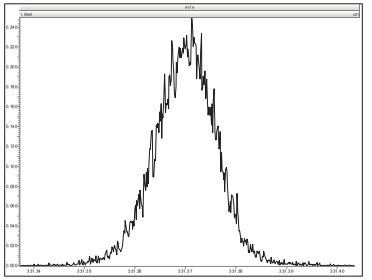


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

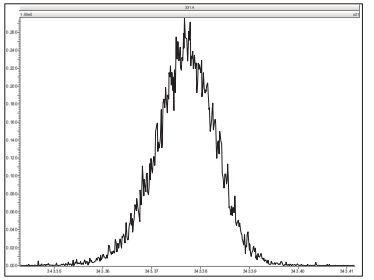
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 2 @ 200 (ppm)

Printed: Monday, November 28, 2016 15:13:55 Eastern Standard Time

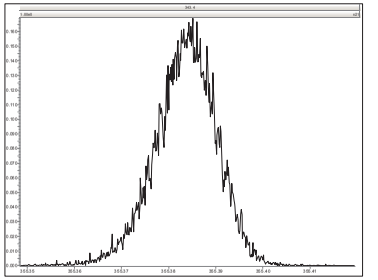
M 330.9792 R 11518



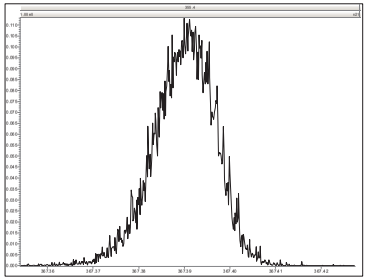
M 342.9792 R 11684



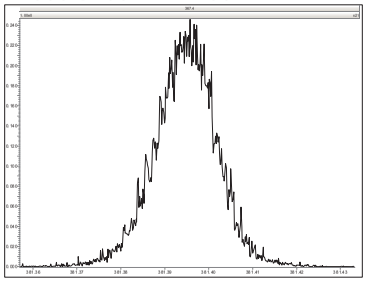
M 354.9792 R 11904



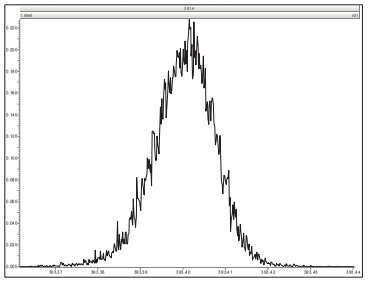
M 366.9792 R 12258



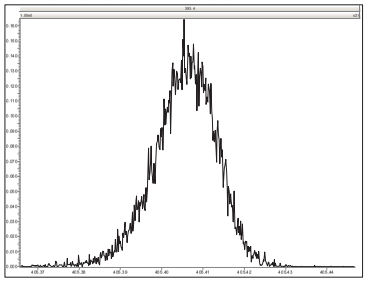
M 380.9760 R 12138



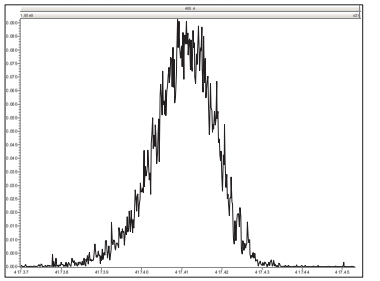
M 392.9760 R 11905



M 404.9760 R 12499



M 416.9760 R 11959

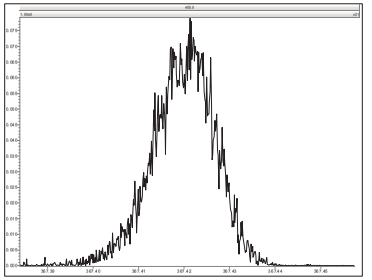


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

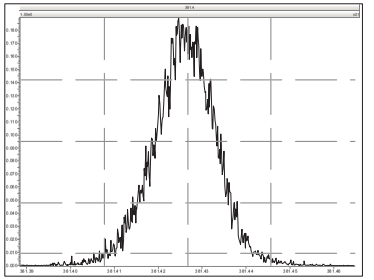
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 3 @ 200 (ppm)

Printed: Monday, November 28, 2016 15:14:37 Eastern Standard Time

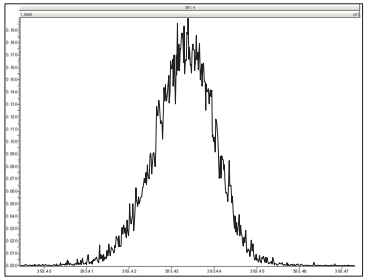
M 366.9792 R 12135



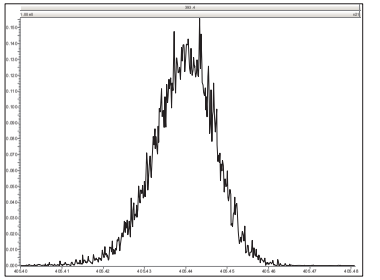
M 380.9760 R 12253



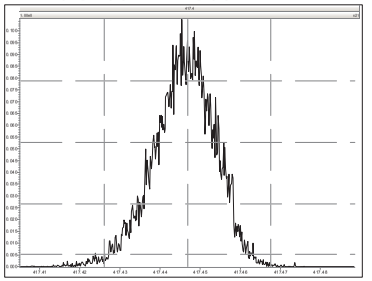
M 392.9760 R 12016



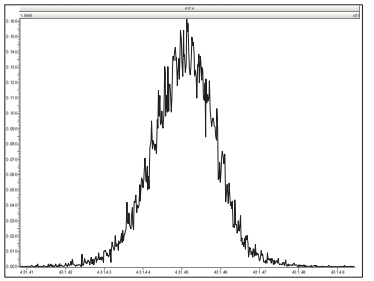
M 404.9760 R 11962



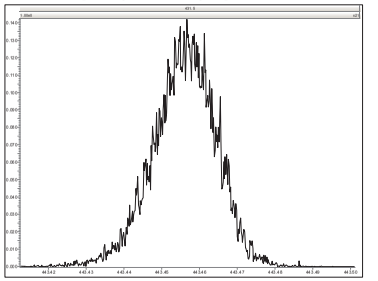
M 416.9760 R 11960



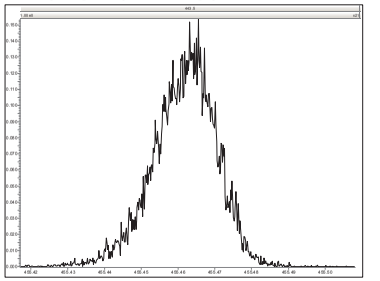
M 430.9728 R 12193



M 442.9728 R 11849



M 454.9728 R 11904



Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 4 @ 200 (ppm)

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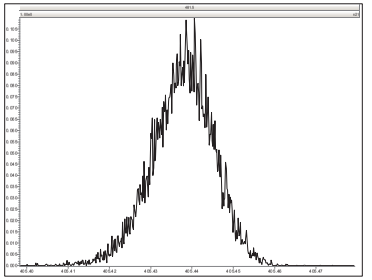
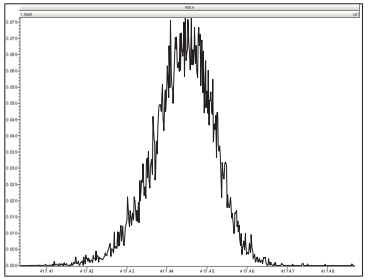
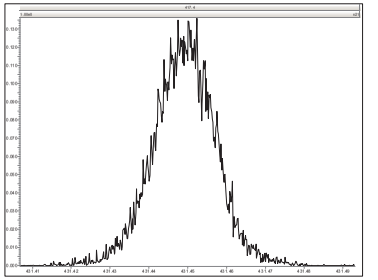
M 404.9760 R 11737



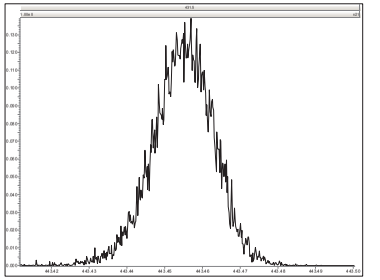
M 416.9760 R 12819



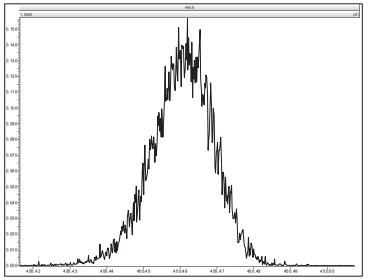
M 430.9728 R 12075



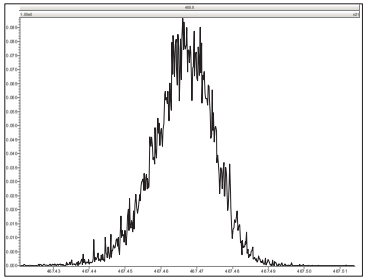
M 442.9728 R 12020



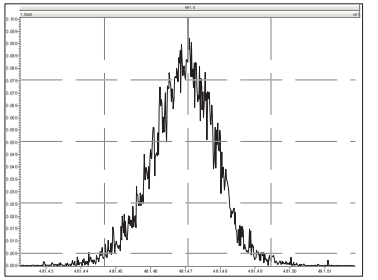
M 454.9728 R 12254



M 466.9728 R 12253



M 480.9696 R 11364



Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 5 @ 200 (ppm)

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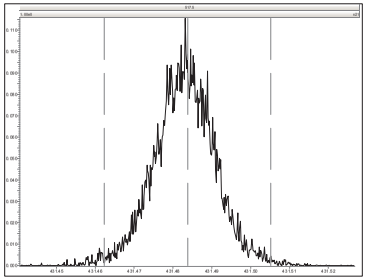
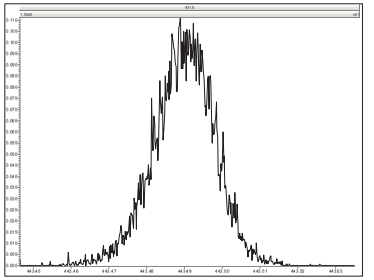
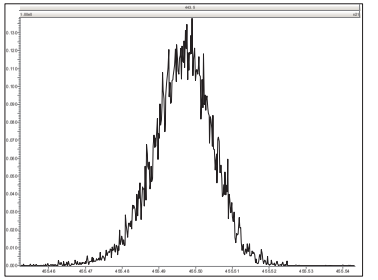
M 430.9728 R 12754



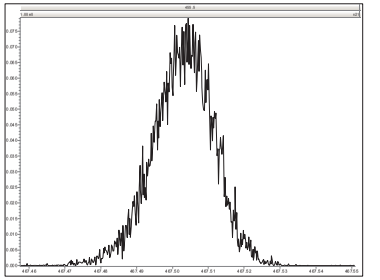
M 442.9728 R 12822



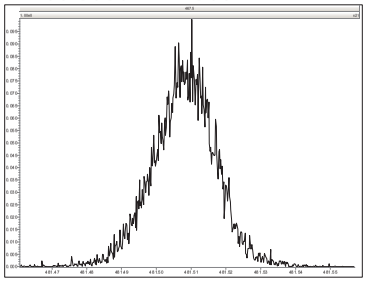
M 454.9728 R 13228



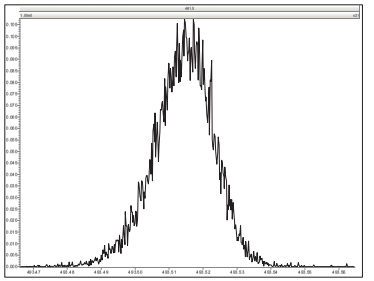
M 466.9728 R 13024



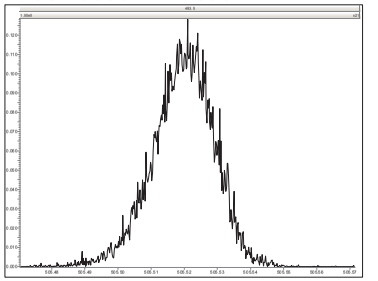
M 480.9696 R 11960



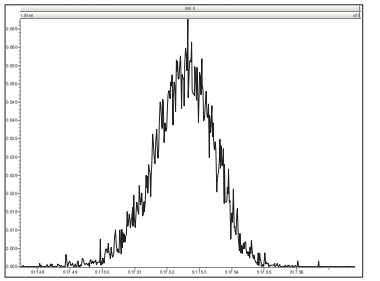
M 492.9696 R 12252



M 504.9696 R 12690



M 516.9697 R 12313



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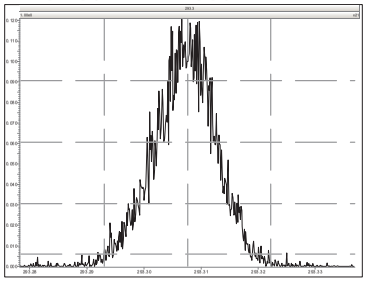
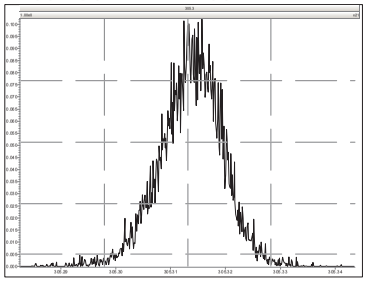
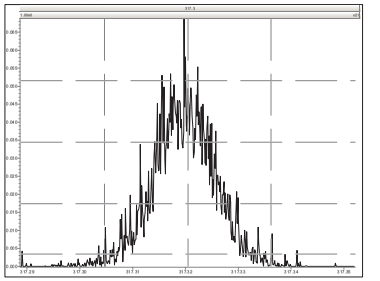
M 292.9824 R 11993



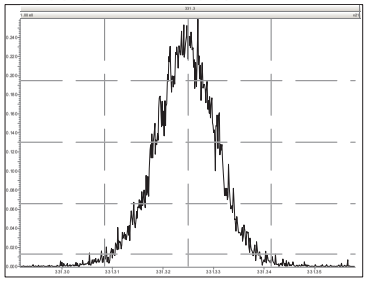
M 304.9824 R 12233



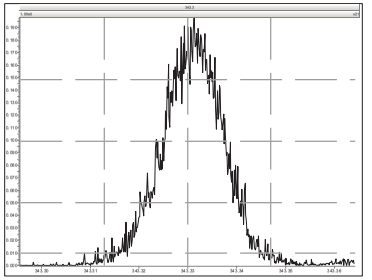
M 316.9824 R 13762



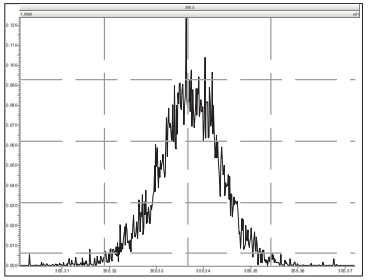
M 330.9792 R 12378



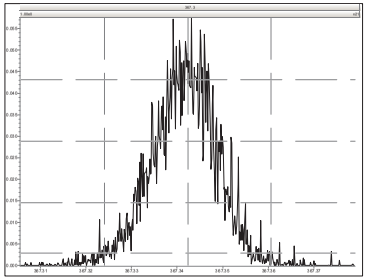
M 342.9792 R 12301



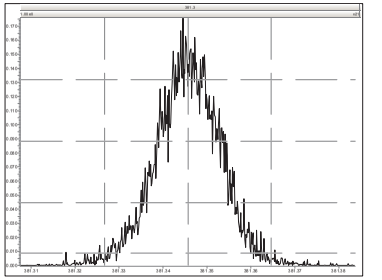
M 354.9792 R 12562



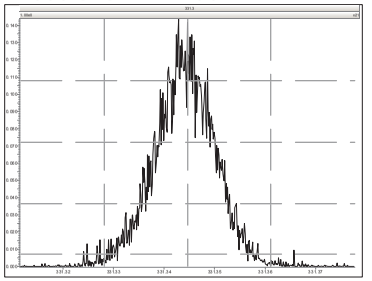
M 366.9792 R 12626



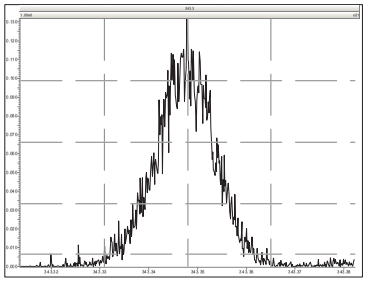
M 380.9760 R 12376



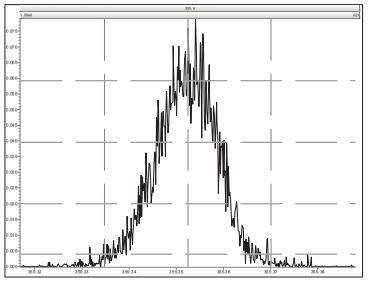
M 330.9792 R 12631



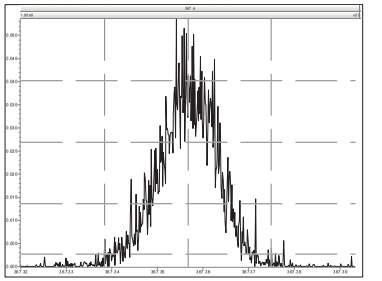
M 342.9792 R 12855



M 354.9792 R 12887



M 366.9792 R 13750



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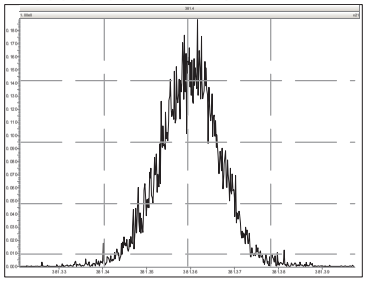
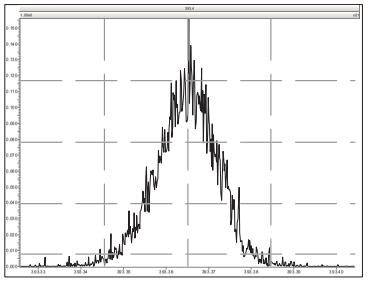
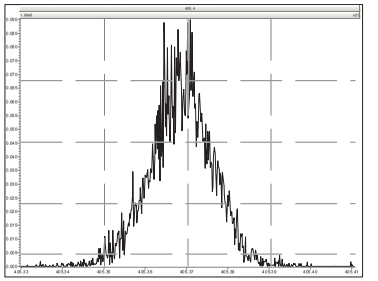
M 380.9760 R 11820



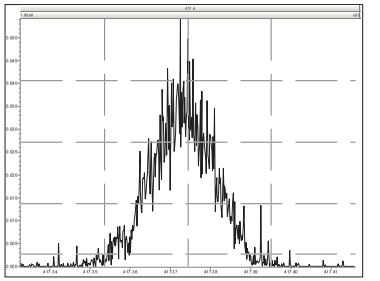
M 392.9760 R 12177



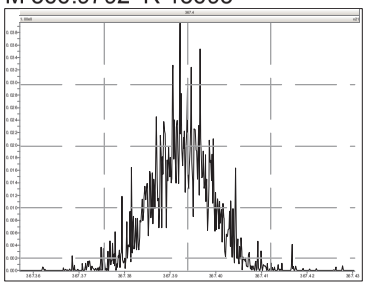
M 404.9760 R 12887



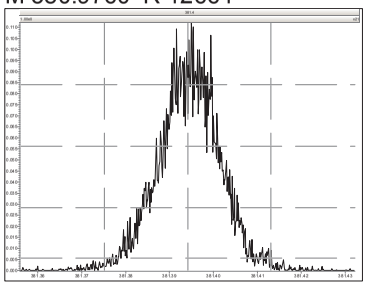
M 416.9760 R 13006



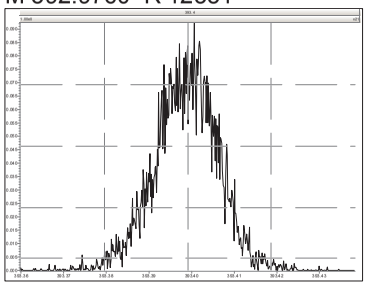
M 366.9792 R 13693



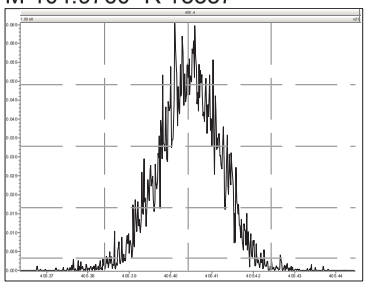
M 380.9760 R 12664



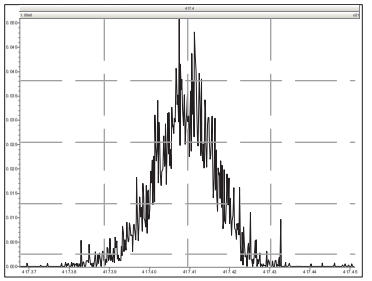
M 392.9760 R 12351



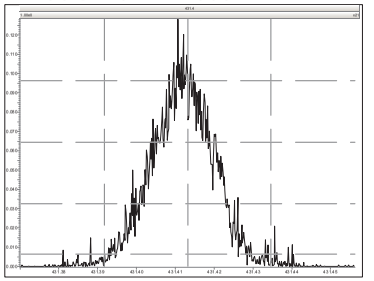
M 404.9760 R 13337



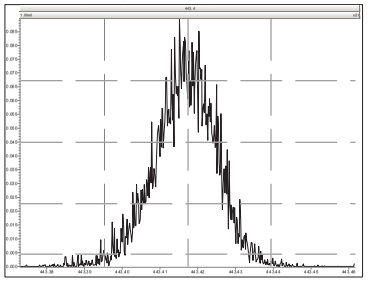
M 416.9760 R 13927



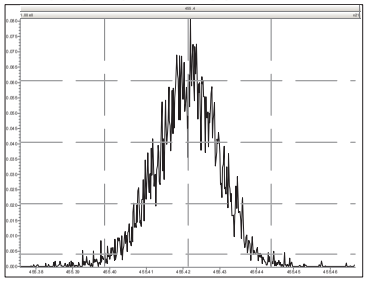
M 430.9728 R 12565



M 442.9728 R 12857



M 454.9728 R 12793



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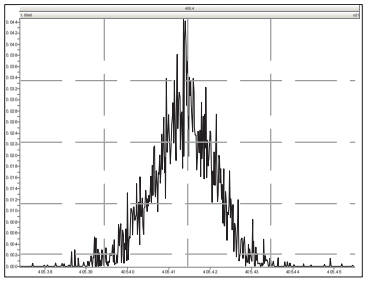
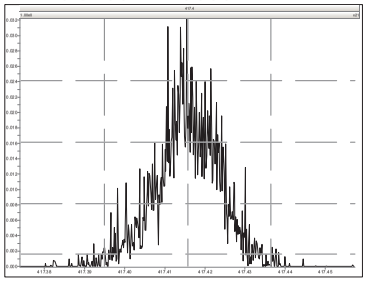
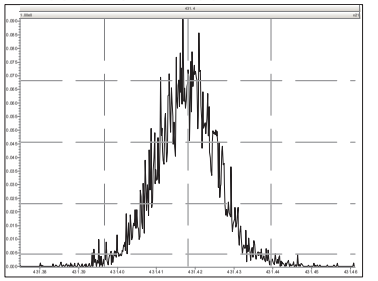
M 404.9760 R 14206



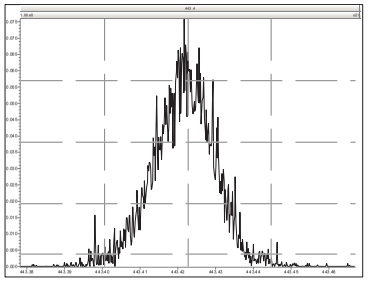
M 416.9760 R 15556



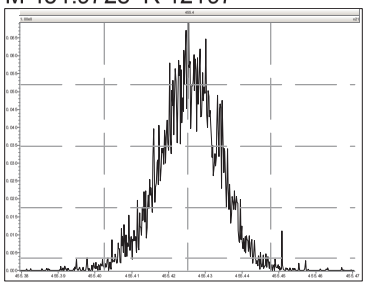
M 430.9728 R 11861



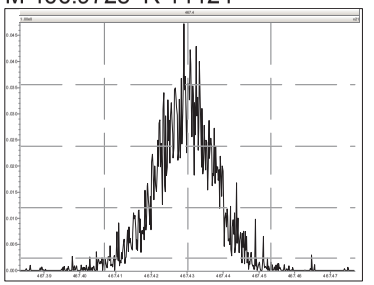
M 442.9728 R 13192



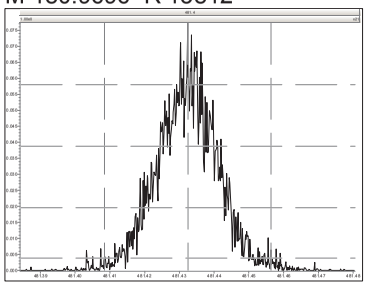
M 454.9728 R 12197



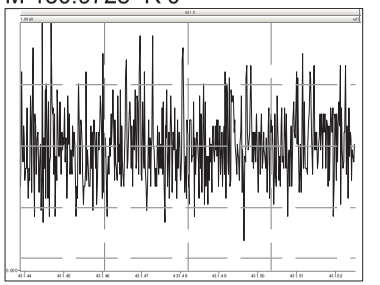
M 466.9728 R 14124



M 480.9696 R 13812



M 430.9728 R 0



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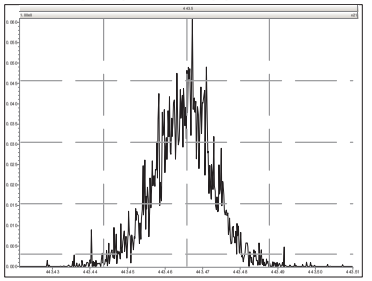
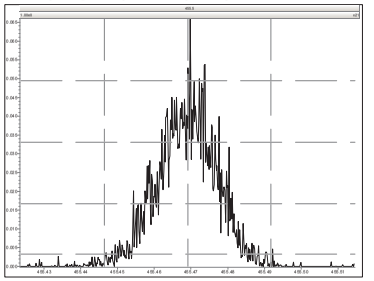
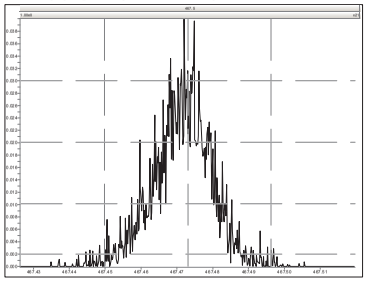


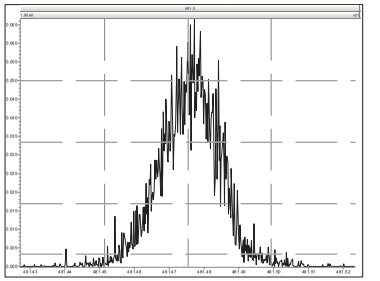
M 454.9728 R 13240



M 466.9728 R 14462



M 480.9696 R 14643



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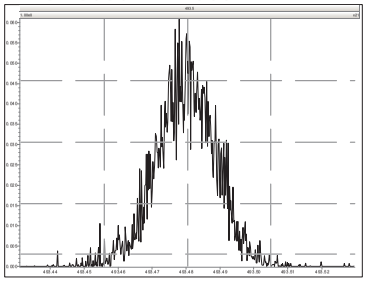
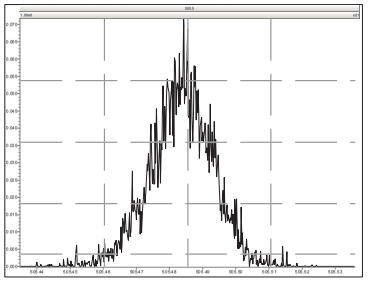
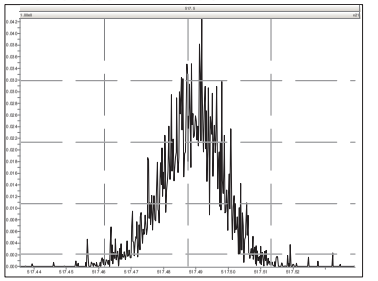
M 492.9696 R 14053



M 504.9696 R 13505



M 516.9697 R 13987



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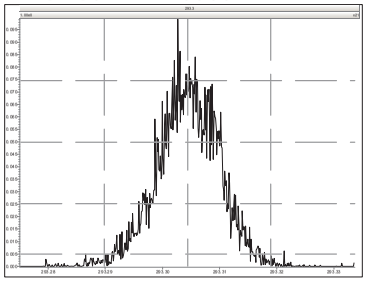
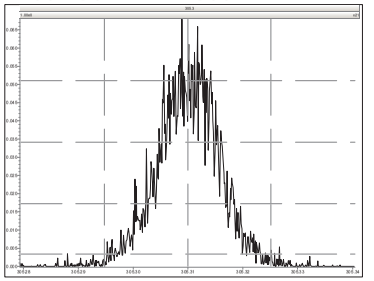
Printed: Tuesday, November 29, 2016 11:46:59 Eastern Standard Time

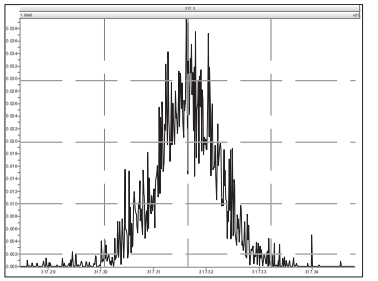
M 292.9824 R 13088



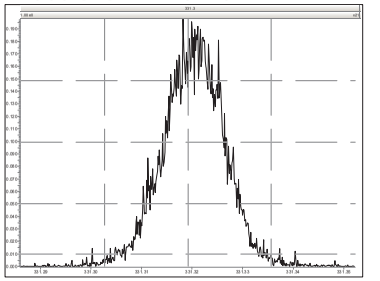
M 304.9824 R 12953



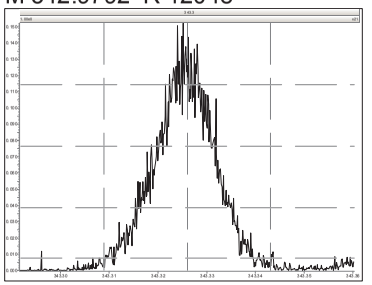
M 316.9824 R 12920



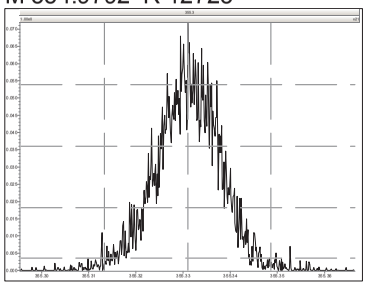
M 330.9792 R 13143



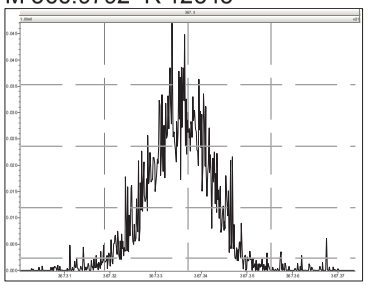
M 342.9792 R 12048



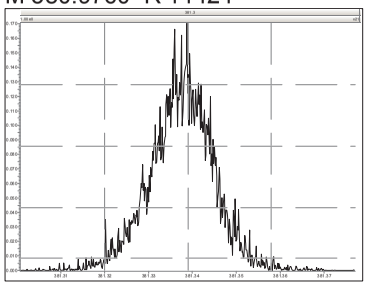
M 354.9792 R 12723



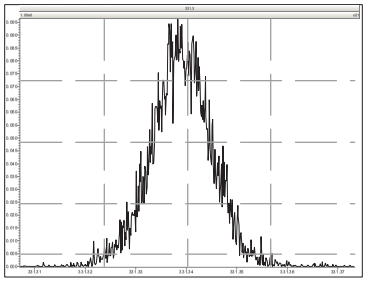
M 366.9792 R 12345



M 380.9760 R 11424



M 330.9792 R 13227



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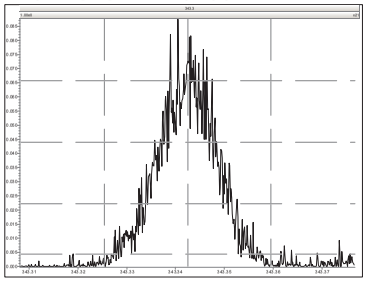
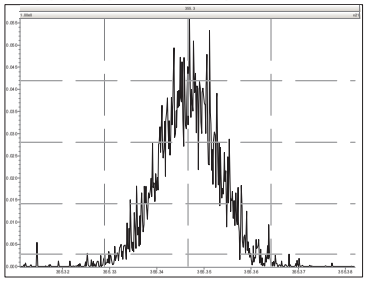


M 354.9792 R 13773



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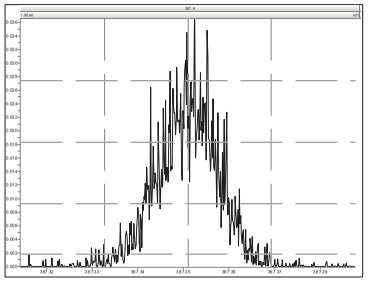

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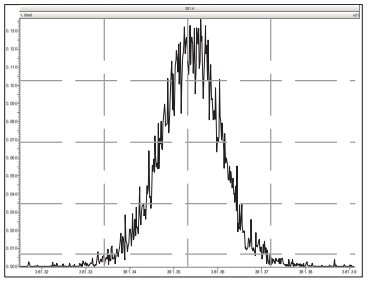
M 380.9760 R 12537



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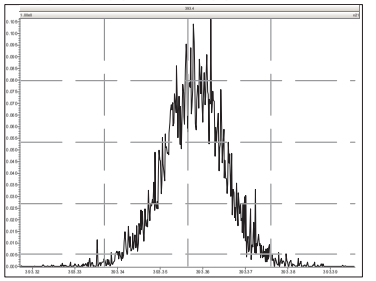
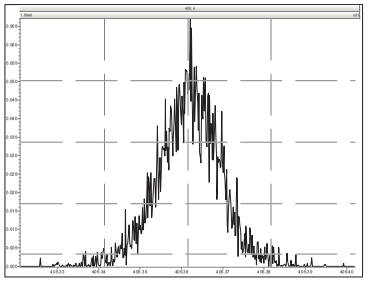
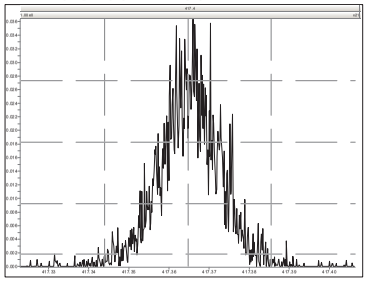


M 404.9760 R 12961



M 416.9760 R 13812



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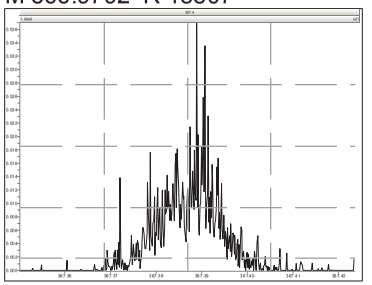
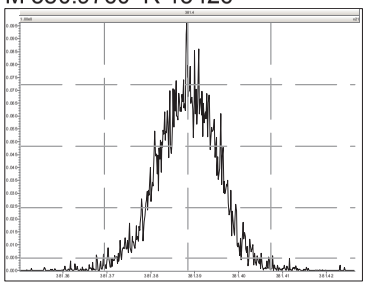


M 380.9760 R 13426



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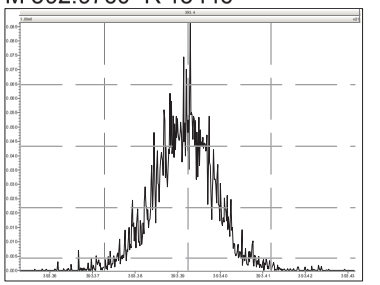

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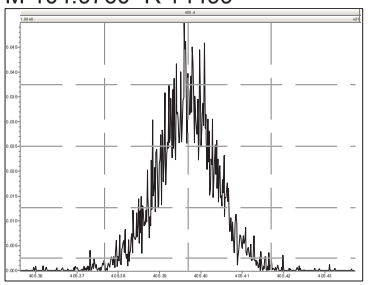
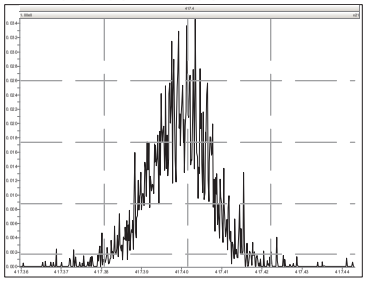
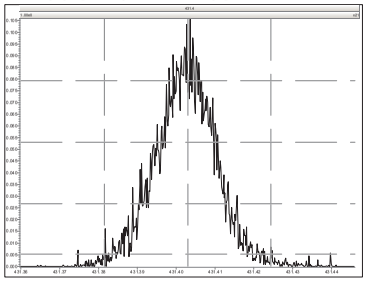


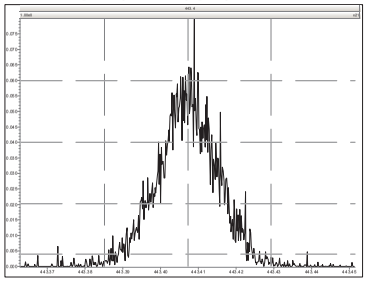
M 416.9760 R 15331



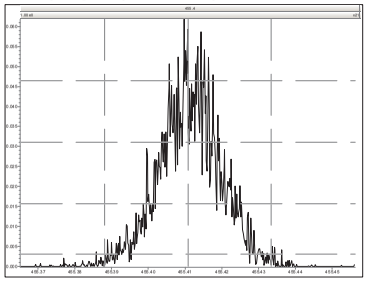
M 430.9728 R 12109



M 442.9728 R 13928



M 454.9728 R 14454



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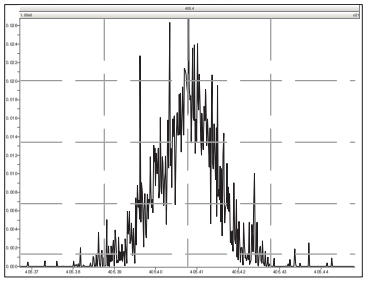
M 404.9760 R 14909



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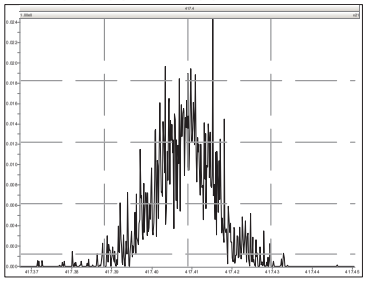
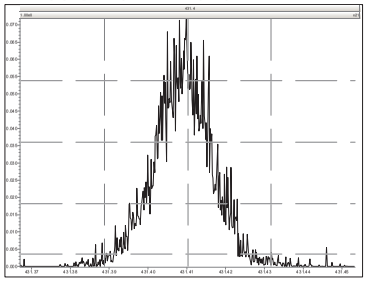
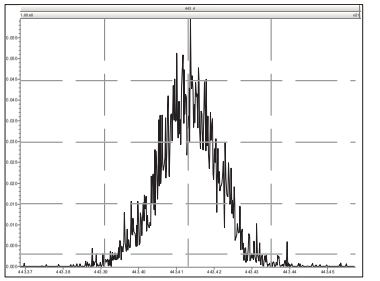


M 430.9728 R 12616



M 442.9728 R 13892



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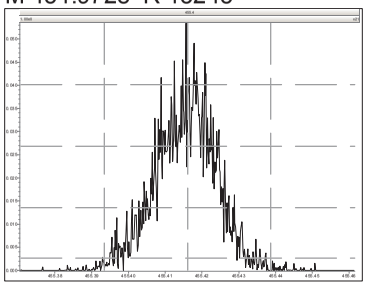
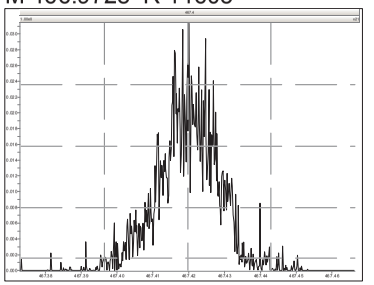
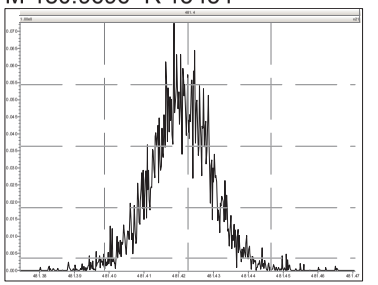


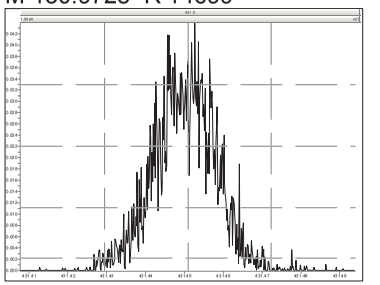
M 466.9728 R 14605



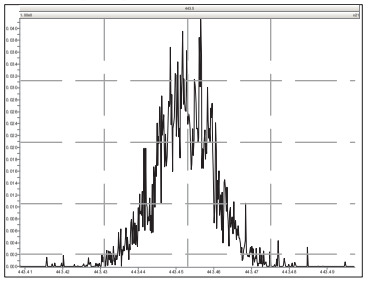
M 480.9696 R 13454



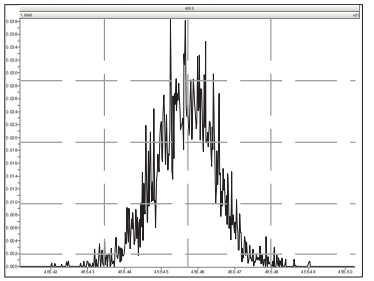
M 430.9728 R 14699



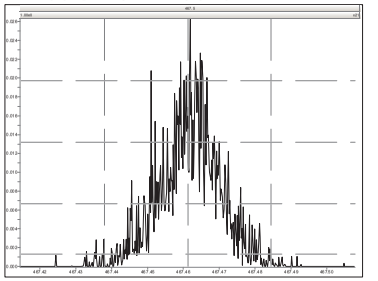
M 442.9728 R 14044



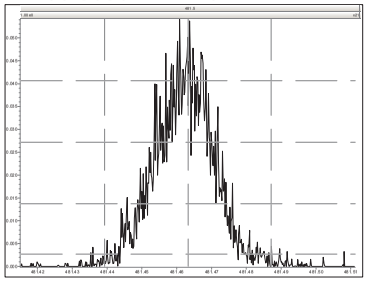
M 454.9728 R 14292



M 466.9728 R 16316



M 480.9696 R 14204



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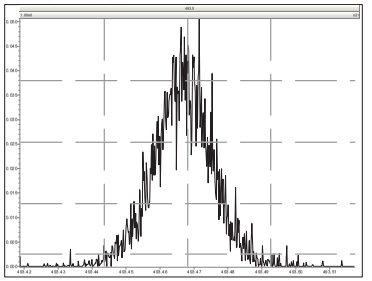
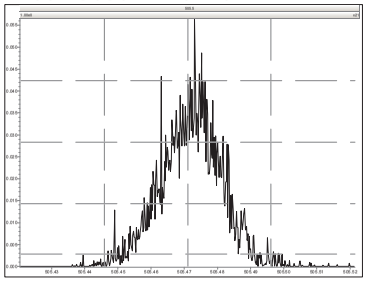
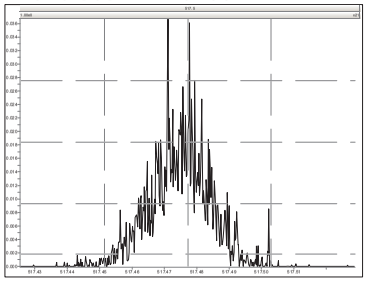
M 492.9696 R 14690



M 504.9696 R 13426



M 516.9697 R 16288



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File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 1 @ 200 (ppm)

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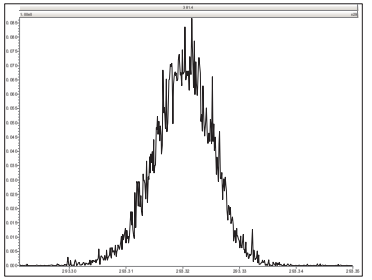
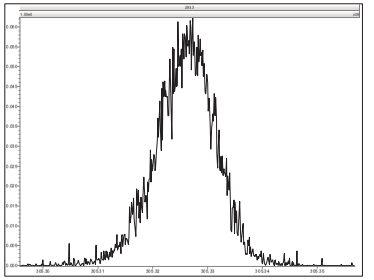
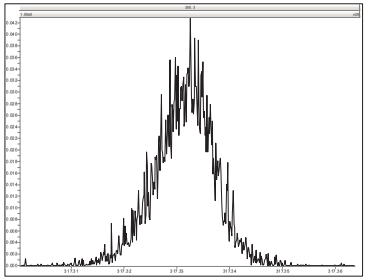
M 292.9824 R 12815



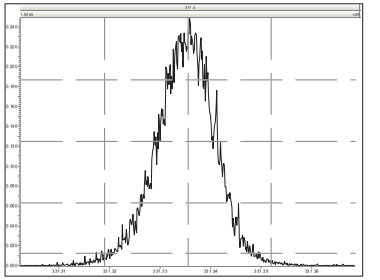
M 304.9824 R 12562



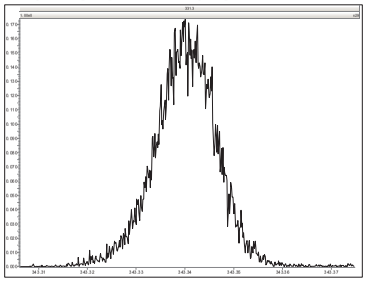
M 316.9824 R 12374



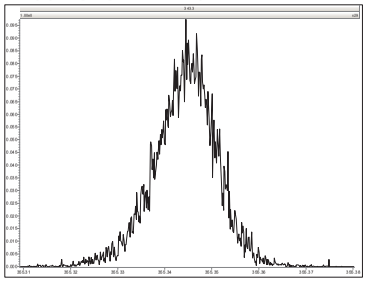
M 330.9792 R 12021



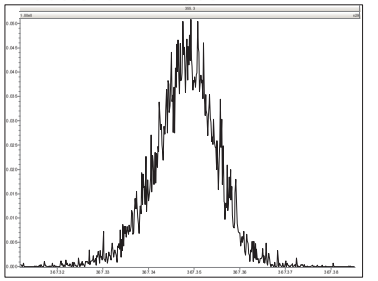
M 342.9792 R 12019



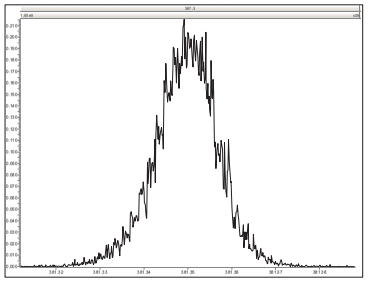
M 354.9792 R 12314



M 366.9792 R 13091



M 380.9760 R 12255



Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 2 @ 200 (ppm)

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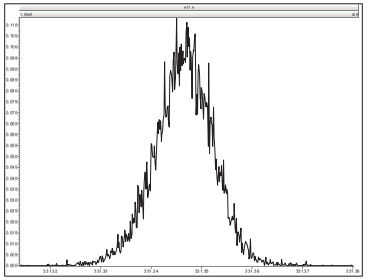
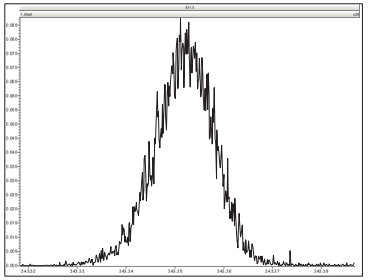
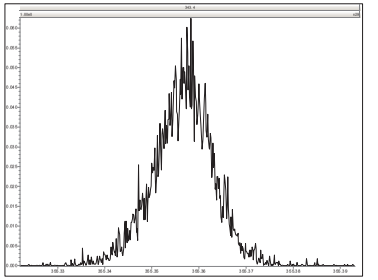
M 330.9792 R 12022



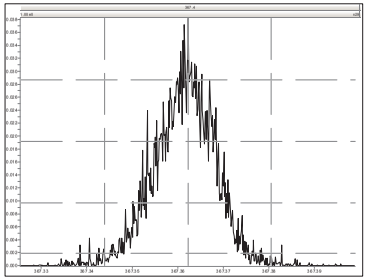
M 342.9792 R 12756



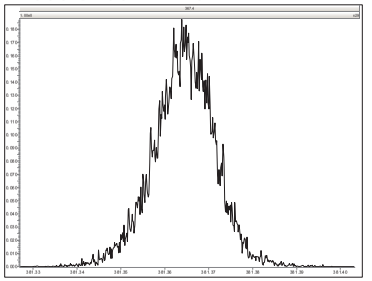
M 354.9792 R 13226



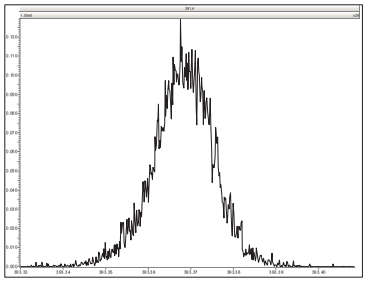
M 366.9792 R 13086



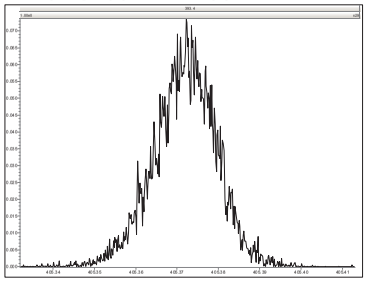
M 380.9760 R 12311



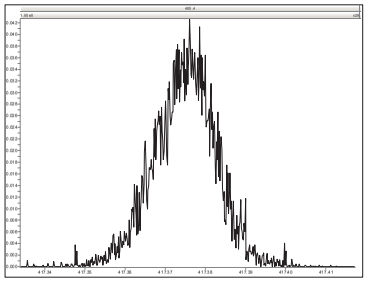
M 392.9760 R 11904



M 404.9760 R 12253



M 416.9760 R 13228

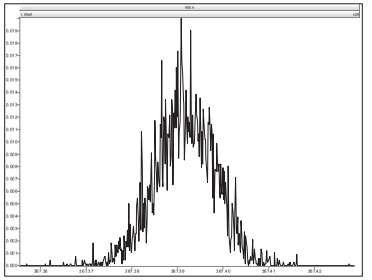


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

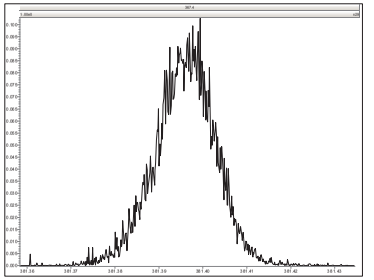
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, November 29, 2016 16:55:25 Eastern Standard Time

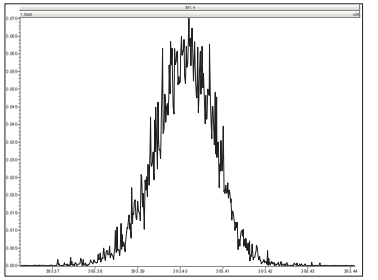
M 366.9792 R 13816



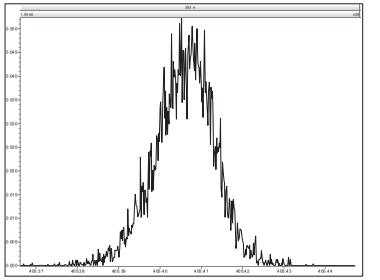
M 380.9760 R 12565



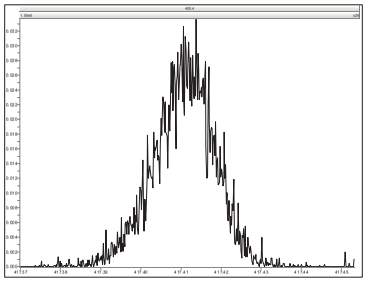
M 392.9760 R 12316



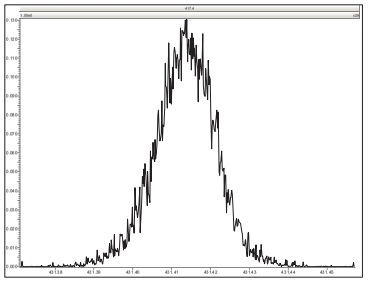
M 404.9760 R 12254



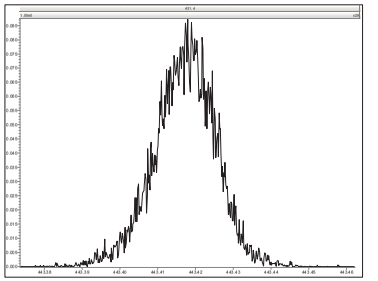
M 416.9760 R 13091



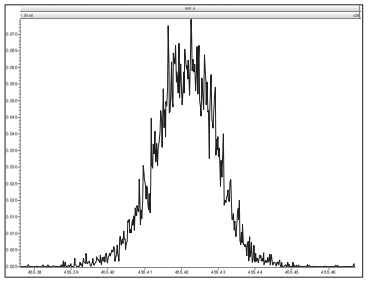
M 430.9728 R 13085



M 442.9728 R 12499



M 454.9728 R 12956

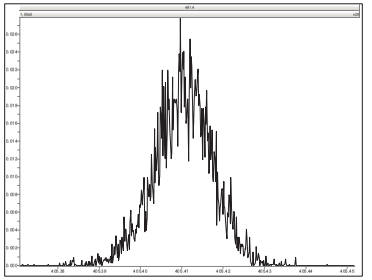


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

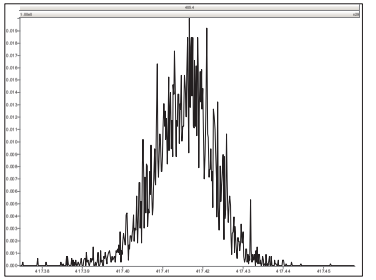
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, November 29, 2016 16:56:02 Eastern Standard Time

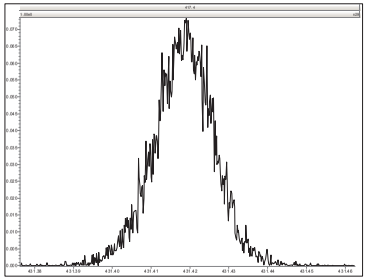
M 404.9760 R 13512



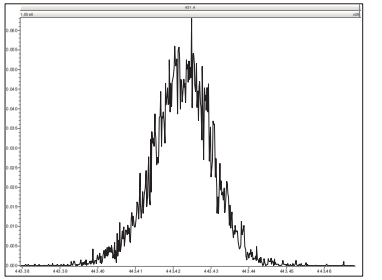
M 416.9760 R 15435



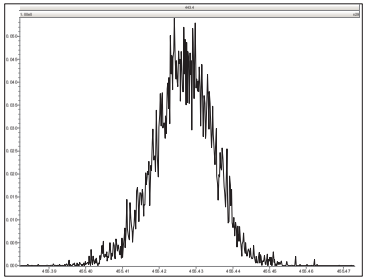
M 430.9728 R 12256



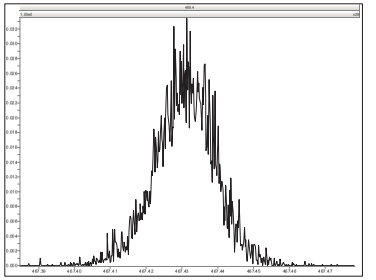
M 442.9728 R 12886



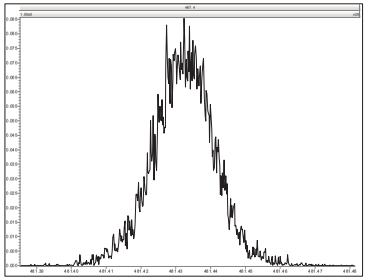
M 454.9728 R 13226



M 466.9728 R 12564



M 480.9696 R 12315

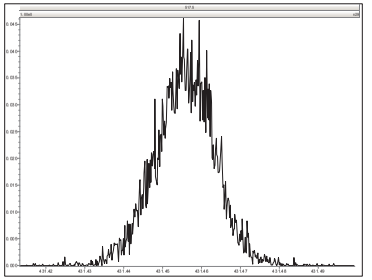


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

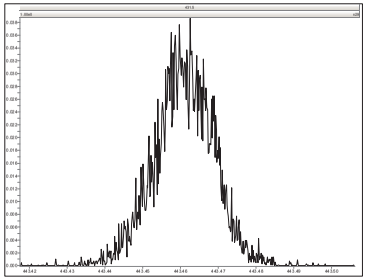
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, November 29, 2016 16:56:35 Eastern Standard Time

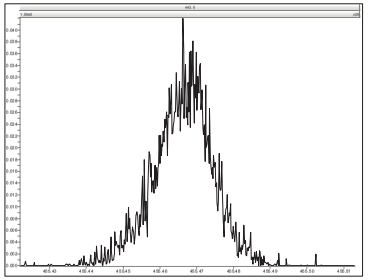
M 430.9728 R 12628



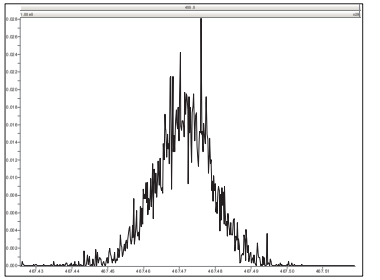
M 442.9728 R 13813



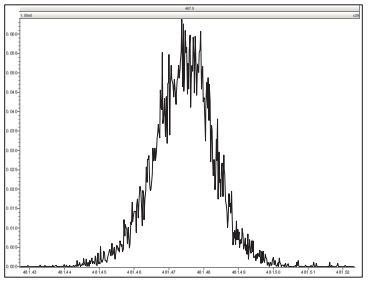
M 454.9728 R 12194



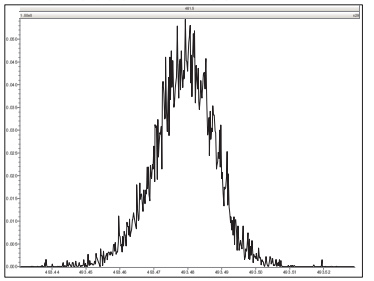
M 466.9728 R 13659



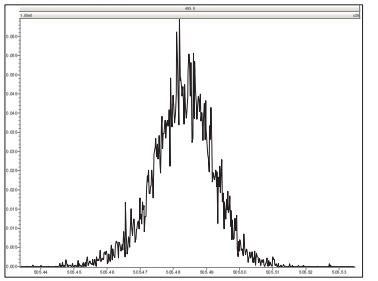
M 480.9696 R 12623



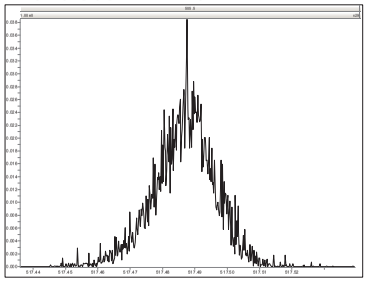
M 492.9696 R 12755



M 504.9696 R 12194



M 516.9697 R 14042



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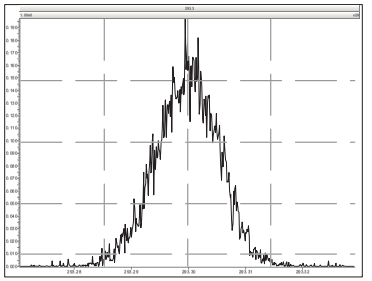
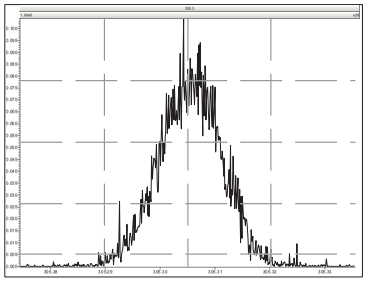
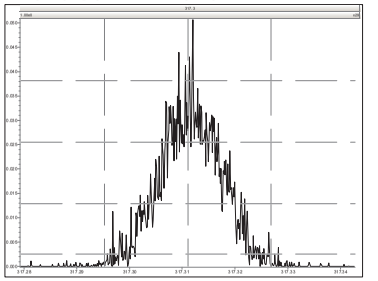
M 292.9824 R 11884



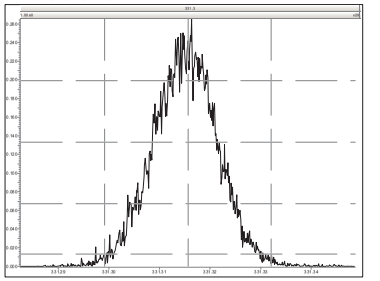
M 304.9824 R 12986



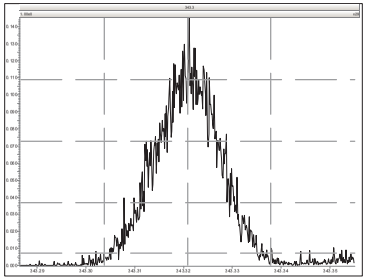
M 316.9824 R 13454



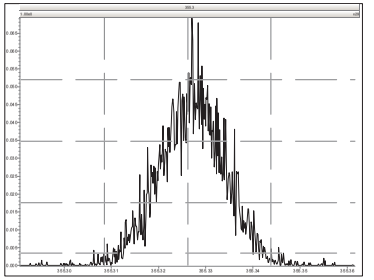
M 330.9792 R 11494



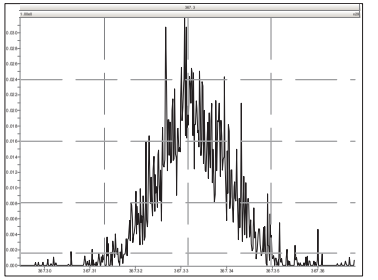
M 342.9792 R 11990



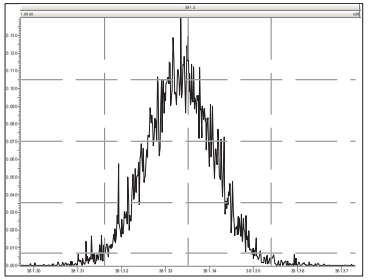
M 354.9792 R 12756



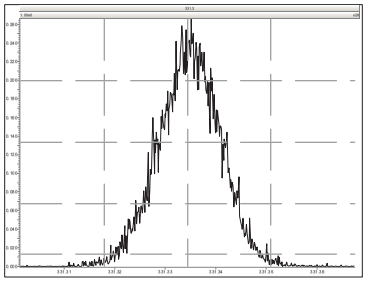
M 366.9792 R 12723



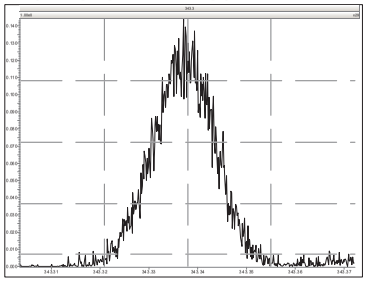
M 380.9760 R 11160



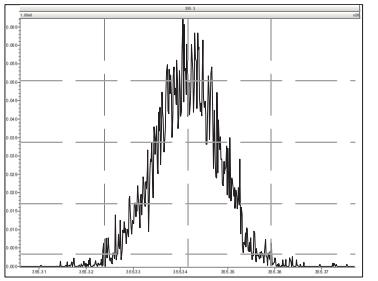
M 330.9792 R 11794



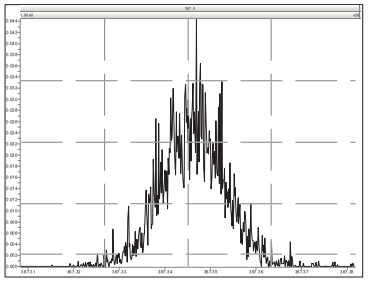
M 342.9792 R 12290



M 354.9792 R 13094



M 366.9792 R 14060



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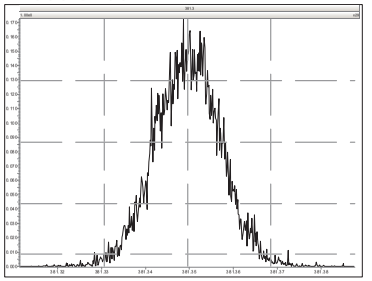
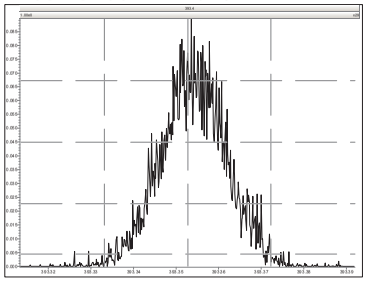
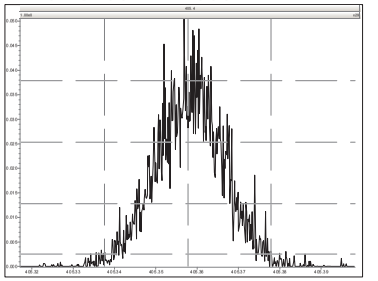
M 380.9760 R 11717



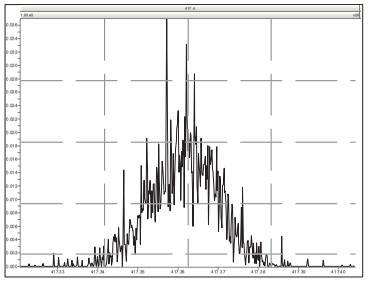
M 392.9760 R 11628



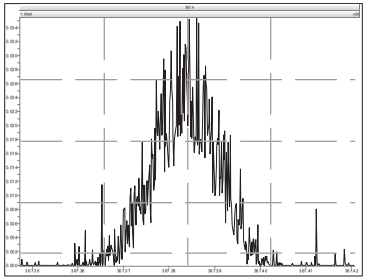
M 404.9760 R 11330



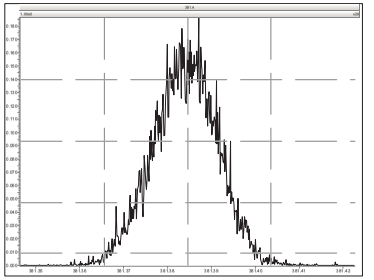
M 416.9760 R 14080



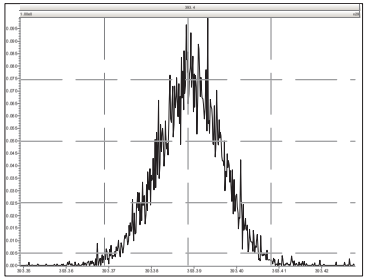
M 366.9792 R 13001



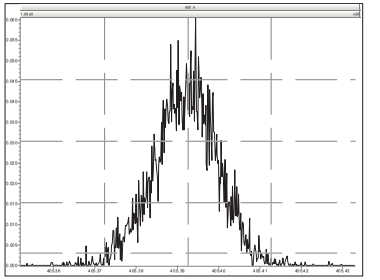
M 380.9760 R 11441



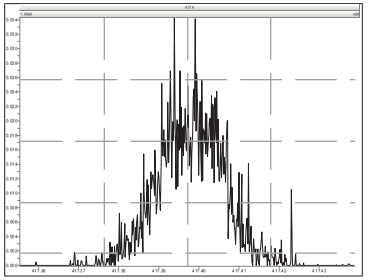
M 392.9760 R 12380



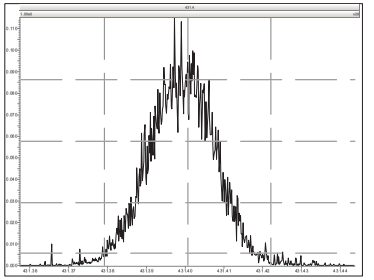
M 404.9760 R 12510



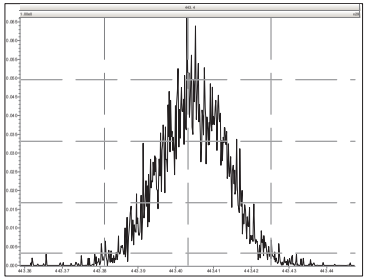
M 416.9760 R 13074



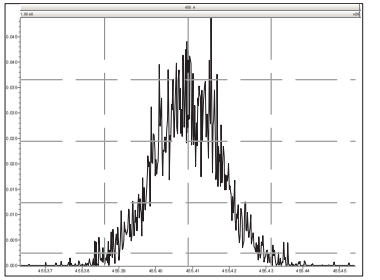
M 430.9728 R 11110



M 442.9728 R 11877



M 454.9728 R 12257



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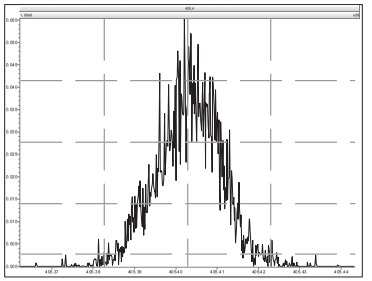
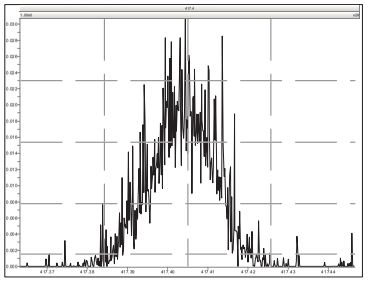
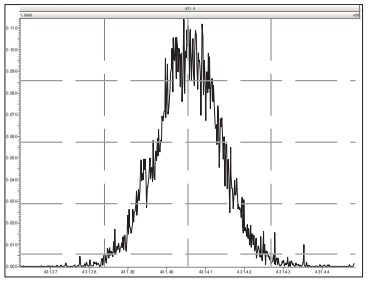
M 404.9760 R 13296



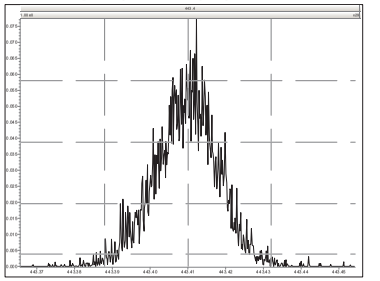
M 416.9760 R 13337



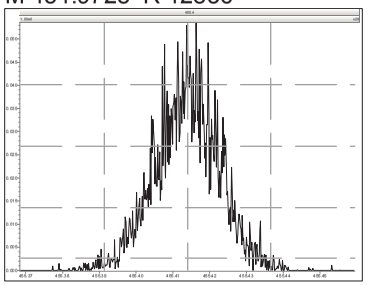
M 430.9728 R 11421



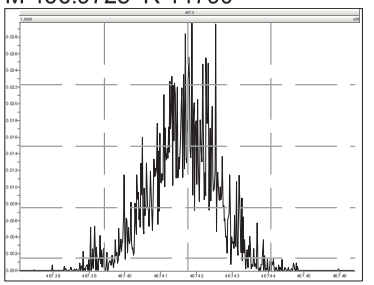
M 442.9728 R 12345



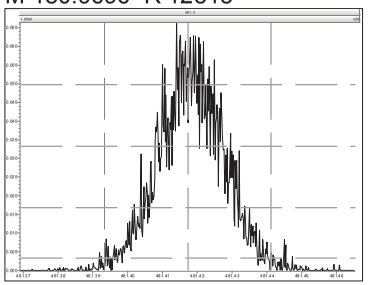
M 454.9728 R 12836



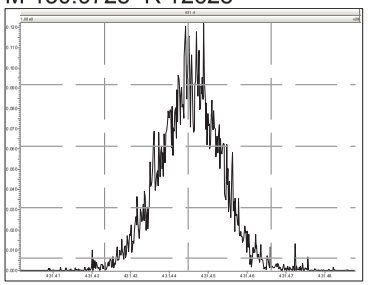
M 466.9728 R 14790



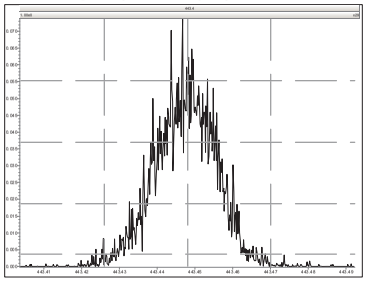
M 480.9696 R 12315



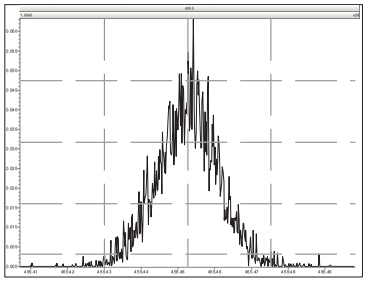
M 430.9728 R 12628



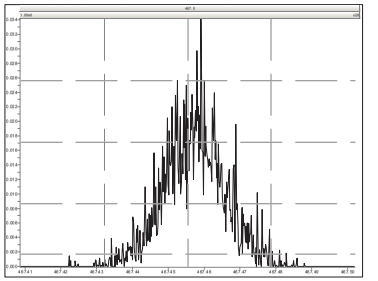
M 442.9728 R 12628



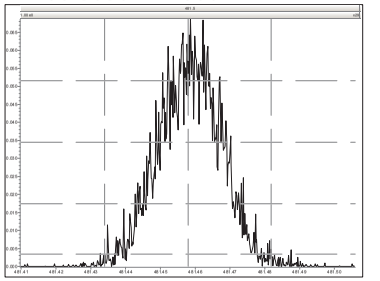
M 454.9728 R 13132



M 466.9728 R 14220



M 480.9696 R 13061



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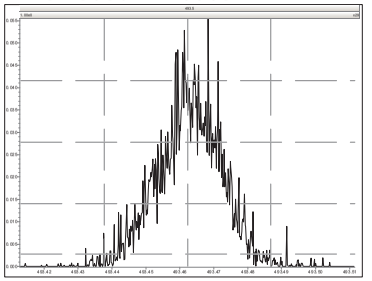
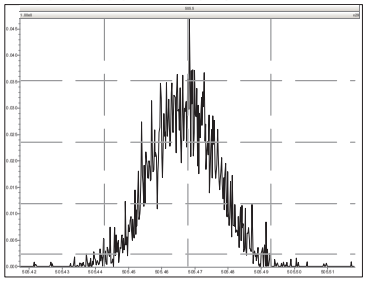
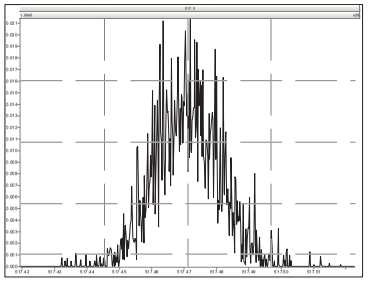
M 492.9696 R 13089



M 504.9696 R 12828



M 516.9697 R 15452



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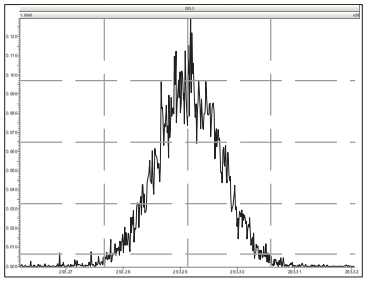
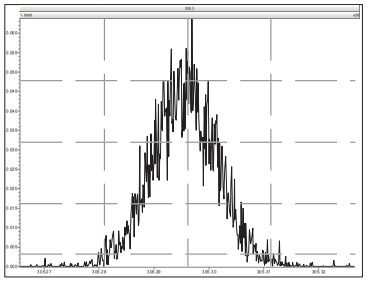
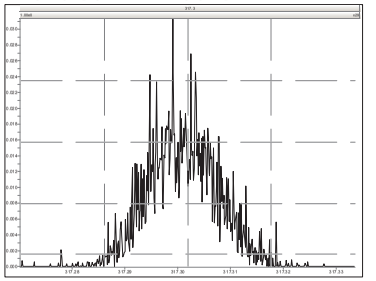
M 292.9824 R 11848



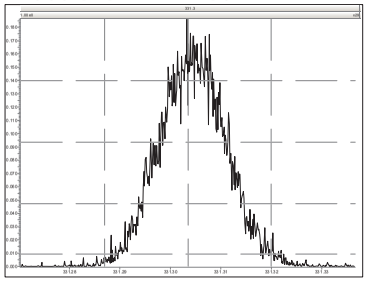
M 304.9824 R 12136



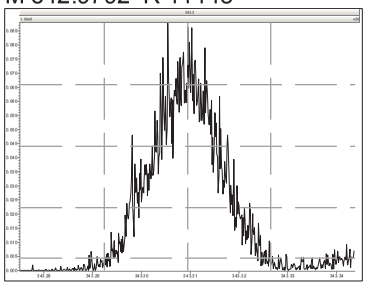
M 316.9824 R 13029



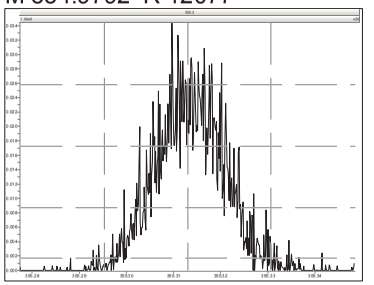
M 330.9792 R 11198



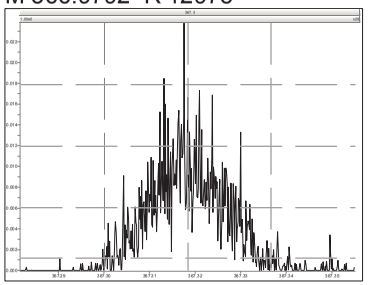
M 342.9792 R 11448



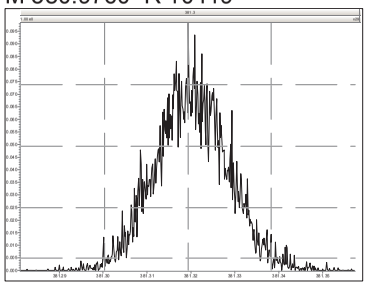
M 354.9792 R 12077



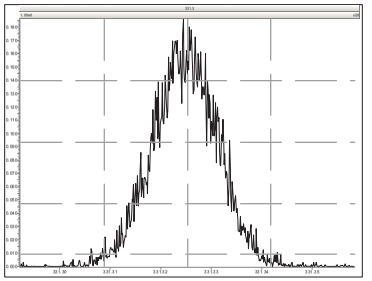
M 366.9792 R 12975



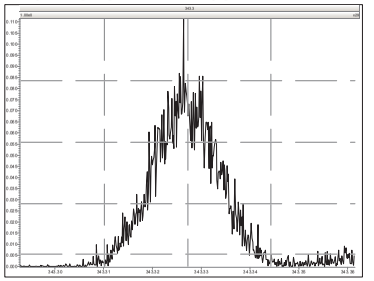
M 380.9760 R 10419



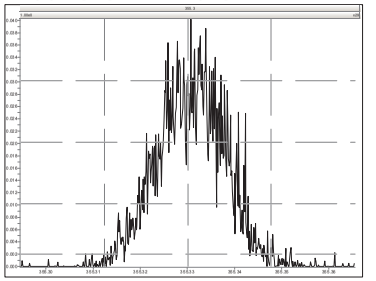
M 330.9792 R 11110



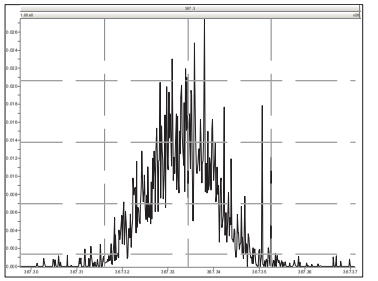
M 342.9792 R 11739



M 354.9792 R 12019



M 366.9792 R 13443



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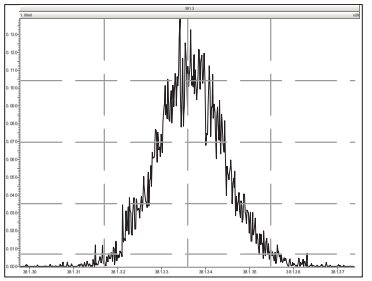
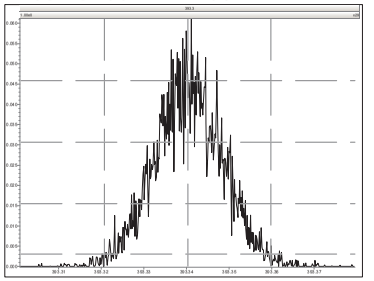
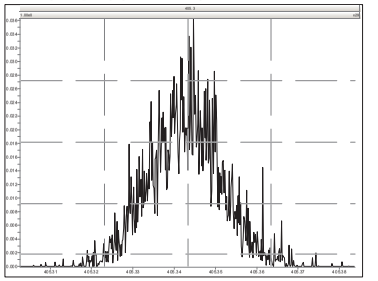
M 380.9760 R 11228



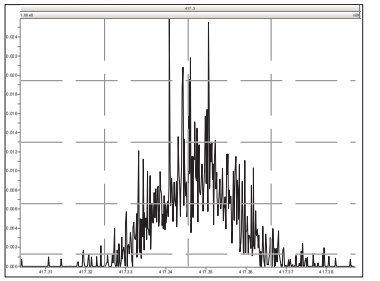
M 392.9760 R 11468



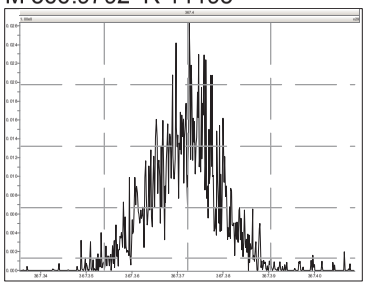
M 404.9760 R 11827



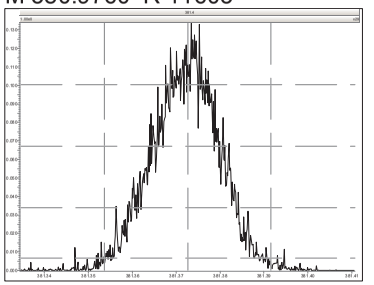
M 416.9760 R 13090



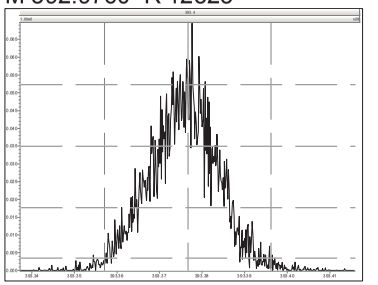
M 366.9792 R 14495



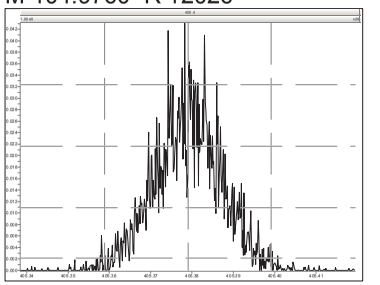
M 380.9760 R 11603



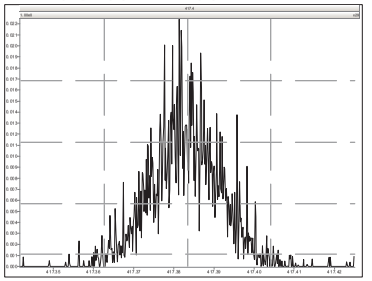
M 392.9760 R 12323



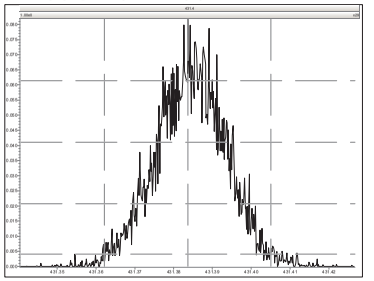
M 404.9760 R 12026



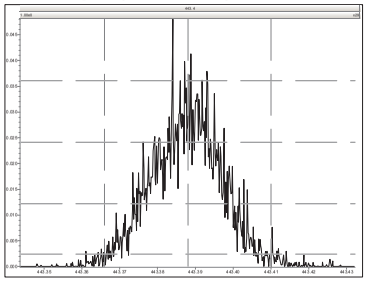
M 416.9760 R 12637



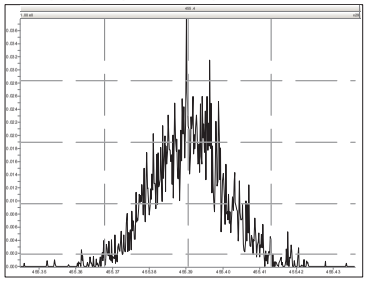
M 430.9728 R 10822



M 442.9728 R 11415



M 454.9728 R 11261



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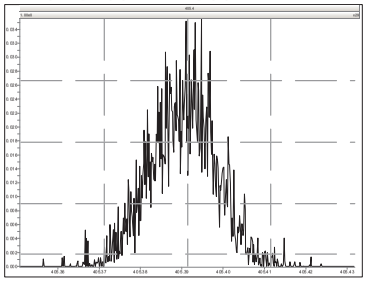
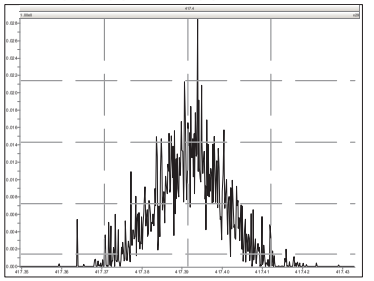
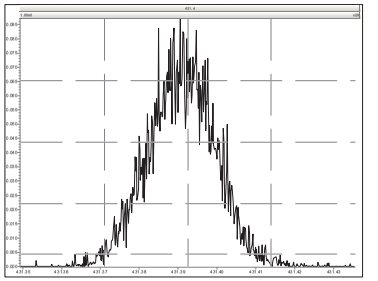
M 404.9760 R 12956



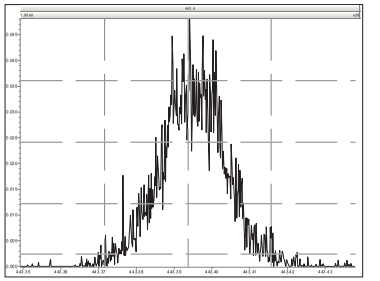
M 416.9760 R 14582



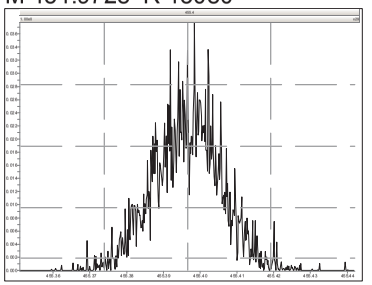
M 430.9728 R 11086



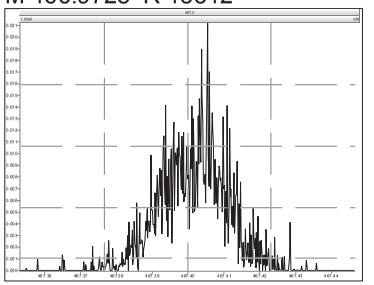
M 442.9728 R 11991



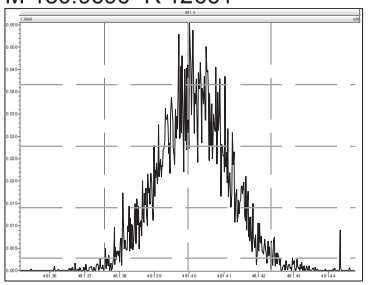
M 454.9728 R 13080



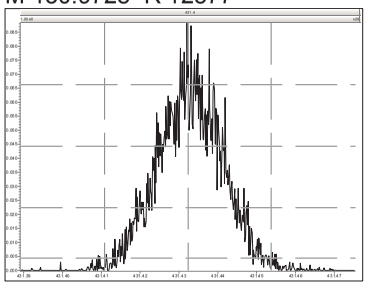
M 466.9728 R 15312



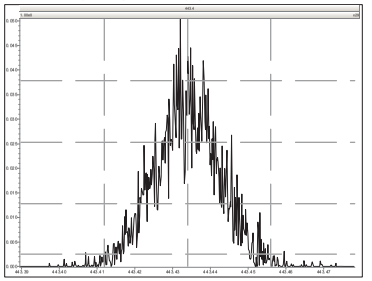
M 480.9696 R 12661



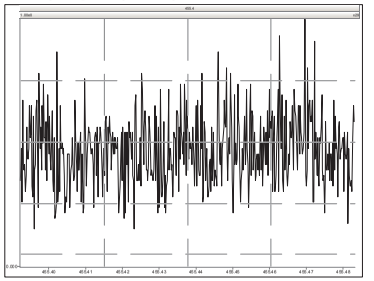
M 430.9728 R 12577



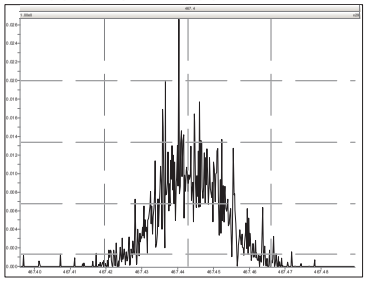
M 442.9728 R 13612



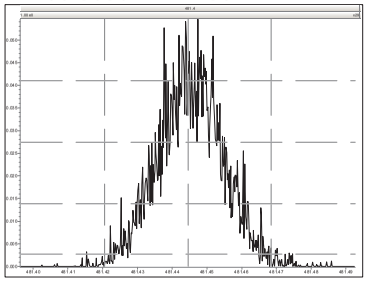
M 454.9728 R 0



M 466.9728 R 15964



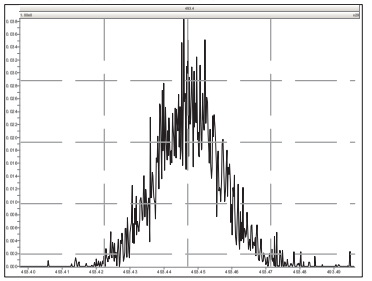
M 480.9696 R 11493



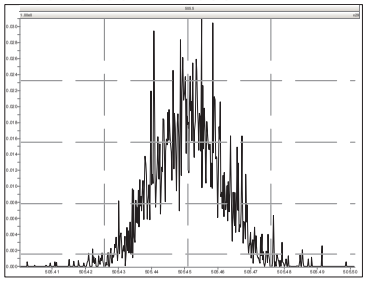
Resolution Check Report **MassLynx 4.1 SCN640** Page 4 of 4

Printed: Wednesday, November 30, 2016 07:11:58 Eastern Standard Time

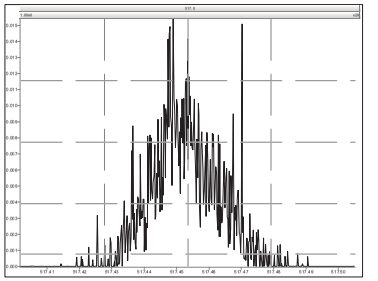
M 492.9696 R 12652



M 504.9696 R 12085



M 516.9697 R 14168



Dioxin/Furan ICAL Summary — SGS North America — Processed: 15 Jul 2016 14:41

ICAL: MM1_DF_12212015_14JUL2016
Data Acquired: 14-Jul-2016

Name	Mean	% RSD	160714P14 0.25 pg/uL CS0	160714P15 0.5 pg/uL CS1	160714P16 2 pg/uL CS2	160714P17 10 pg/uL CS3	160714P18 40 pg/uL CS4	160714P19 200 pg/uL CS5	160714P21 500 pg/uL CS6
2378-TCDD	1.04	6.6%	0.96	0.96	1.01	1.03	1.11	1.10	1.11
12378-PeCDD	0.93	6.0%	0.87	0.86	0.92	0.92	0.98	0.99	0.99
123478-HxCDD	0.97	4.6%	0.92	0.96	0.94	0.94	1.03	1.03	1.01
123678-HxCDD	1.00	4.2%	0.98	0.94	0.97	0.98	1.05	1.02	1.04
123789-HxCDD	0.92	4.7%	0.88	0.88	0.88	0.91	0.96	0.95	0.98
1234678-HpCDD	0.96	5.3%	0.89	0.90	0.93	0.94	1.01	1.00	1.01
OCDD	1.03	5.7%	0.94	0.97	1.04	1.00	1.09	1.08	1.08
2378-TCDF	0.99	3.2%	0.96	0.96	0.98	0.96	1.03	1.02	1.01
12378-PeCDF	0.94	5.3%	0.89	0.89	0.95	0.91	0.99	1.01	0.98
23478-PeCDF	0.93	5.3%	0.90	0.86	0.92	0.91	0.99	0.98	0.97
123478-HxCDF	1.19	4.6%	1.12	1.17	1.17	1.15	1.25	1.25	1.24
123678-HxCDF	1.10	4.9%	1.04	1.03	1.08	1.08	1.17	1.16	1.14
234678-HxCDF	1.11	5.5%	1.00	1.08	1.10	1.09	1.18	1.15	1.15
123789-HxCDF	1.08	6.8%	0.96	1.01	1.08	1.06	1.15	1.15	1.14
1234678-HpCDF	1.28	3.9%	1.23	1.24	1.26	1.24	1.35	1.32	1.33
1234789-HpCDF	1.22	6.4%	1.09	1.14	1.24	1.19	1.29	1.28	1.28
OCDF	1.01	4.8%	0.94	0.96	1.01	0.99	1.08	1.04	1.05
ES 2378-TCDD	1.04	3.3%	1.02	1.03	1.02	1.01	1.01	1.05	1.10
ES 12378-PeCDD	1.00	6.6%	0.96	0.97	0.95	0.95	0.98	1.02	1.14
ES 123478-HxCDD	1.08	5.6%	1.00	1.07	1.09	1.01	1.11	1.06	1.18
ES 123678-HxCDD	1.03	4.9%	0.99	1.07	1.01	0.97	1.04	1.05	1.11
ES 123789-HxCDD	1.18	4.9%	1.12	1.21	1.18	1.09	1.23	1.18	1.26
ES 1234678-HpCDD	0.97	5.0%	0.93	1.00	0.93	0.91	0.99	0.97	1.05
ES OCDD	0.76	7.3%	0.70	0.75	0.72	0.71	0.79	0.77	0.86
ES 2378-TCDF	1.06	3.8%	1.02	1.07	1.05	1.04	1.05	1.07	1.14
ES 12378-PeCDF	0.99	7.5%	0.94	0.97	0.92	0.98	0.98	1.01	1.15
ES 23478-PeCDF	1.02	7.5%	0.97	1.00	0.97	0.98	1.01	1.05	1.18
ES 123478-HxCDF	1.20	4.7%	1.16	1.22	1.18	1.14	1.24	1.19	1.31
ES 123678-HxCDF	1.40	5.0%	1.33	1.43	1.38	1.33	1.42	1.40	1.53
ES 234678-HxCDF	1.27	4.6%	1.23	1.29	1.24	1.20	1.30	1.27	1.38
ES 123789-HxCDF	1.16	6.0%	1.11	1.17	1.12	1.07	1.19	1.17	1.29
ES 1234678-HpCDF	0.98	5.4%	0.93	0.98	0.95	0.93	0.99	0.98	1.08
ES 1234789-HpCDF	0.90	6.1%	0.86	0.91	0.87	0.84	0.93	0.90	1.01
ES OCDF	0.96	9.0%	0.87	0.94	0.90	0.88	1.00	0.99	1.11

Dioxin/Furan ICAL Summary — SGS North America — Processed: 15 Jul 2016 14:41

ICAL: MM1_DF_12212015_14JUL2016
Data Acquired: 14-Jul-2016

Name	Mean	% RSD	160714P14 0.25 pg/uL CS0	160714P15 0.5 pg/uL CS1	160714P16 2 pg/uL CS2	160714P17 10 pg/uL CS3	160714P18 40 pg/uL CS4	160714P19 200 pg/uL CS5	160714P21 500 pg/uL CS6
CS 37Cl-2378-TCDD	1.05	7.5%	-	0.99	0.96	1.06	1.12	1.14	-
CS 12347-PeCDD	0.91	4.0%	0.92	0.86	0.92	0.88	0.90	0.92	0.98
CS 12346-PeCDF	0.98	3.5%	0.95	0.94	1.00	0.94	0.98	0.99	1.03
CS 123469-HxCDF	1.25	3.7%	1.27	1.24	1.30	1.17	1.30	1.23	1.23
CS 1234689-HpCDF	0.85	3.4%	0.88	0.86	0.85	0.80	0.88	0.82	0.83
SS 37Cl-2378-TCDD	1.03	7.3%	-	0.96	0.94	1.05	1.11	1.09	-
SS 12347-PeCDD	0.92	3.9%	0.96	0.89	0.96	0.93	0.92	0.90	0.86
SS 12346-PeCDF	0.99	5.5%	1.01	0.97	1.08	0.97	1.01	0.98	0.90
SS 123469-HxCDF	0.89	5.7%	0.96	0.87	0.94	0.88	0.92	0.87	0.80
SS 1234689-HpCDF	0.87	6.1%	0.94	0.87	0.90	0.87	0.89	0.84	0.77
AS 1368-TCDD	1.02	2.5%	1.03	1.03	1.03	1.02	0.98	0.99	1.05
AS 1368-TCDF	1.41	2.9%	1.41	1.47	1.40	1.39	1.37	1.37	1.47
OCDD-a	0.06	0.14	-	0.05	0.05	0.06	0.07	0.07	0.07
OCDF-a	0.06	8.2%	-	0.05	0.06	0.06	0.06	0.06	0.06
Totals									
Total TCDD	1.04	6.6%	0.96	0.96	1.01	1.03	1.11	1.10	1.11
Total PeCDD	0.93	6.0%	0.87	0.86	0.92	0.92	0.98	0.99	0.99
Total HxCDD	0.96	4.3%	0.93	0.93	0.93	0.94	1.01	1.00	1.01
Total HpCDD	0.96	5.3%	0.89	0.90	0.93	0.94	1.01	1.00	1.01
Total TCDF	0.99	3.2%	0.96	0.96	0.98	0.96	1.03	1.02	1.01
Total PeCDF	0.94	5.3%	0.90	0.87	0.93	0.91	0.99	1.00	0.98
Total HxCDF	1.12	5.3%	1.03	1.07	1.11	1.09	1.19	1.18	1.17
Total HpCDF	1.25	5.0%	1.16	1.19	1.25	1.22	1.32	1.30	1.31
FS 1278-TCDD	1.31	2.6%	1.33	1.32	1.34	1.32	1.31	1.25	1.28
FS 12478-PeCDD	1.15	4.8%	1.18	1.19	1.21	1.17	1.14	1.07	1.08
FS 123468-HxCDD	1.31	6.4%	1.43	1.36	1.32	1.34	1.32	1.25	1.16
FS 1234679-HpCDD	1.24	6.4%	1.30	1.26	1.32	1.28	1.27	1.15	1.11
TS 1378-TCDD	1.23	2.4%	1.26	1.23	1.28	1.24	1.23	1.19	1.21

D/F ICAL	Conc.					
Individual Native Standards	CS 0	CS 1	CS 2	CS 3	CS 4	CS 5
2378 TCDD	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
2378 TCDF	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12378 PeCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
12378 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
23478 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
234678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234789 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
OCDD	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
OCDF	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
Extraction Standards						
2378 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
2378 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
23478 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
234678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234789 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
OCDD 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
OCDF 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
Cleanup/Sampling standards						
2378 37Cl4		0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12347 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12346 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123469 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234689 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Alternate Standard						
1368 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1368 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Injection standards						
1234 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123467 HxCDD 13C12	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul

Working Standards

ES

2378 TCDD 13C12	10 pg/ul
2378 TCDF 13C12	10 pg/ul
12378 PeCDD 13C12	10 pg/ul
12378 PeCDF 13C12	10 pg/ul
23478 PeCDF 13C12	10 pg/ul
123478 HxCDD 13C12	10 pg/ul
123678 HxCDD 13C12	10 pg/ul
123789 HxCDD 13C12	10 pg/ul
123478 HxCDF 13C12	10 pg/ul
123678 HxCDF 13C12	10 pg/ul
123789 HxCDF 13C12	10 pg/ul
234678 HxCDF 13C12	10 pg/ul
1234678 HpCDD 13C12	10 pg/ul
1234678 HpCDF 13C12	10 pg/ul
1234789 HpCDF 13C12	10 pg/ul
OCDD 13C12	10 pg/ul
OCDF 13C12	10 pg/ul

Ax

2378 TCDD	1 pg/ul
2378 TCDF	1 pg/ul
12378 PeCDD	1 pg/ul
12378 PeCDF	1 pg/ul
23478 PeCDF	1 pg/ul
123478 HxCDD	1 pg/ul
123678 HxCDD	1 pg/ul
123789 HxCDD	1 pg/ul
123478 HxCDF	1 pg/ul
123678 HxCDF	1 pg/ul
123789 HxCDF	1 pg/ul
234678 HxCDF	1 pg/ul
1234678 HpCDD	1 pg/ul
1234678 HpCDF	1 pg/ul
1234789 HpCDF	1 pg/ul
OCDD	1 pg/ul
OCDF	1 pg/ul

CS/SS

2378 37Cl4	4 pg/ul
12347 PeCDD 13C12	10 pg/ul
12346 PeCDF 13C12	10 pg/ul
123469 HxCDF 13C12	10 pg/ul
1234689 HpCDF 13C12	10 pg/ul

AS

1368 TCDD 13C12	10 pg/ul
1368 TCDF 13C12	10 pg/ul

JS

1234 TCDD 13C12	10 pg/ul
1234 TCDF 13C12	10 pg/ul
123467 HxCDD 13C12	5 pg/ul

FS

1278 TCDD 13C12	100 pg/ul
12478 PeCDD 13C12	100 pg/ul
123468 HxCDD 13C12	100 pg/ul
1234679 HpCDD 13C12	100 pg/ul

TS

1378 TCDD 13C12	100 pg/ul

CS6
500 pg/ul
500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
2500 pg/ul
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100 pg/ul

100 pg/ul
100 pg/ul

100 pg/ul
100 pg/ul
50 pg/ul

SGS Environmental Services — Run Log **Project: MM1_DF_12212015_14JUL2016**

Instrument: MM1 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: zb5-ms_60m

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
4	160714P13	2	SBS_160714_DF_PE	1.00	SIL 15-49-1	LKB	483-666	14-Jul-2016	14:22:37
5	160714P14	7	CS0_160714_DF_PC	1.00	SIL 15-105-2	LKB	220-317	14-Jul-2016	15:09:57
6	160714P15	8	CS1_160714_DF_PB	1.05	SIL 15-105-1	LKB	432-737	14-Jul-2016	16:12:53
7	160714P16	9	CS2_160714_DF_PB	1.00	SIL 15-104-3	LKB	281-247	14-Jul-2016	17:00:11
8	160714P17	10	CS3_160714_DF_PC	0.96	SIL 15-104-2	LKB	686-028	14-Jul-2016	17:49:22
9	160714P18	11	CS4_160714_DF_PB	0.98	SIL 15-104-1	LKB	345-926	14-Jul-2016	18:38:32
10	160714P19	12	CS5_160714_DF_PB	0.03	SIL 15-103-4	LKB	617-885	14-Jul-2016	19:27:43
11	160714P20	2	SBS_160714_DF_PF	1.00	SIL 15-49-1	LKB	334-191	14-Jul-2016	20:16:54
12	160714P21	13	CS6_160714_DF_PB	0.03	SIL 15-103-3	LKB	450-982	14-Jul-2016	21:06:05

REVIEWED
By Laura Boivin at 2:54 pm, Jul 15, 2016

APPROVED
By Tamara Morgan at 9:12 am, Jul 19, 2016

Project file: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\MM1_DF_12212015_14JUL2016.utp_prj, saved 15-Jul-2016 14:53
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933

Printed: 15-Jul-2016 14:53

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 15:09 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS0_160714_DF_PC	UTP: 15-Jul-2016 14:40:54 LKB	Checkcode: 220-317-GYK
Sample ID: SIL 15-105-2	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P14

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.47	2.15E+05	0.77	Y	1.04	0.96	-8%
12378-PeCDD	32.18	9.21E+05	1.43	Y	0.93	0.87	-7%
123478-HxCDD	36.17	7.94E+05	1.28	Y	0.97	0.92	-6%
123678-HxCDD	36.29	8.35E+05	1.12	Y	1.00	0.98	-1%
123789-HxCDD	36.58	8.45E+05	1.27	Y	0.92	0.88	-5%
1234678-HpCDD	39.65	7.16E+05	1.07	Y	0.96	0.89	-6%
OCDD	42.07	1.14E+06	0.87	Y	1.03	0.94	-8%
2378-TCDF	25.49	2.93E+05	0.68	Y	0.99	0.96	-3%
12378-PeCDF	30.65	1.26E+06	1.62	Y	0.94	0.89	-5%
23478-PeCDF	31.82	1.30E+06	1.61	Y	0.93	0.90	-4%
123478-HxCDF	35.19	1.12E+06	1.23	Y	1.19	1.12	-6%
123678-HxCDF	35.33	1.19E+06	1.22	Y	1.10	1.04	-5%
234678-HxCDF	35.99	1.05E+06	1.21	Y	1.11	1.00	-10%
123789-HxCDF	36.93	9.15E+05	1.34	Y	1.08	0.96	-11%
1234678-HpCDF	38.61	9.85E+05	1.05	Y	1.28	1.23	-4%
1234789-HpCDF	40.09	8.12E+05	1.05	Y	1.22	1.09	-10%
OCDF	42.23	1.41E+06	0.85	Y	1.01	0.94	-7%
ES 2378-TCDD	26.44	9.01E+07	0.78	Y	1.04	1.02	-1%
ES 12378-PeCDD	32.16	8.50E+07	1.57	Y	1.00	0.96	-3%
ES 123478-HxCDD	36.16	6.92E+07	1.24	Y	1.08	1.00	-7%
ES 123678-HxCDD	36.27	6.79E+07	1.24	Y	1.03	0.99	-5%
ES 123789-HxCDD	36.56	7.72E+07	1.25	Y	1.18	1.12	-5%
ES 1234678-HpCDD	39.63	6.40E+07	1.07	Y	0.97	0.93	-4%
ES OCDD	42.06	9.67E+07	0.90	Y	0.76	0.70	-7%
ES 2378-TCDF	25.47	1.22E+08	0.73	Y	1.06	1.02	-4%
ES 12378-PeCDF	30.63	1.12E+08	1.50	Y	0.99	0.94	-6%
ES 23478-PeCDF	31.8	1.16E+08	1.53	Y	1.02	0.97	-6%
ES 123478-HxCDF	35.17	7.97E+07	0.52	Y	1.20	1.16	-4%
ES 123678-HxCDF	35.31	9.15E+07	0.53	Y	1.40	1.33	-5%
ES 234678-HxCDF	35.97	8.45E+07	0.53	Y	1.27	1.23	-4%
ES 123789-HxCDF	36.92	7.63E+07	0.53	Y	1.16	1.11	-5%
ES 1234678-HpCDF	38.6	6.41E+07	0.45	Y	0.98	0.93	-5%
ES 1234789-HpCDF	40.08	5.93E+07	0.45	Y	0.90	0.86	-5%
ES OCDF	42.22	1.20E+08	0.92	Y	0.96	0.87	-9%

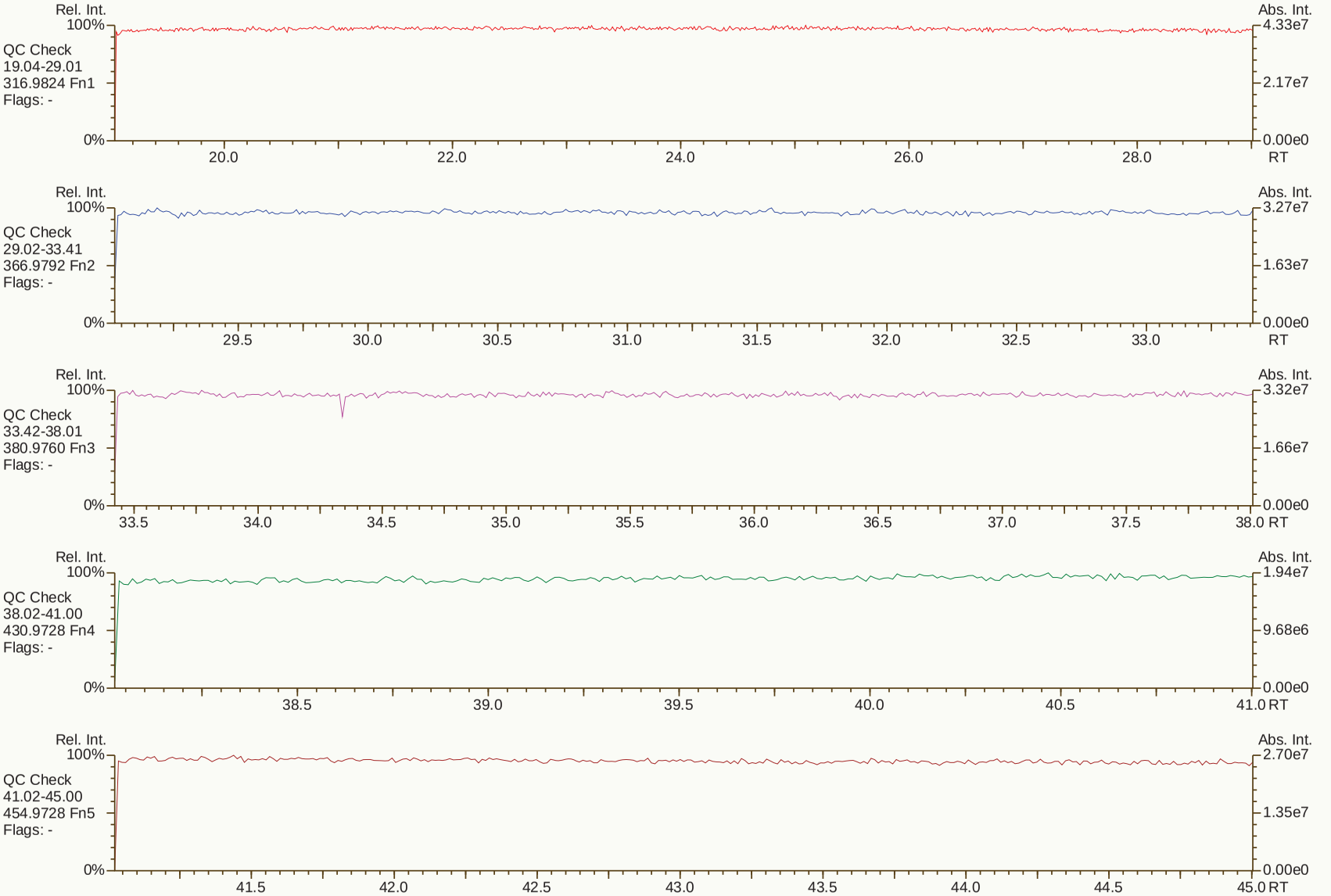
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 15:09 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS0_160714_DF_PC | **UTP: 15-Jul-2016 14:40:54 LKB** | **Checkcode: 220-317-GYK**

Sample ID: SIL 15-105-2 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P14**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	8.84E+07	0.80	Y	-	-	-
JS 1234-TCDF	23.95	1.20E+08	0.74	Y	-	-	-
JS 123467-HxCDD	36.46	3.45E+07	1.24	Y	-	-	-
CS 37Cl-2378-TCDD	NotFnd		n/a	-	1.05		
CS 12347-PeCDD	31.65	8.15E+07	1.63	Y	0.91	0.92	1%
CS 12346-PeCDF	30.07	1.14E+08	1.54	Y	0.98	0.95	-3%
CS 123469-HxCDF	35.62	8.75E+07	0.52	Y	1.25	1.27	2%
CS 1234689-HpCDF	39.06	6.03E+07	0.45	Y	0.85	0.88	3%
SS 37Cl-2378-TCDD	NotFnd		n/a	-	1.03		
SS 12347-PeCDD	31.65	8.15E+07	1.63	Y	0.92	0.96	4%
SS 12346-PeCDF	30.07	1.14E+08	1.54	Y	0.99	1.01	2%
SS 123469-HxCDF	35.62	8.75E+07	0.52	Y	0.89	0.96	7%
SS 1234689-HpCDF	39.06	6.03E+07	0.45	Y	0.87	0.94	8%
AS 1368-TCDD	22.30	9.11E+07	0.78	Y	1.02	1.03	1%
AS 1368-TCDF	20.16	1.69E+08	0.73	Y	1.41	1.41	0%
FS 1278-TCDD	26.80	1.20E+08	0.78	Y	1.31	1.33	2%
FS 12478-PeCDD	30.88	1.00E+08	1.61	Y	1.15	1.18	3%
FS 123468-HxCDD	35.10	9.87E+07	1.27	Y	1.31	1.43	9%
FS 1234679-HpCDD	38.90	8.34E+07	1.05	Y	1.24	1.30	5%
TS 1378-TCDD	24.61	1.13E+08	0.78	Y	1.23	1.26	2%
OCDD-a	NotFnd				0.06		
OCDF-a	NotFnd				0.06		

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

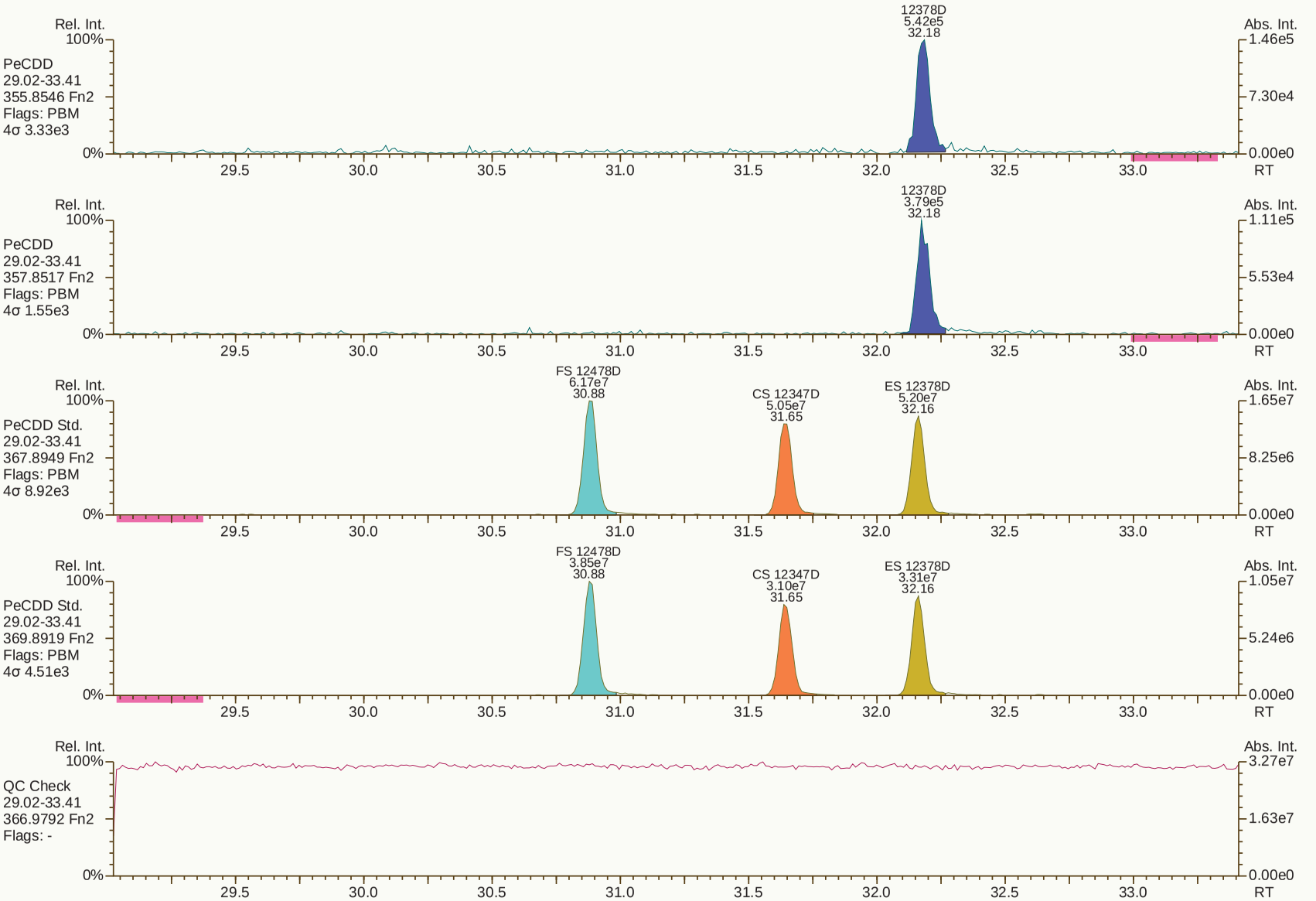


Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 220-317 *PKD: n/a Printed: 15-Jul-2016 14:47 Page 1 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1850, 3011, 4636 scc: 220-317 *Revised: 14-Jul-2016 15:56 (LKB) Printed: 15-Jul-2016 14:48 Page 2 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



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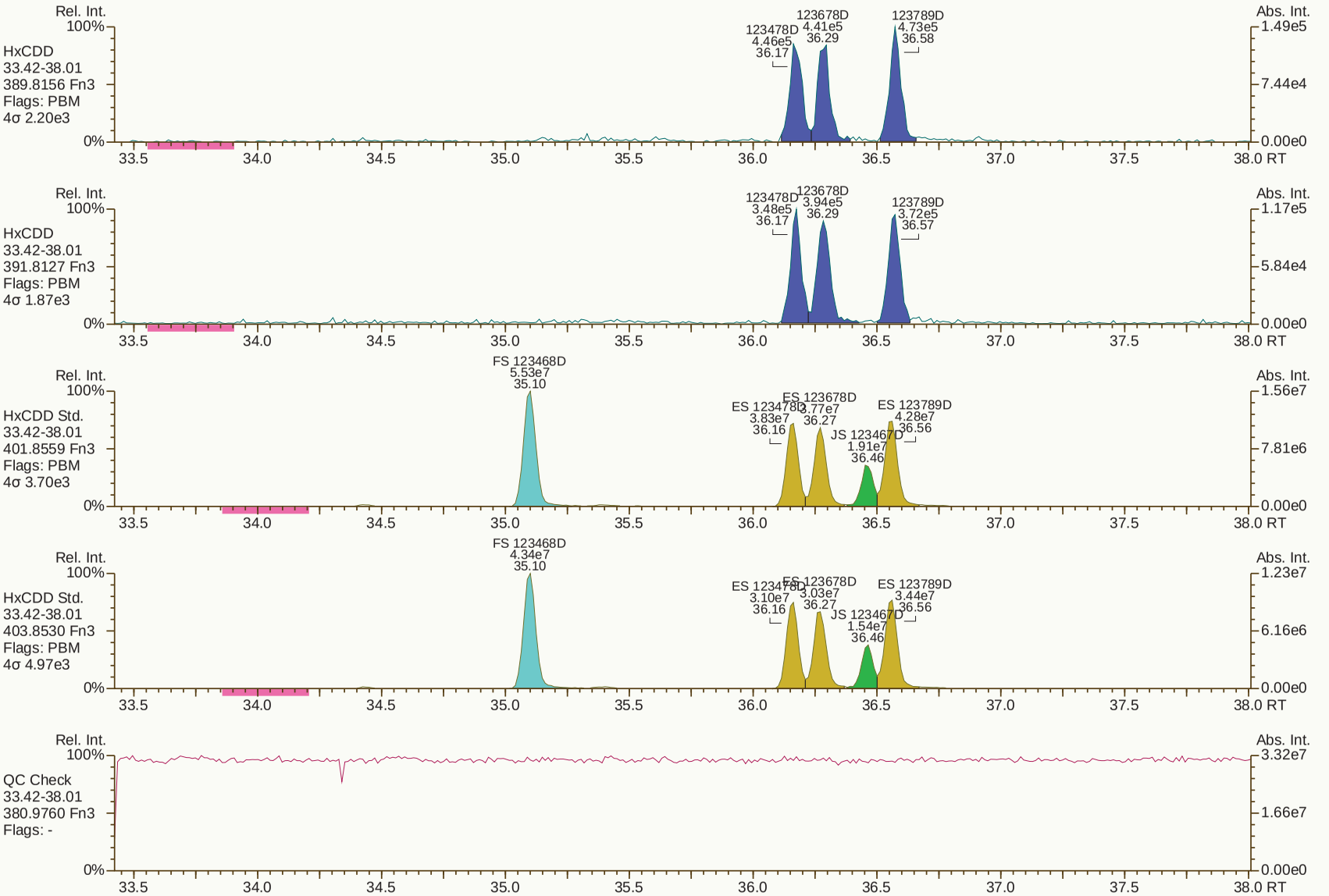
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8608, 7657 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 3 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6779, 8406 scc: 220-317 *PKD: 14-Jul-2016 15:54 Printed: 15-Jul-2016 14:48 Page 4 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2634, 8048 scc: 220-317 *Revised: 14-Jul-2016 15:56 (LKB) Printed: 15-Jul-2016 14:48 Page 5 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9489, 6589 scc: 220-317 *PKD: 14-Jul-2016 15:55 Printed: 15-Jul-2016 14:48 Page 6 of 12*

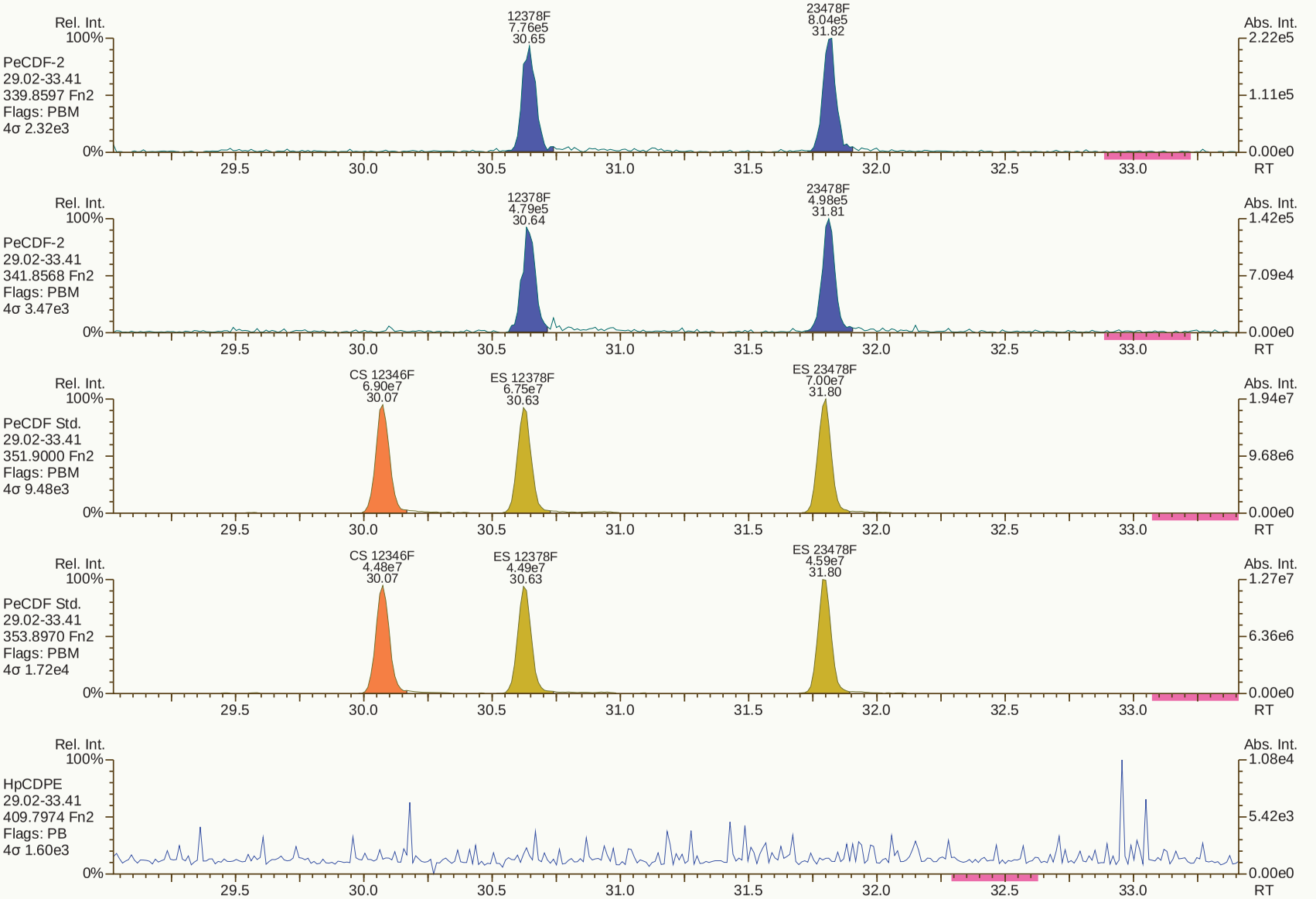
SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0524, 3311, 5528 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 7 of 12*

SGS ID: CS0_160714_DF_PC **Sample ID: SIL 15-105-2** **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** **User: LKB Datafile: 160714P14**

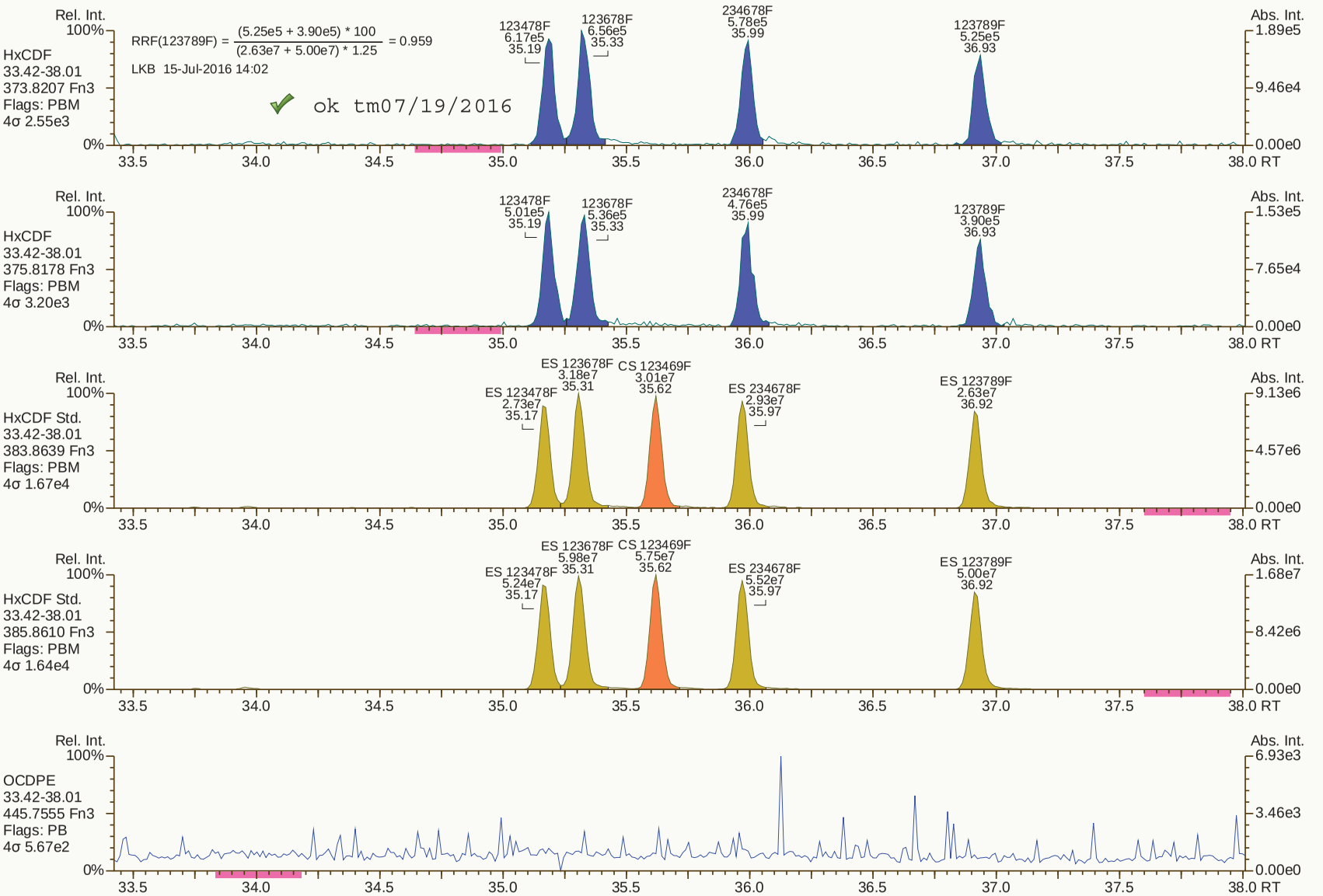
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5619 scc: 220-317 *PKD: 14-Jul-2016 15:54 Printed: 15-Jul-2016 14:48 Page 8 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2453, 3029, 8991 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 9 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



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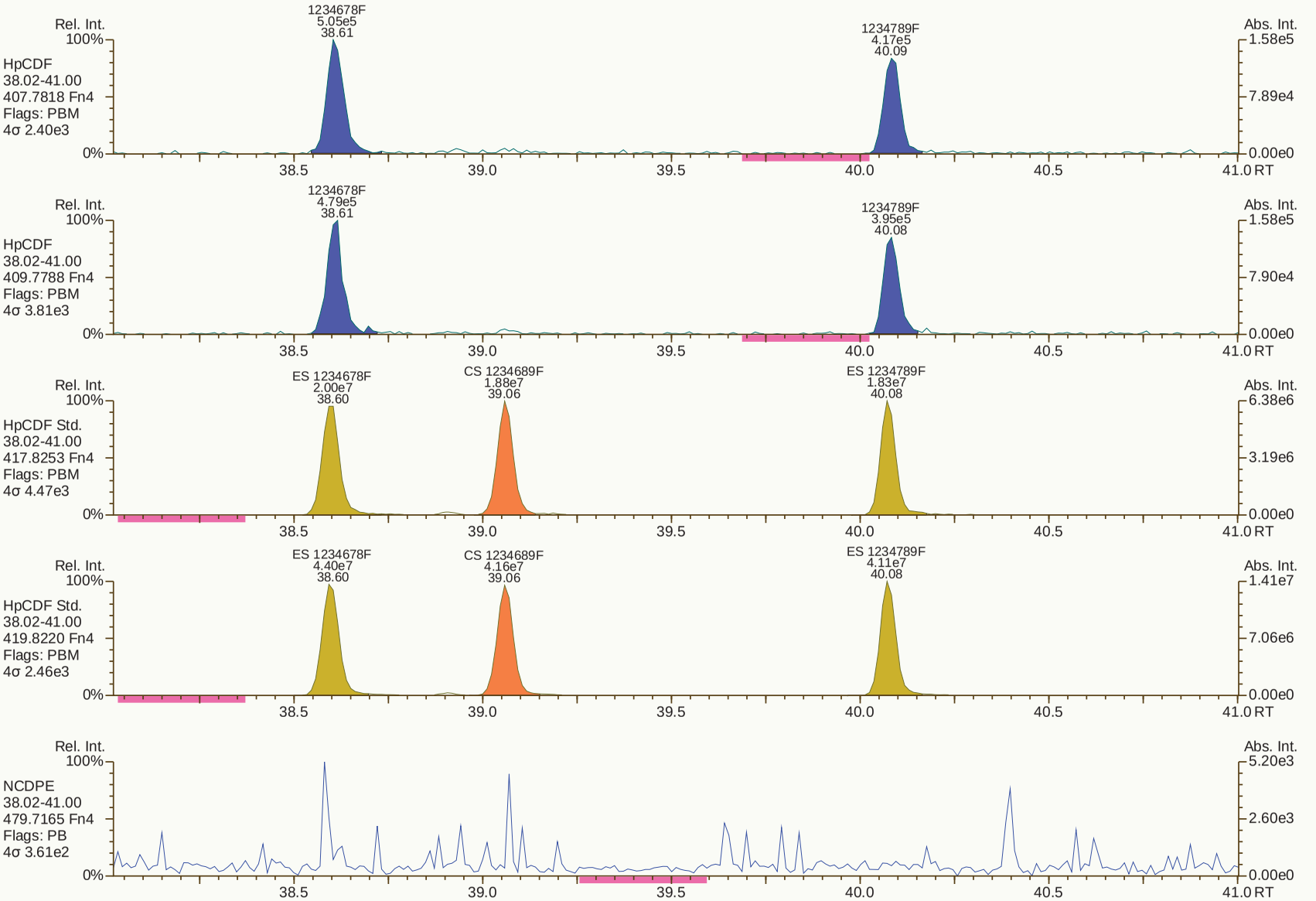
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0701, 5592, 2615 scc: 220-317 *PKD: 14-Jul-2016 15:55 Printed: 15-Jul-2016 14:48 Page 10 of 12*

SGS ID: CS0_160714_DF_PC **Sample ID: SIL 15-105-2** **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** **User: LKB Datafile: 160714P14**



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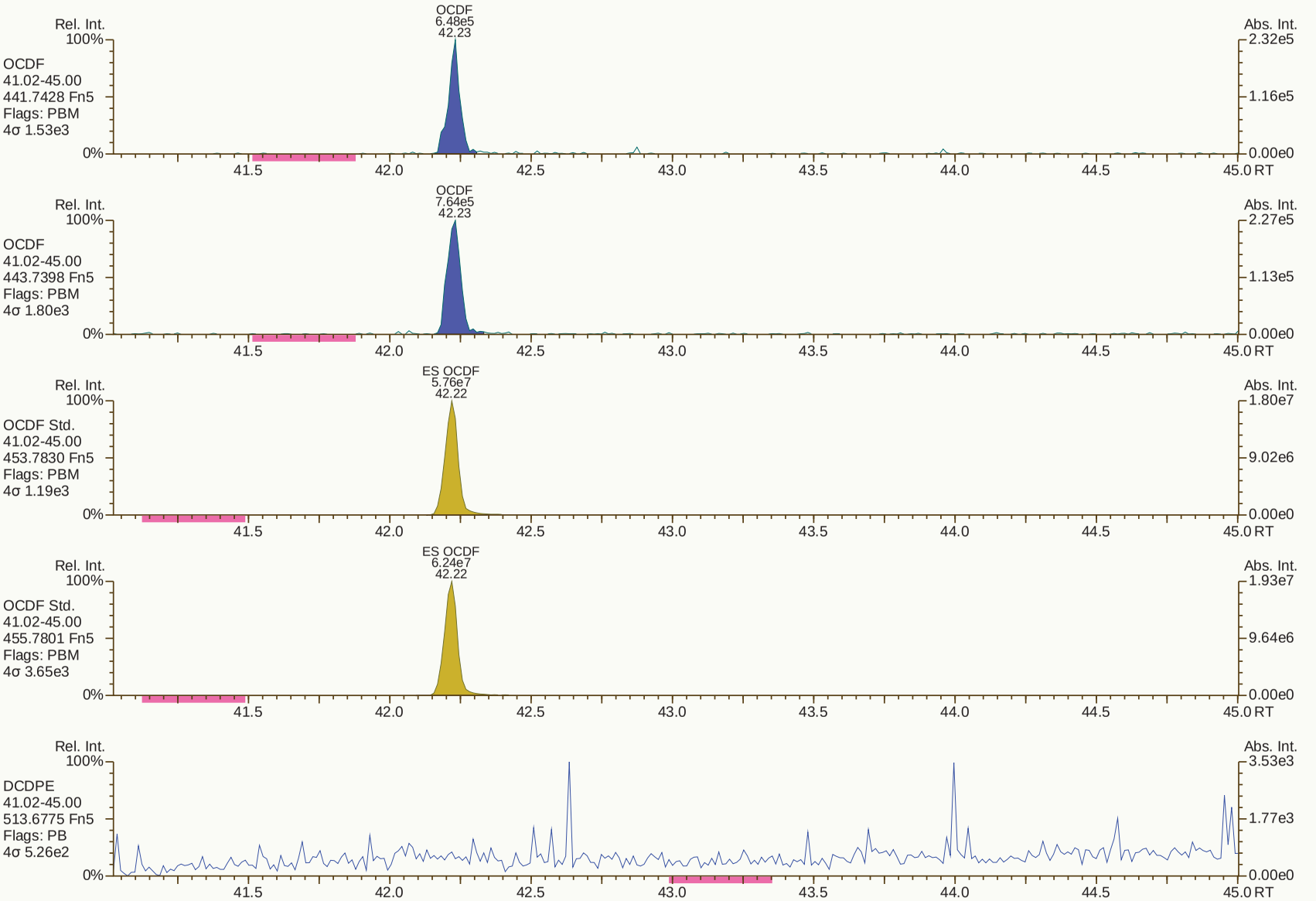
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2183, 1150, 7794 scc: 220-317 *PKD: 14-Jul-2016 15:55 Printed: 15-Jul-2016 14:48 Page 11 of 12*

SGS ID: CS0_160714_DF_PC | **Sample ID: SIL 15-105-2** | **Acq: 14-Jul-2016 15:09:57**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 7** | **User: LKB Datafile: 160714P14**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS0_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3335, 6636, 0446 scc: 220-317 *Revised: 14-Jul-2016 15:55 (LKB) Printed: 15-Jul-2016 14:48 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 16:12 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS1_160714_DF_PB	UTP: 15-Jul-2016 14:40:54 LKB	Checkcode: 432-737-NGV
Sample ID: SIL 15-105-1	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P15

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.47	3.42E+05	0.76	Y	1.04	0.96	-7%
12378-PeCDD	32.18	1.44E+06	1.60	Y	0.93	0.86	-7%
123478-HxCDD	36.18	1.32E+06	1.17	Y	0.97	0.96	-1%
123678-HxCDD	36.29	1.28E+06	1.21	Y	1.00	0.94	-6%
123789-HxCDD	36.58	1.36E+06	1.18	Y	0.92	0.88	-4%
1234678-HpCDD	39.65	1.15E+06	1.08	Y	0.96	0.90	-5%
OCDD	42.07	1.86E+06	0.89	Y	1.03	0.97	-6%
2378-TCDF	25.50	4.67E+05	0.86	Y	0.99	0.96	-3%
12378-PeCDF	30.65	1.96E+06	1.58	Y	0.94	0.89	-6%
23478-PeCDF	31.82	1.96E+06	1.49	Y	0.93	0.86	-8%
123478-HxCDF	35.19	1.83E+06	1.27	Y	1.19	1.17	-2%
123678-HxCDF	35.33	1.88E+06	1.20	Y	1.10	1.03	-6%
234678-HxCDF	35.99	1.77E+06	1.25	Y	1.11	1.08	-2%
123789-HxCDF	36.94	1.51E+06	1.24	Y	1.08	1.01	-6%
1234678-HpCDF	38.61	1.56E+06	1.03	Y	1.28	1.24	-3%
1234789-HpCDF	40.09	1.33E+06	1.06	Y	1.22	1.14	-6%
OCDF	42.23	2.32E+06	0.91	Y	1.01	0.96	-5%
ES 2378-TCDD	26.44	7.10E+07	0.80	Y	1.04	1.03	0%
ES 12378-PeCDD	32.17	6.65E+07	1.60	Y	1.00	0.97	-3%
ES 123478-HxCDD	36.16	5.49E+07	1.27	Y	1.08	1.07	0%
ES 123678-HxCDD	36.27	5.47E+07	1.25	Y	1.03	1.07	4%
ES 123789-HxCDD	36.56	6.17E+07	1.23	Y	1.18	1.21	2%
ES 1234678-HpCDD	39.64	5.10E+07	1.04	Y	0.97	1.00	3%
ES OCDD	42.06	7.69E+07	0.91	Y	0.76	0.75	-1%
ES 2378-TCDF	25.47	9.78E+07	0.73	Y	1.06	1.07	1%
ES 12378-PeCDF	30.63	8.87E+07	1.47	Y	0.99	0.97	-2%
ES 23478-PeCDF	31.8	9.15E+07	1.52	Y	1.02	1.00	-2%
ES 123478-HxCDF	35.17	6.24E+07	0.52	Y	1.20	1.22	1%
ES 123678-HxCDF	35.31	7.28E+07	0.53	Y	1.40	1.43	2%
ES 234678-HxCDF	35.98	6.57E+07	0.52	Y	1.27	1.29	1%
ES 123789-HxCDF	36.92	5.95E+07	0.52	Y	1.16	1.17	0%
ES 1234678-HpCDF	38.6	5.01E+07	0.45	Y	0.98	0.98	0%
ES 1234789-HpCDF	40.08	4.67E+07	0.45	Y	0.90	0.91	1%
ES OCDF	42.22	9.63E+07	0.90	Y	0.96	0.94	-1%

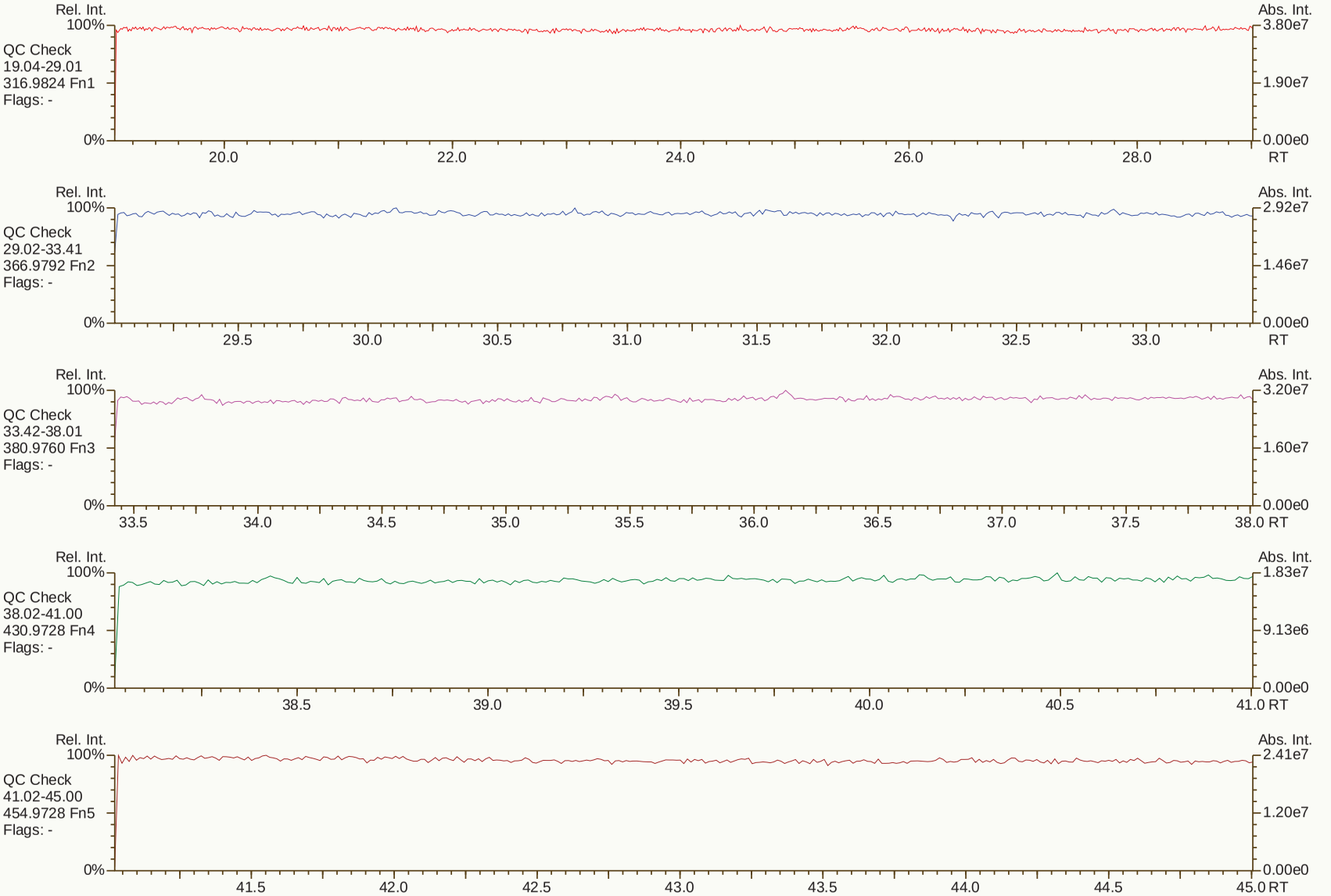
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 16:12 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS1_160714_DF_PB | **UTP: 15-Jul-2016 14:40:54 LKB** | **Checkcode: 432-737-NGV**

Sample ID: SIL 15-105-1 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P15**

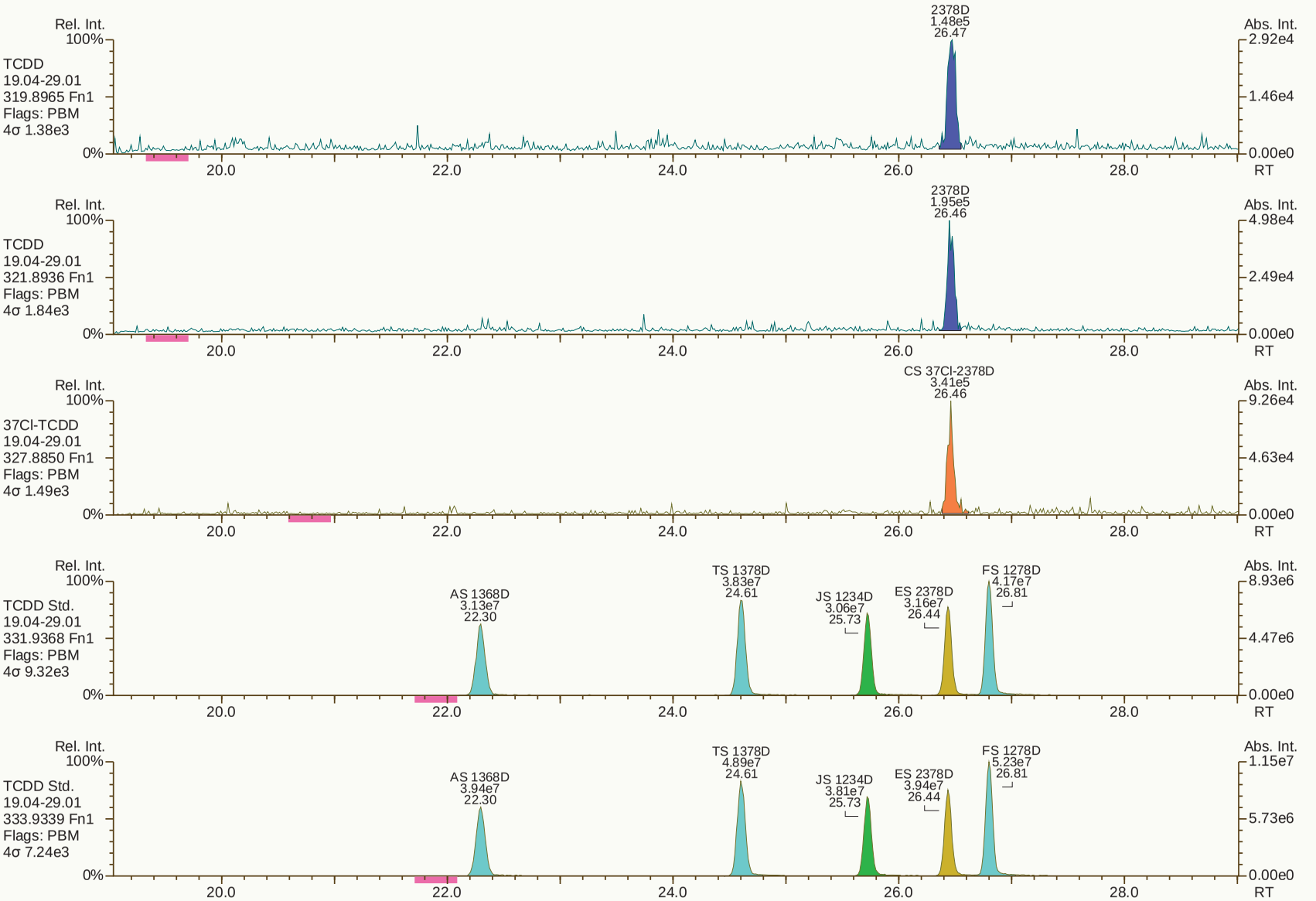
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.73	6.87E+07	0.80	Y	-	-	-
JS 1234-TCDF	23.96	9.15E+07	0.71	Y	-	-	-
JS 123467-HxCDD	36.46	2.55E+07	1.24	Y	-	-	-
CS 37Cl-2378-TCDD	26.46	3.41E+05	n/a	-	1.05	0.99	-6%
CS 12347-PeCDD	31.65	5.93E+07	1.61	Y	0.91	0.86	-5%
CS 12346-PeCDF	30.08	8.61E+07	1.50	Y	0.98	0.94	-4%
CS 123469-HxCDF	35.63	6.35E+07	0.53	Y	1.25	1.24	0%
CS 1234689-HpCDF	39.06	4.37E+07	0.44	Y	0.85	0.86	1%
SS 37Cl-2378-TCDD	26.46	3.41E+05	n/a	-	1.03	0.96	-7%
SS 12347-PeCDD	31.65	5.93E+07	1.61	Y	0.92	0.89	-3%
SS 12346-PeCDF	30.08	8.61E+07	1.50	Y	0.99	0.97	-2%
SS 123469-HxCDF	35.63	6.35E+07	0.53	Y	0.89	0.87	-2%
SS 1234689-HpCDF	39.06	4.37E+07	0.44	Y	0.87	0.87	0%
AS 1368-TCDD	22.30	7.07E+07	0.79	Y	1.02	1.03	1%
AS 1368-TCDF	20.16	1.34E+08	0.71	Y	1.41	1.47	4%
FS 1278-TCDD	26.81	9.40E+07	0.80	Y	1.31	1.32	1%
FS 12478-PeCDD	30.89	7.94E+07	1.58	Y	1.15	1.19	4%
FS 123468-HxCDD	35.10	7.46E+07	1.24	Y	1.31	1.36	4%
FS 1234679-HpCDD	38.91	6.41E+07	1.04	Y	1.24	1.26	1%
TS 1378-TCDD	24.61	8.71E+07	0.78	Y	1.23	1.23	-1%
OCDD-a	42.07	9.13E+04	3.92	N	0.06	0.05	-20%
OCDF-a	42.22	1.23E+05	3.18	N	0.06	0.05	-15%

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**



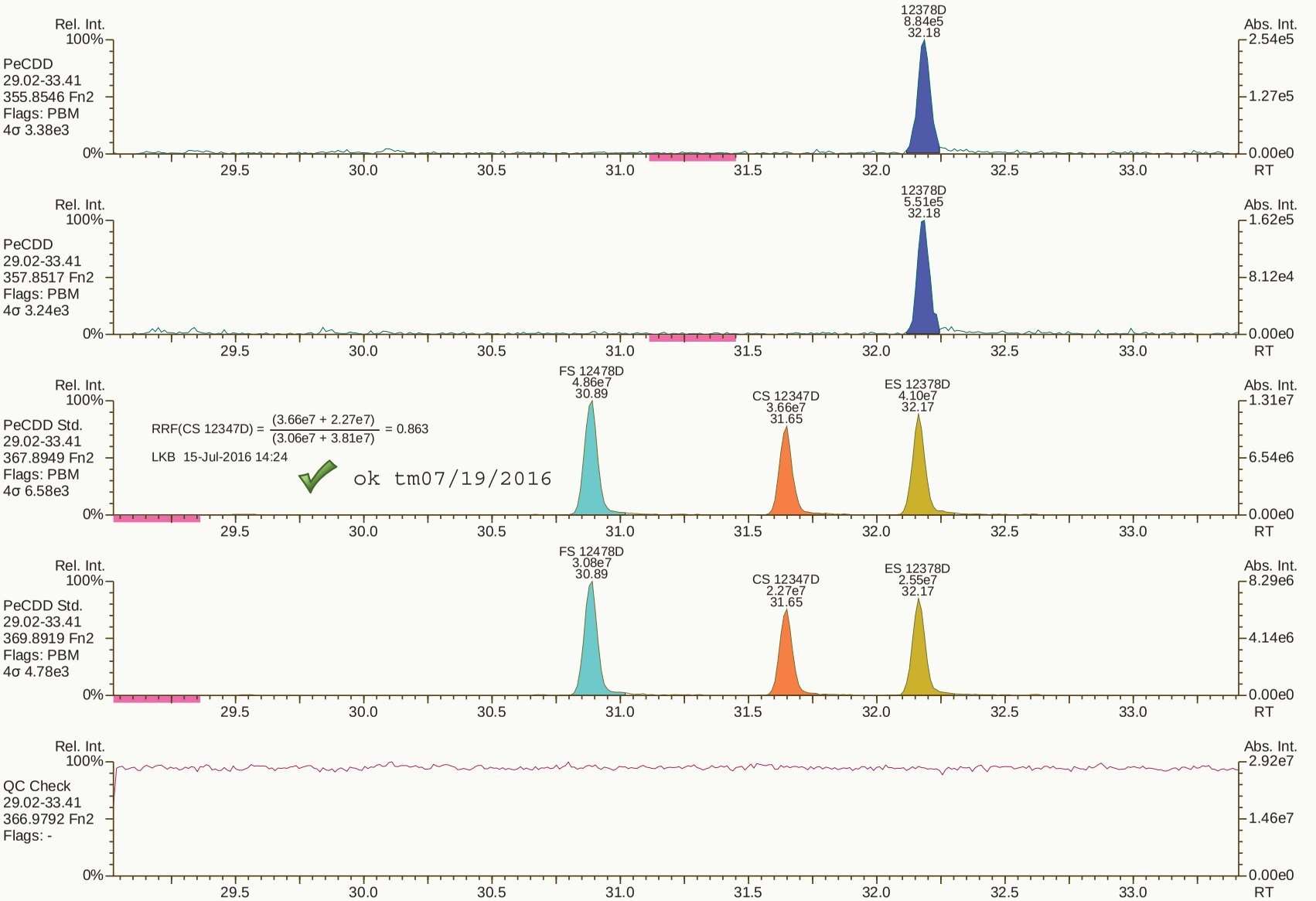
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 432-737 | *PKD: n/a Printed: 15-Jul-2016 14:48 Page 1 of 12*

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**



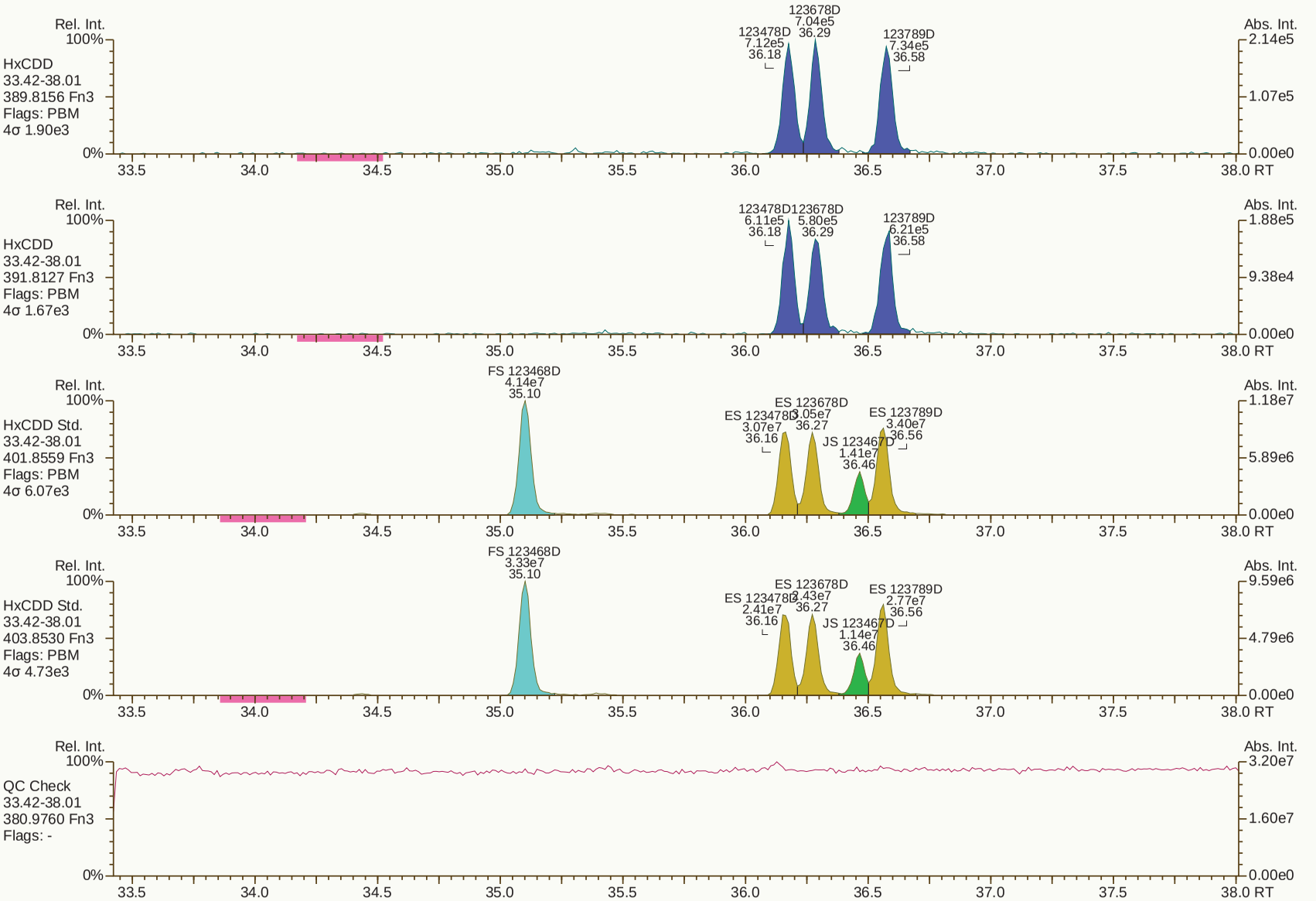
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9055, 7983, 2615 scc: 432-737 *PKD: 14-Jul-2016 17:18 Printed: 15-Jul-2016 14:48 Page 2 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



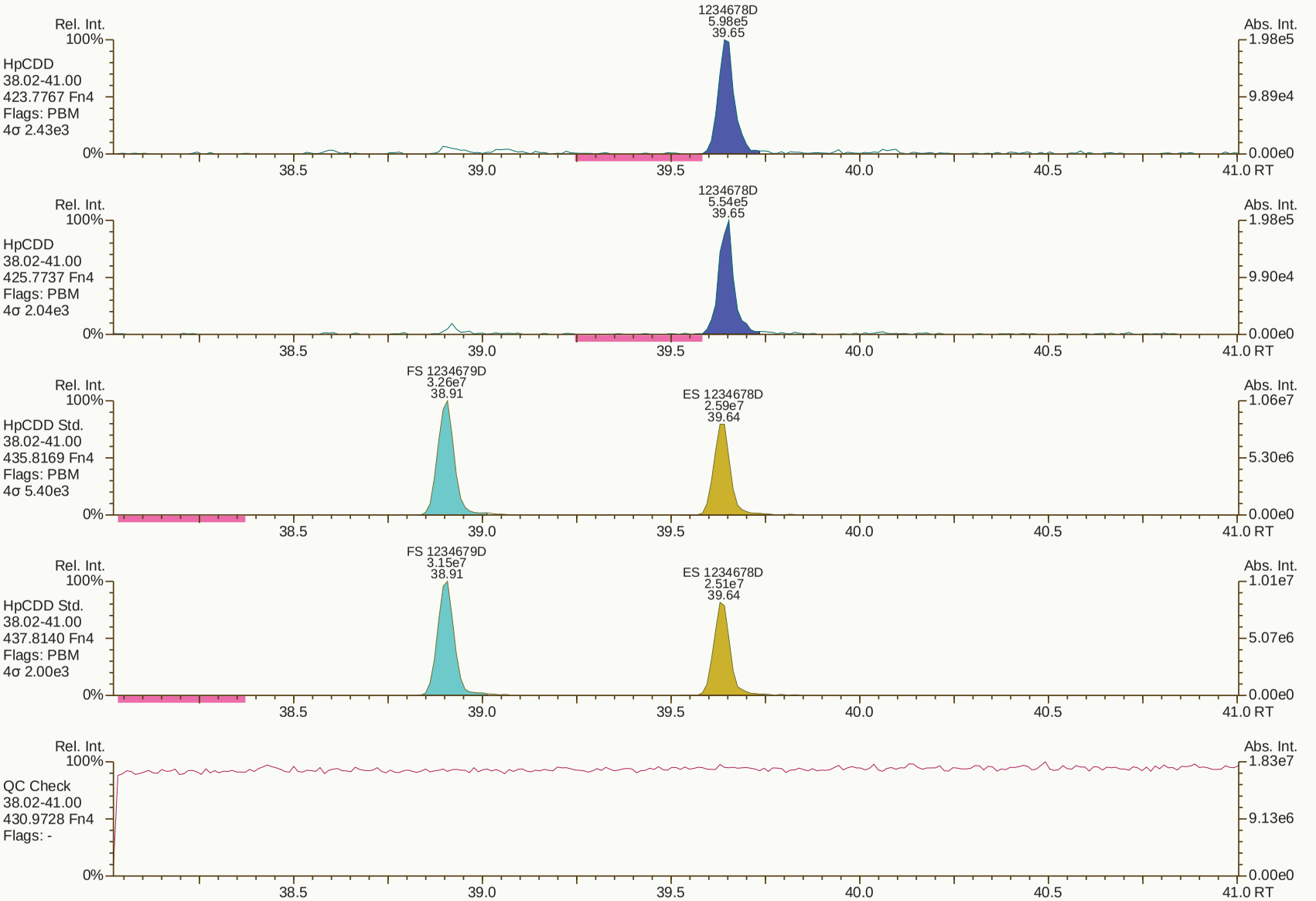
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8643, 2907 scc: 432-737 *PKD: 14-Jul-2016 17:18 Printed: 15-Jul-2016 14:48 Page 3 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7350, 7596 scc: 432-737 *PKD: 14-Jul-2016 17:18 Printed: 15-Jul-2016 14:48 Page 4 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4013, 8728 scc: 432-737 *Revised: 14-Jul-2016 17:18 (LKB) Printed: 15-Jul-2016 14:48 Page 5 of 12*

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0051, 6837 scc: 432-737 *Revised: 14-Jul-2016 17:18 (LKB) Printed: 15-Jul-2016 14:48 Page 6 of 12*

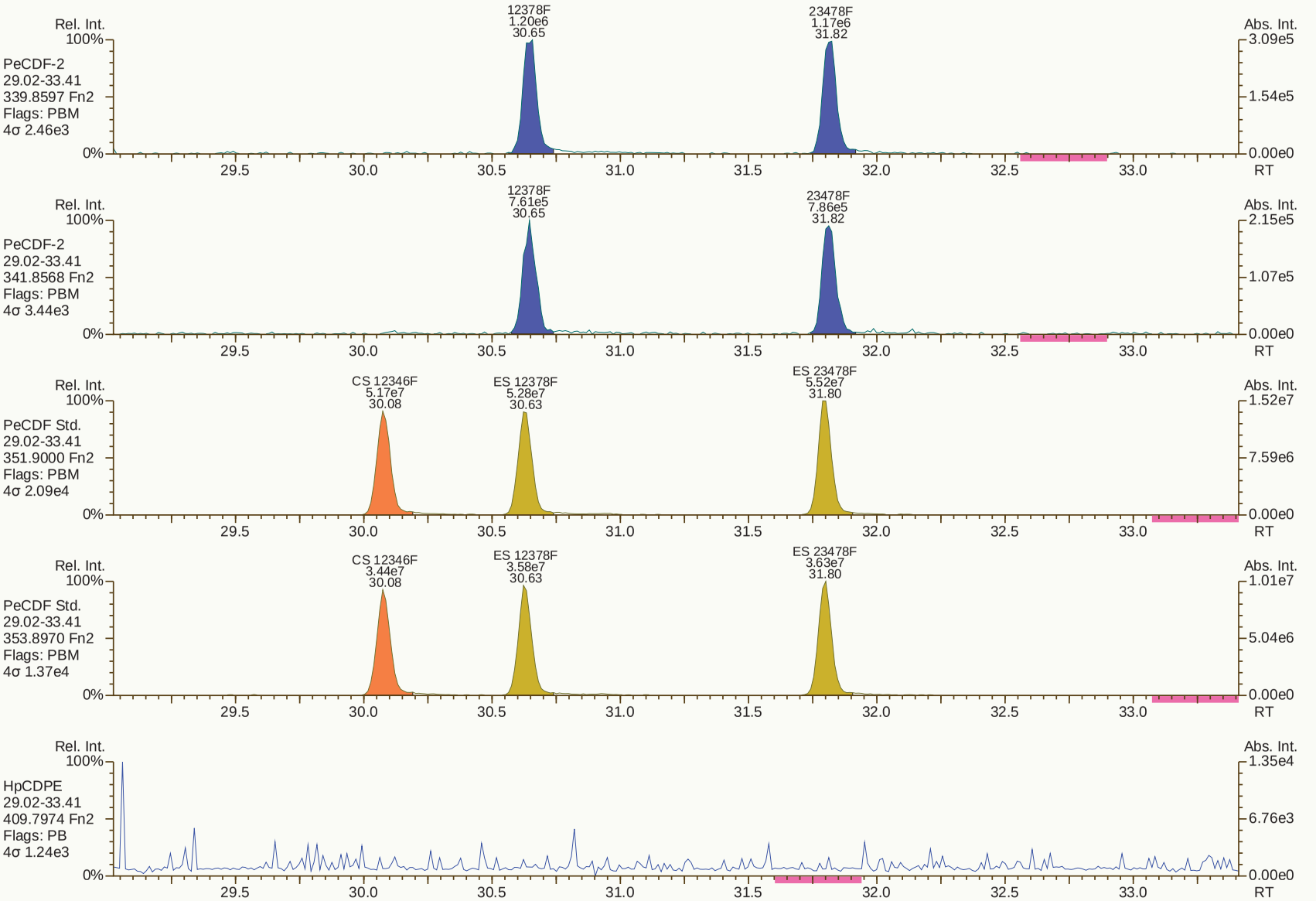
SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4427, 9842, 8036 scc: 432-737 *Revised: 14-Jul-2016 17:18 (LKB) Printed: 15-Jul-2016 14:48 Page 7 of 12*

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**

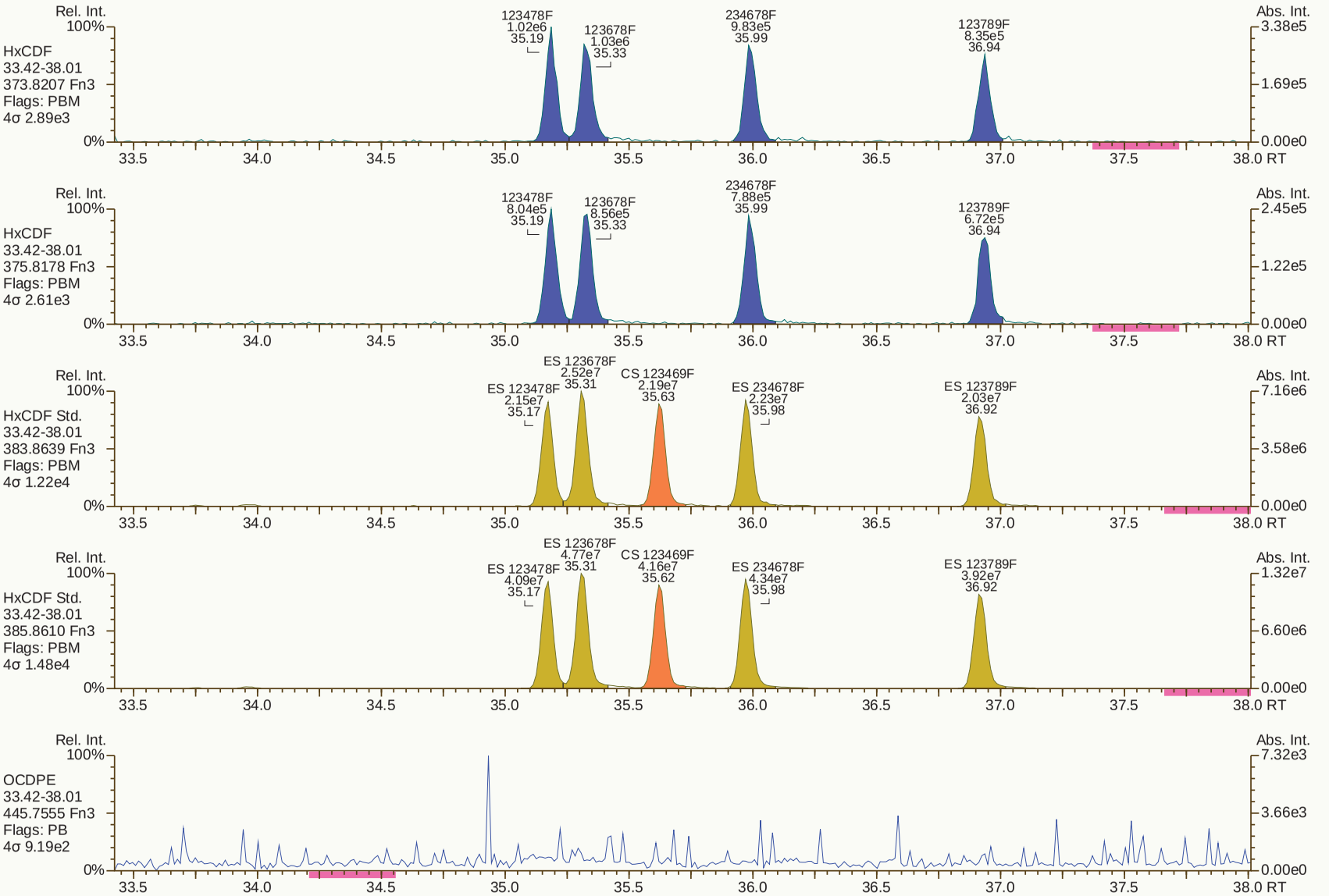
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8034 scc: 432-737 *Revised: 14-Jul-2016 17:17 (LKB) Printed: 15-Jul-2016 14:48 Page 8 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



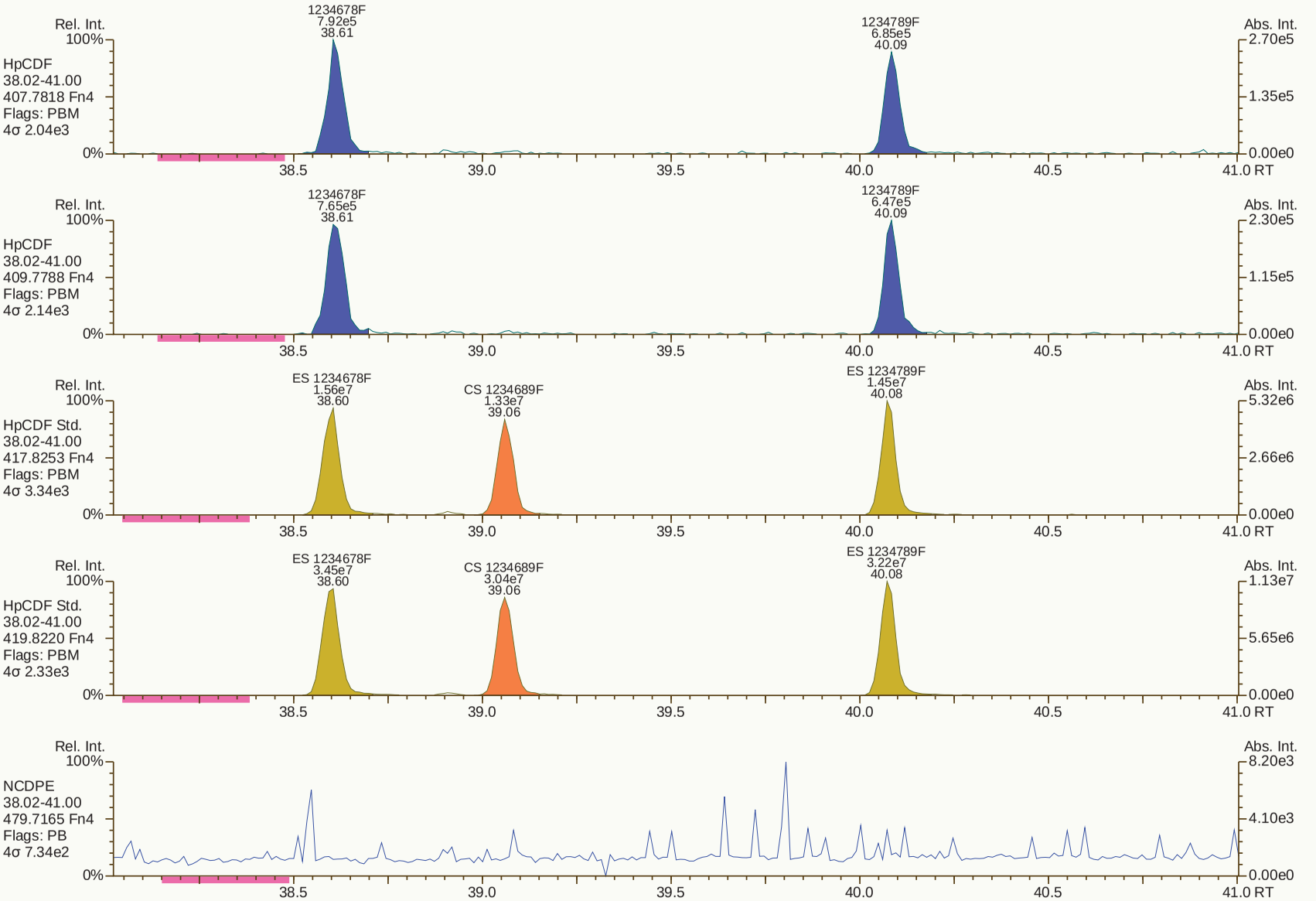
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2789, 5228, 3898 scc: 432-737 *Revised: 14-Jul-2016 17:19 (LKB) Printed: 15-Jul-2016 14:48 Page 9 of 12*

SGS ID: CS1_160714_DF_PB **Sample ID: SIL 15-105-1** **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0774, 9530, 6331 scc: 432-737 *PKD: 14-Jul-2016 17:19 Printed: 15-Jul-2016 14:48 Page 10 of 12*

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5506, 6962, 4929 scc: 432-737 *PKD: 14-Jul-2016 17:19 Printed: 15-Jul-2016 14:48 Page 11 of 12*

SGS ID: CS1_160714_DF_PB | **Sample ID: SIL 15-105-1** | **Acq: 14-Jul-2016 16:12:53**

Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 8** | **User: LKB Datafile: 160714P15**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS1_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5396, 5374, 6527 scc: 432-737 *PKD: 14-Jul-2016 17:19 Printed: 15-Jul-2016 14:48 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 17:00 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS2_160714_DF_PB	UTP: 15-Jul-2016 14:40:55 LKB	Checkcode: 281-247-LHF
Sample ID: SIL 15-104-3	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P16

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.45	1.62E+06	0.77	Y	1.04	1.01	-3%
12378-PeCDD	32.18	6.87E+06	1.54	Y	0.93	0.92	-2%
123478-HxCDD	36.17	6.05E+06	1.21	Y	0.97	0.94	-4%
123678-HxCDD	36.28	5.77E+06	1.24	Y	1.00	0.97	-3%
123789-HxCDD	36.57	6.13E+06	1.22	Y	0.92	0.88	-4%
1234678-HpCDD	39.64	5.10E+06	1.05	Y	0.96	0.93	-3%
OCDD	42.06	8.82E+06	0.90	Y	1.03	1.04	1%
2378-TCDF	25.49	2.18E+06	0.78	Y	0.99	0.98	-1%
12378-PeCDF	30.64	9.18E+06	1.52	Y	0.94	0.95	0%
23478-PeCDF	31.81	9.41E+06	1.47	Y	0.93	0.92	-2%
123478-HxCDF	35.18	8.17E+06	1.23	Y	1.19	1.17	-2%
123678-HxCDF	35.32	8.80E+06	1.20	Y	1.10	1.08	-2%
234678-HxCDF	35.98	8.09E+06	1.21	Y	1.11	1.10	0%
123789-HxCDF	36.93	7.13E+06	1.23	Y	1.08	1.08	0%
1234678-HpCDF	38.60	7.05E+06	1.02	Y	1.28	1.26	-2%
1234789-HpCDF	40.08	6.37E+06	1.02	Y	1.22	1.24	2%
OCDF	42.22	1.07E+07	0.90	Y	1.01	1.01	0%
ES 2378-TCDD	26.43	8.00E+07	0.77	Y	1.04	1.02	-2%
ES 12378-PeCDD	32.16	7.50E+07	1.60	Y	1.00	0.95	-4%
ES 123478-HxCDD	36.15	6.44E+07	1.24	Y	1.08	1.09	1%
ES 123678-HxCDD	36.27	5.97E+07	1.26	Y	1.03	1.01	-2%
ES 123789-HxCDD	36.55	6.97E+07	1.28	Y	1.18	1.18	0%
ES 1234678-HpCDD	39.63	5.51E+07	1.06	Y	0.97	0.93	-4%
ES OCDD	42.05	8.51E+07	0.89	Y	0.76	0.72	-5%
ES 2378-TCDF	25.46	1.11E+08	0.73	Y	1.06	1.05	-1%
ES 12378-PeCDF	30.62	9.72E+07	1.50	Y	0.99	0.92	-7%
ES 23478-PeCDF	31.79	1.03E+08	1.51	Y	1.02	0.97	-5%
ES 123478-HxCDF	35.16	6.99E+07	0.52	Y	1.20	1.18	-2%
ES 123678-HxCDF	35.3	8.17E+07	0.53	Y	1.40	1.38	-1%
ES 234678-HxCDF	35.96	7.34E+07	0.53	Y	1.27	1.24	-2%
ES 123789-HxCDF	36.91	6.63E+07	0.51	Y	1.16	1.12	-3%
ES 1234678-HpCDF	38.59	5.60E+07	0.45	Y	0.98	0.95	-3%
ES 1234789-HpCDF	40.07	5.12E+07	0.45	Y	0.90	0.87	-4%
ES OCDF	42.21	1.06E+08	0.90	Y	0.96	0.90	-6%

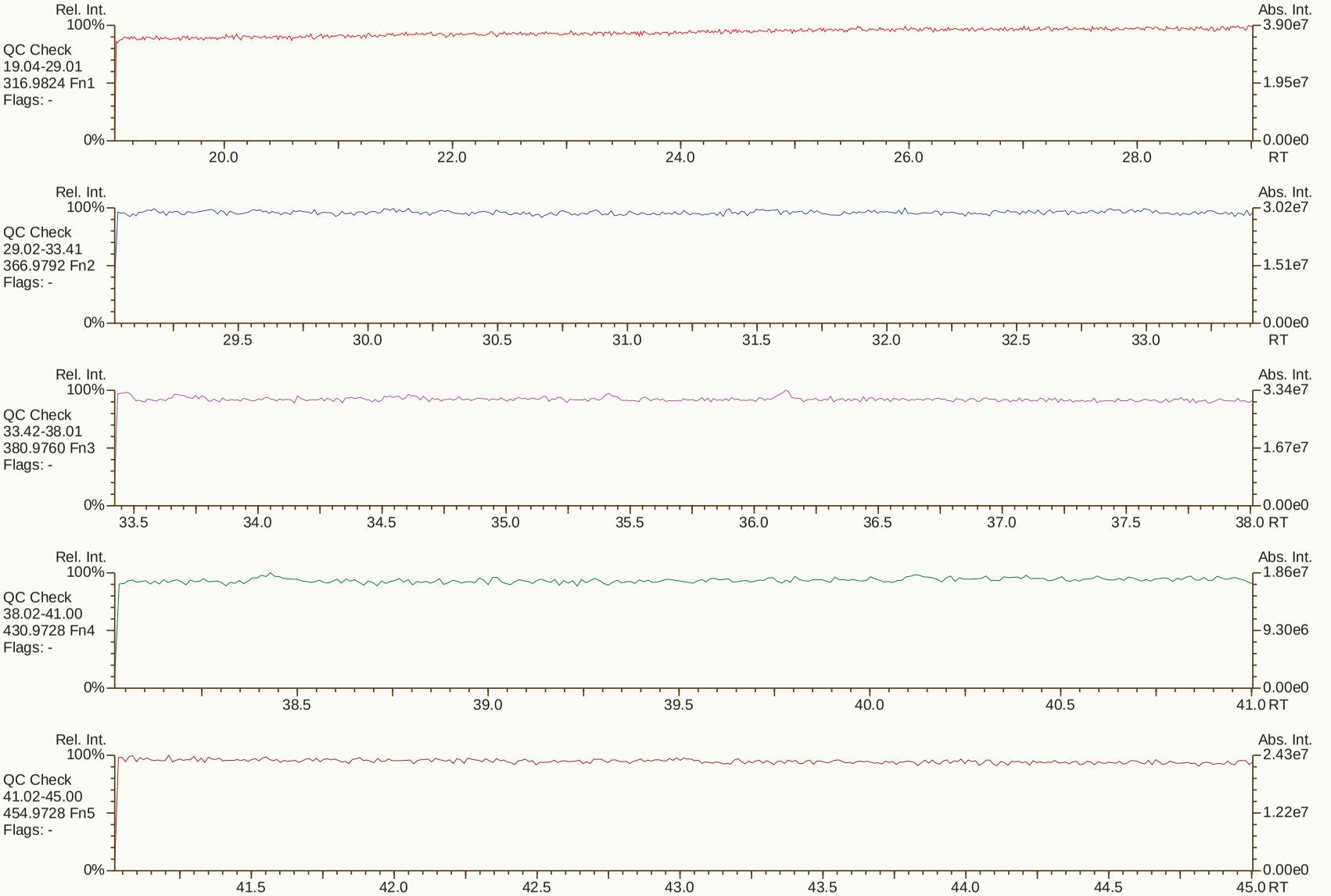
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 17:00 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS2_160714_DF_PB | **UTP: 15-Jul-2016 14:40:55 LKB** | **Checkcode: 281-247-LHF**

Sample ID: SIL 15-104-3 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P16**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	7.87E+07	0.81	Y	-	-	-
JS 1234-TCDF	23.95	1.05E+08	0.72	Y	-	-	-
JS 123467-HxCDD	36.45	2.95E+07	1.27	Y	-	-	-
CS 37Cl-2378-TCDD	26.45	1.51E+06	n/a	-	1.05	0.96	-9%
CS 12347-PeCDD	31.64	7.21E+07	1.61	Y	0.91	0.92	0%
CS 12346-PeCDF	30.07	1.05E+08	1.50	Y	0.98	1.00	2%
CS 123469-HxCDF	35.62	7.69E+07	0.55	Y	1.25	1.30	4%
CS 1234689-HpCDF	39.05	5.04E+07	0.45	Y	0.85	0.85	1%
SS 37Cl-2378-TCDD	26.45	1.51E+06	n/a	-	1.03	0.94	-8%
SS 12347-PeCDD	31.64	7.21E+07	1.61	Y	0.92	0.96	5%
SS 12346-PeCDF	30.07	1.05E+08	1.50	Y	0.99	1.08	9%
SS 123469-HxCDF	35.62	7.69E+07	0.55	Y	0.89	0.94	6%
SS 1234689-HpCDF	39.05	5.04E+07	0.45	Y	0.87	0.90	4%
AS 1368-TCDD	22.29	8.07E+07	0.79	Y	1.02	1.03	1%
AS 1368-TCDF	20.16	1.47E+08	0.71	Y	1.41	1.40	-1%
FS 1278-TCDD	26.79	1.07E+08	0.78	Y	1.31	1.34	3%
FS 12478-PeCDD	30.88	9.05E+07	1.63	Y	1.15	1.21	5%
FS 123468-HxCDD	35.09	8.50E+07	1.26	Y	1.31	1.32	1%
FS 1234679-HpCDD	38.90	7.27E+07	1.03	Y	1.24	1.32	6%
TS 1378-TCDD	24.60	1.02E+08	0.79	Y	1.23	1.28	4%
OCDD-a	42.06	4.36E+05	2.33	Y	0.06	0.05	-14%
OCDF-a	42.22	6.53E+05	2.51	Y	0.06	0.06	3%

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**

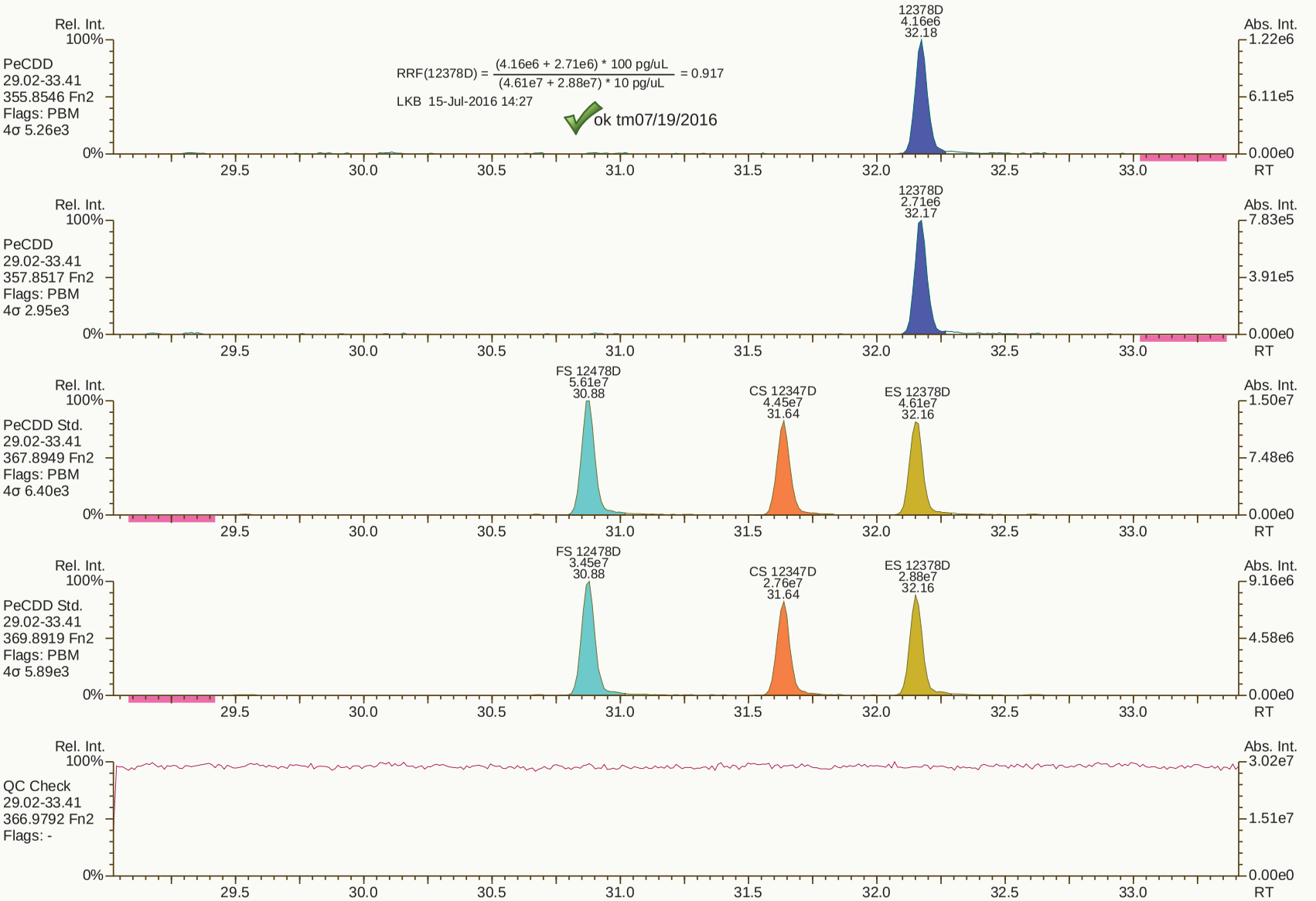


Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 281-247 | *PKD: n/a Printed: 15-Jul-2016 14:48 Page 1 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1328, 2823, 5182 scc: 281-247 *PKD: 15-Jul-2016 09:57 Printed: 15-Jul-2016 14:48 Page 2 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



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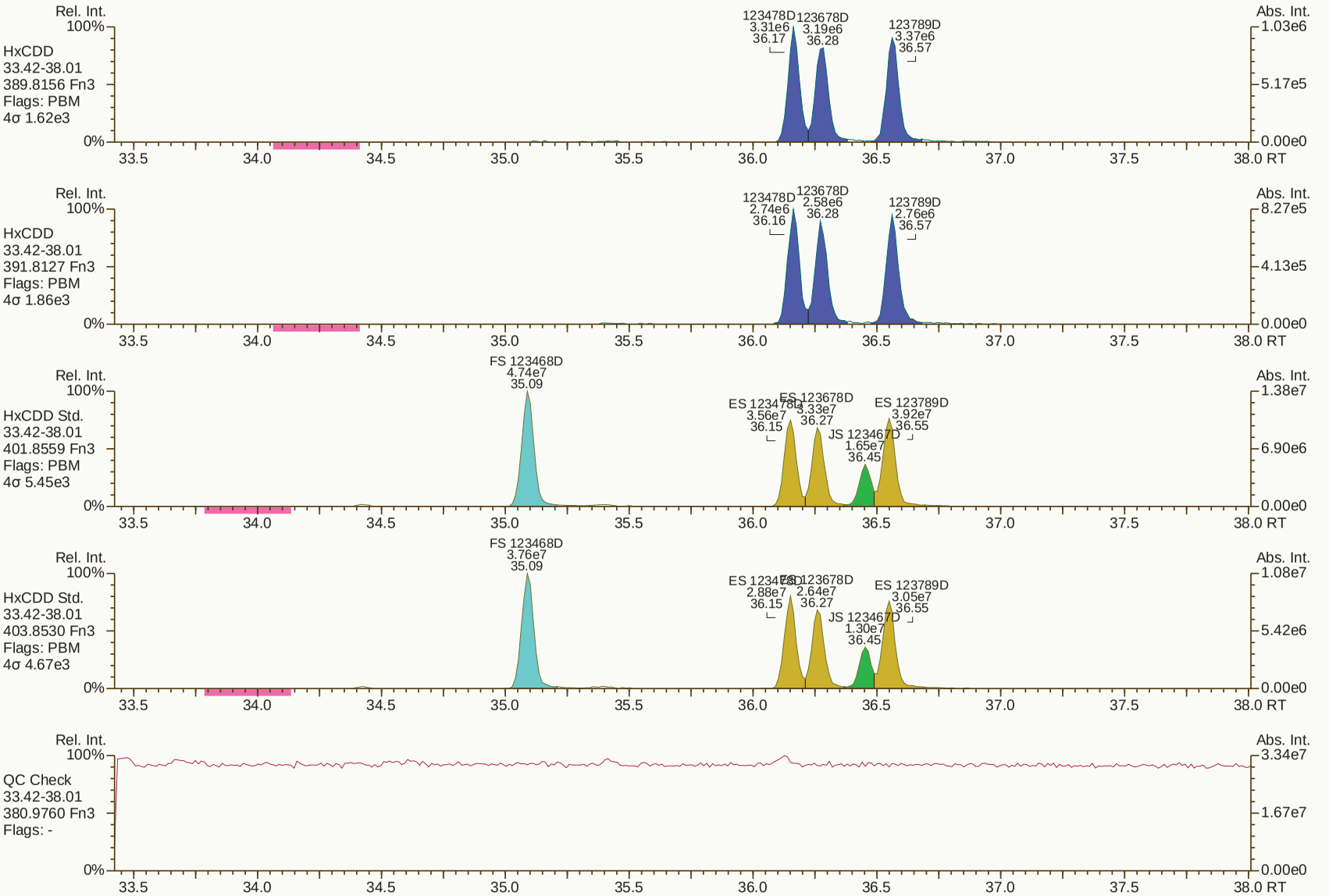
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7434, 6774 scc: 281-247 *PKD: 15-Jul-2016 09:58 Printed: 15-Jul-2016 14:48 Page 3 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



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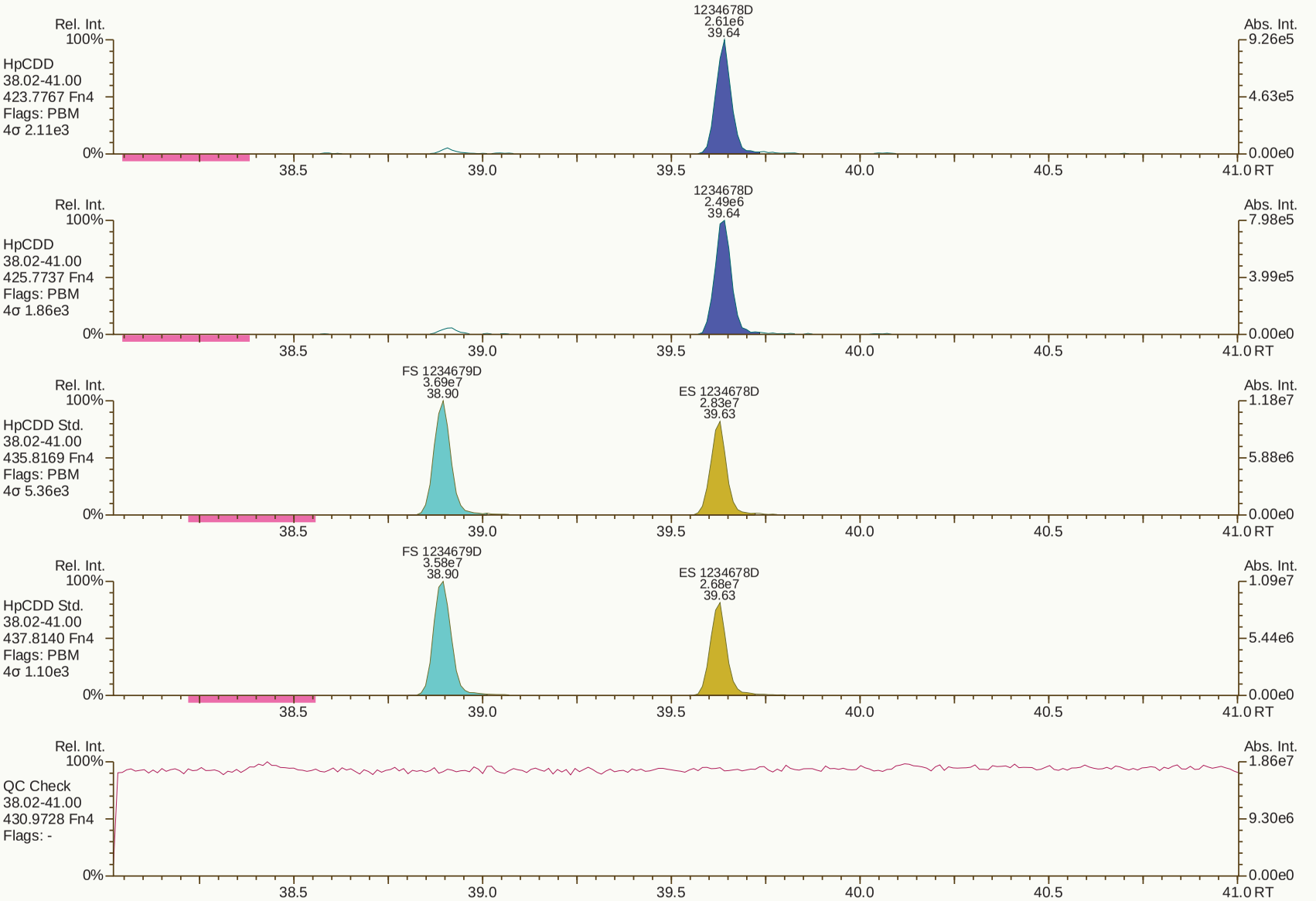
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6493, 9963 scc: 281-247 *PKD: 15-Jul-2016 09:57 Printed: 15-Jul-2016 14:48 Page 4 of 12*

SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5659, 1160 scc: 281-247 *PKD: 15-Jul-2016 09:58 Printed: 15-Jul-2016 14:48 Page 5 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7408, 5193 scc: 281-247 *Revised: 15-Jul-2016 09:58 (LKB) Printed: 15-Jul-2016 14:48 Page 6 of 12*

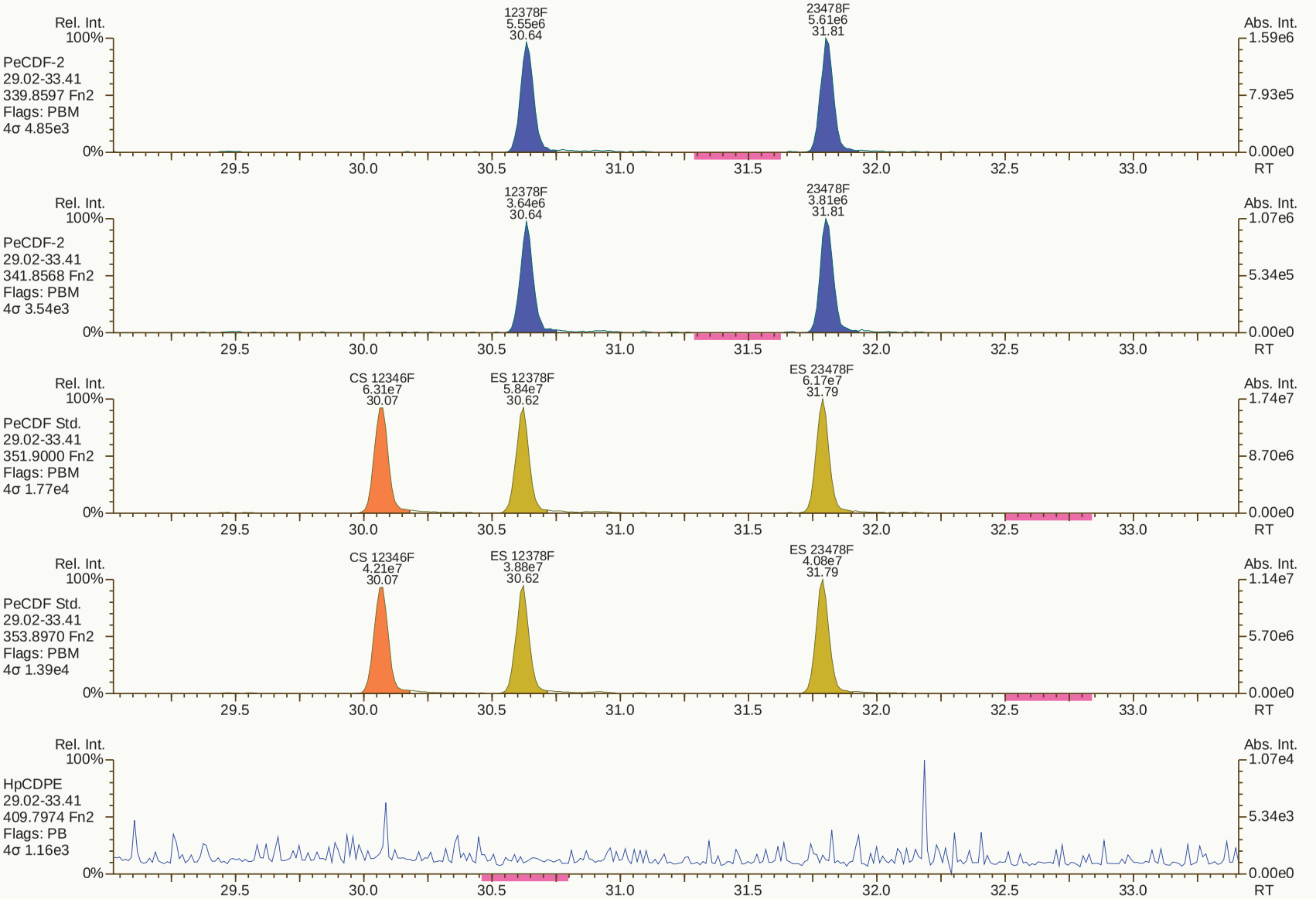
SGS ID: CS2_160714_DF_PB | **Sample ID: SIL 15-104-3** | **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** | **User: LKB Datafile: 160714P16**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8132, 1253, 4701 scc: 281-247 *Revised: 15-Jul-2016 09:58 (LKB) Printed: 15-Jul-2016 14:48 Page 7 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**

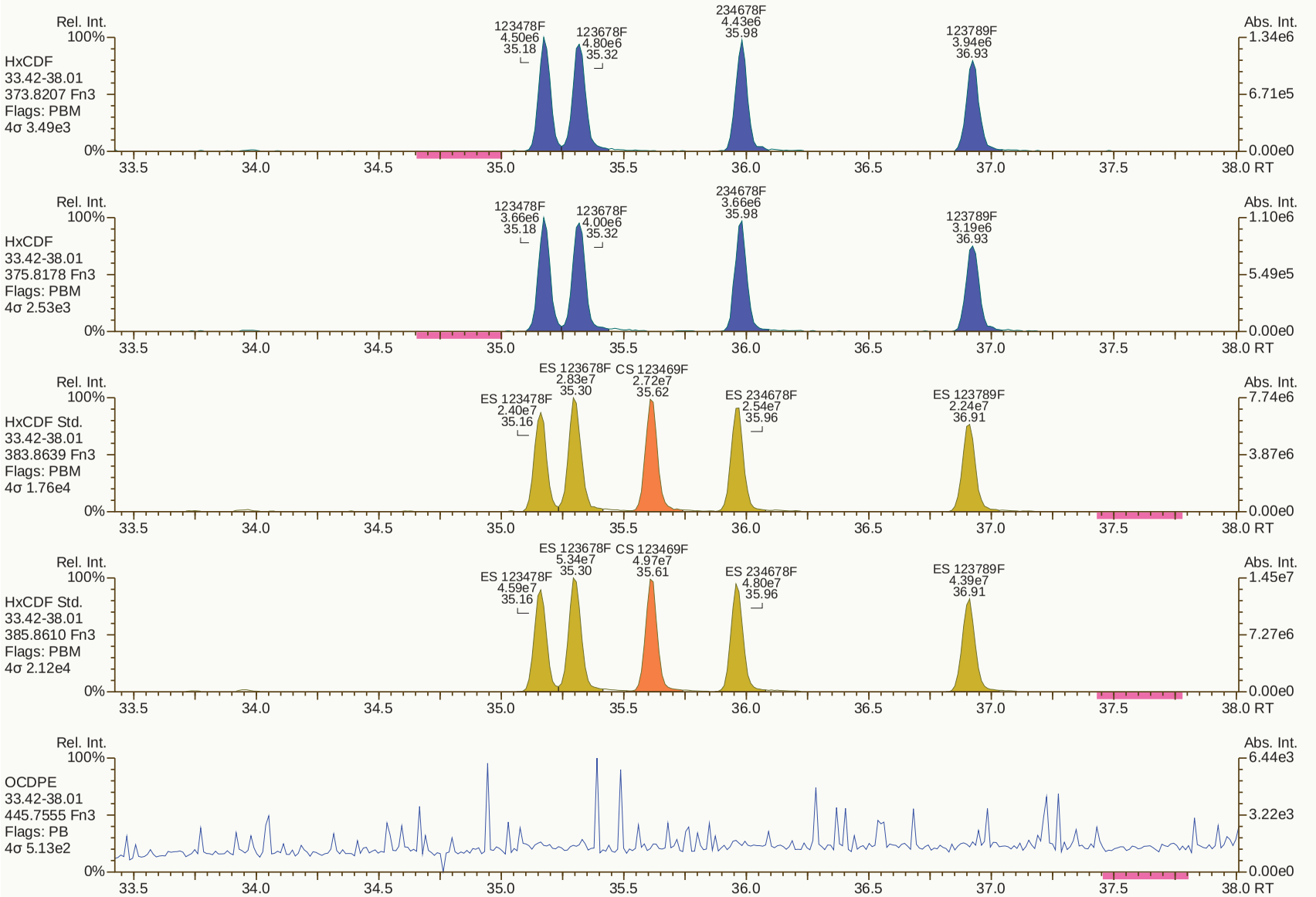
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3169 scc: 281-247 *Revised: 15-Jul-2016 09:56 (LKB) Printed: 15-Jul-2016 14:48 Page 8 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5563, 1611, 1999 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 9 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**



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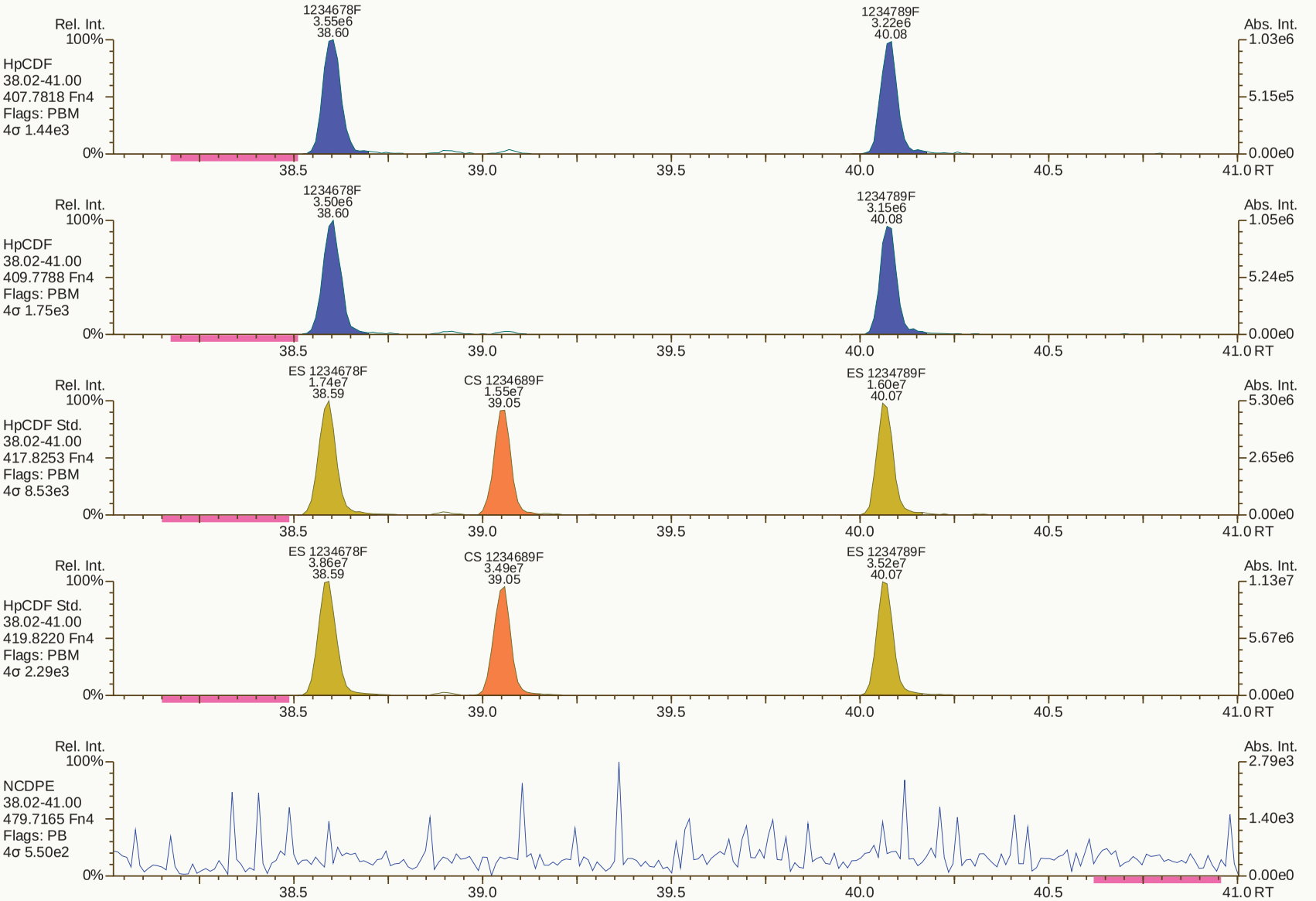
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2768, 2943, 3643 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 10 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5111, 6871, 1668 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 11 of 12*

SGS ID: CS2_160714_DF_PB **Sample ID: SIL 15-104-3** **Acq: 14-Jul-2016 17:00:11**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 9** **User: LKB Datafile: 160714P16**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS2_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8867, 5381, 1874 scc: 281-247 *PKD: 15-Jul-2016 09:59 Printed: 15-Jul-2016 14:48 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 17:49 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS3_160714_DF_PC	UTP: 15-Jul-2016 14:40:56 LKB	Checkcode: 686-028-CSW
Sample ID: SIL 15-104-2	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P17

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.46	9.48E+06	0.80	Y	1.04	1.03	-1%
12378-PeCDD	32.18	3.98E+07	1.56	Y	0.93	0.92	-2%
123478-HxCDD	36.17	3.48E+07	1.25	Y	0.97	0.94	-4%
123678-HxCDD	36.28	3.47E+07	1.27	Y	1.00	0.98	-2%
123789-HxCDD	36.57	3.67E+07	1.23	Y	0.92	0.91	-1%
1234678-HpCDD	39.64	3.14E+07	1.05	Y	0.96	0.94	-1%
OCDD	42.07	5.20E+07	0.88	Y	1.03	1.00	-3%
2378-TCDF	25.49	1.24E+07	0.79	Y	0.99	0.96	-3%
12378-PeCDF	30.64	5.50E+07	1.56	Y	0.94	0.91	-4%
23478-PeCDF	31.81	5.52E+07	1.53	Y	0.93	0.91	-2%
123478-HxCDF	35.18	4.79E+07	1.23	Y	1.19	1.15	-4%
123678-HxCDF	35.32	5.28E+07	1.24	Y	1.10	1.08	-2%
234678-HxCDF	35.98	4.77E+07	1.22	Y	1.11	1.09	-2%
123789-HxCDF	36.93	4.18E+07	1.24	Y	1.08	1.06	-2%
1234678-HpCDF	38.61	4.22E+07	1.02	Y	1.28	1.24	-3%
1234789-HpCDF	40.08	3.68E+07	1.03	Y	1.22	1.19	-2%
OCDF	42.22	6.38E+07	0.89	Y	1.01	0.99	-2%
ES 2378-TCDD	26.43	9.21E+07	0.78	Y	1.04	1.01	-3%
ES 12378-PeCDD	32.16	8.68E+07	1.60	Y	1.00	0.95	-4%
ES 123478-HxCDD	36.15	7.40E+07	1.28	Y	1.08	1.01	-6%
ES 123678-HxCDD	36.27	7.09E+07	1.26	Y	1.03	0.97	-7%
ES 123789-HxCDD	36.55	8.03E+07	1.29	Y	1.18	1.09	-7%
ES 1234678-HpCDD	39.63	6.67E+07	1.06	Y	0.97	0.91	-6%
ES OCDD	42.06	1.04E+08	0.89	Y	0.76	0.71	-6%
ES 2378-TCDF	25.47	1.29E+08	0.74	Y	1.06	1.04	-2%
ES 12378-PeCDF	30.62	1.21E+08	1.54	Y	0.99	0.98	-1%
ES 23478-PeCDF	31.79	1.21E+08	1.51	Y	1.02	0.98	-4%
ES 123478-HxCDF	35.16	8.35E+07	0.52	Y	1.20	1.14	-6%
ES 123678-HxCDF	35.31	9.76E+07	0.53	Y	1.40	1.33	-5%
ES 234678-HxCDF	35.97	8.78E+07	0.52	Y	1.27	1.20	-6%
ES 123789-HxCDF	36.91	7.89E+07	0.52	Y	1.16	1.07	-7%
ES 1234678-HpCDF	38.59	6.80E+07	0.46	Y	0.98	0.93	-5%
ES 1234789-HpCDF	40.07	6.17E+07	0.46	Y	0.90	0.84	-7%
ES OCDF	42.21	1.29E+08	0.90	Y	0.96	0.88	-8%

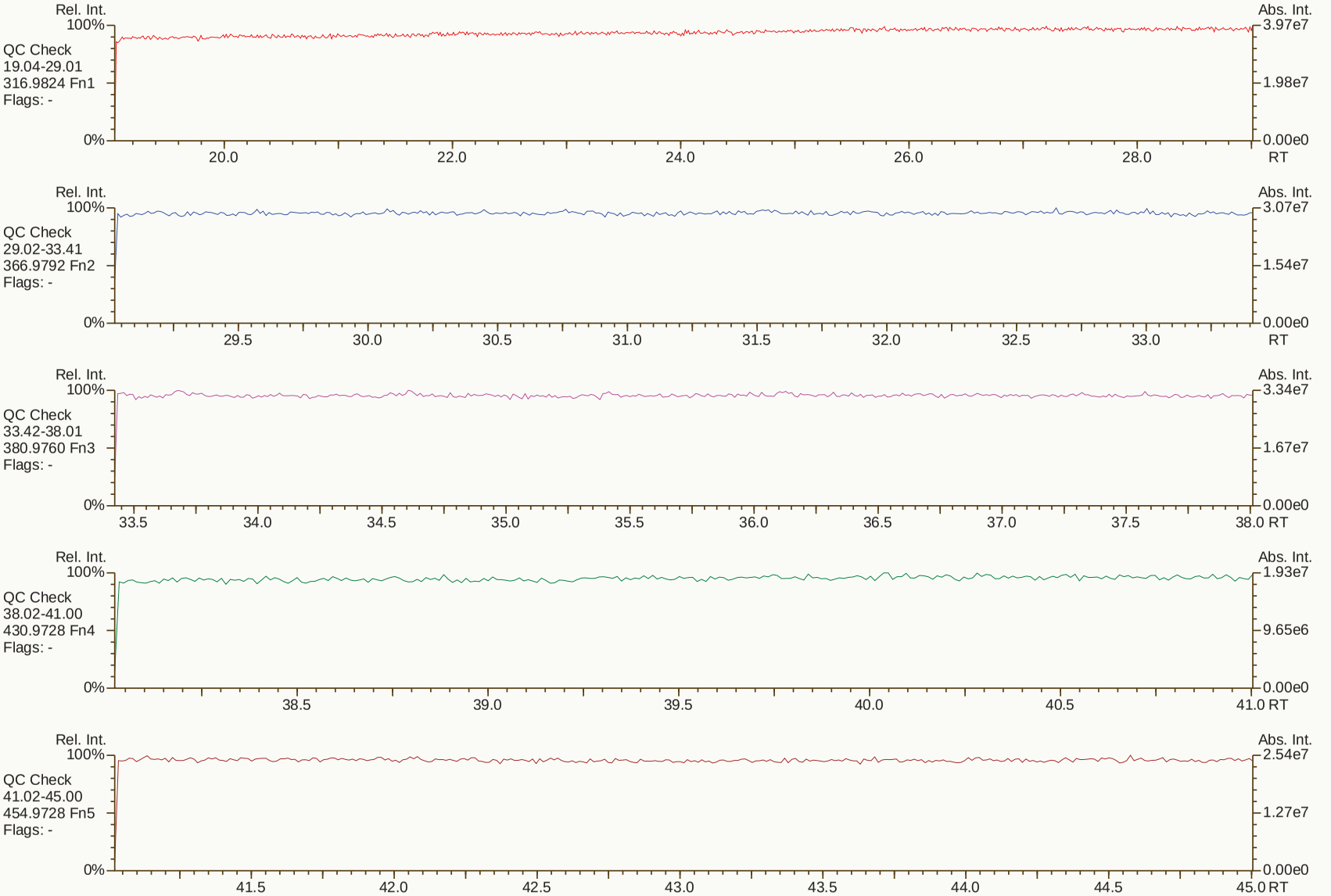
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 17:49 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS3_160714_DF_PC | **UTP: 15-Jul-2016 14:40:56 LKB** | **Checkcode: 686-028-CSW**

Sample ID: SIL 15-104-2 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P17**

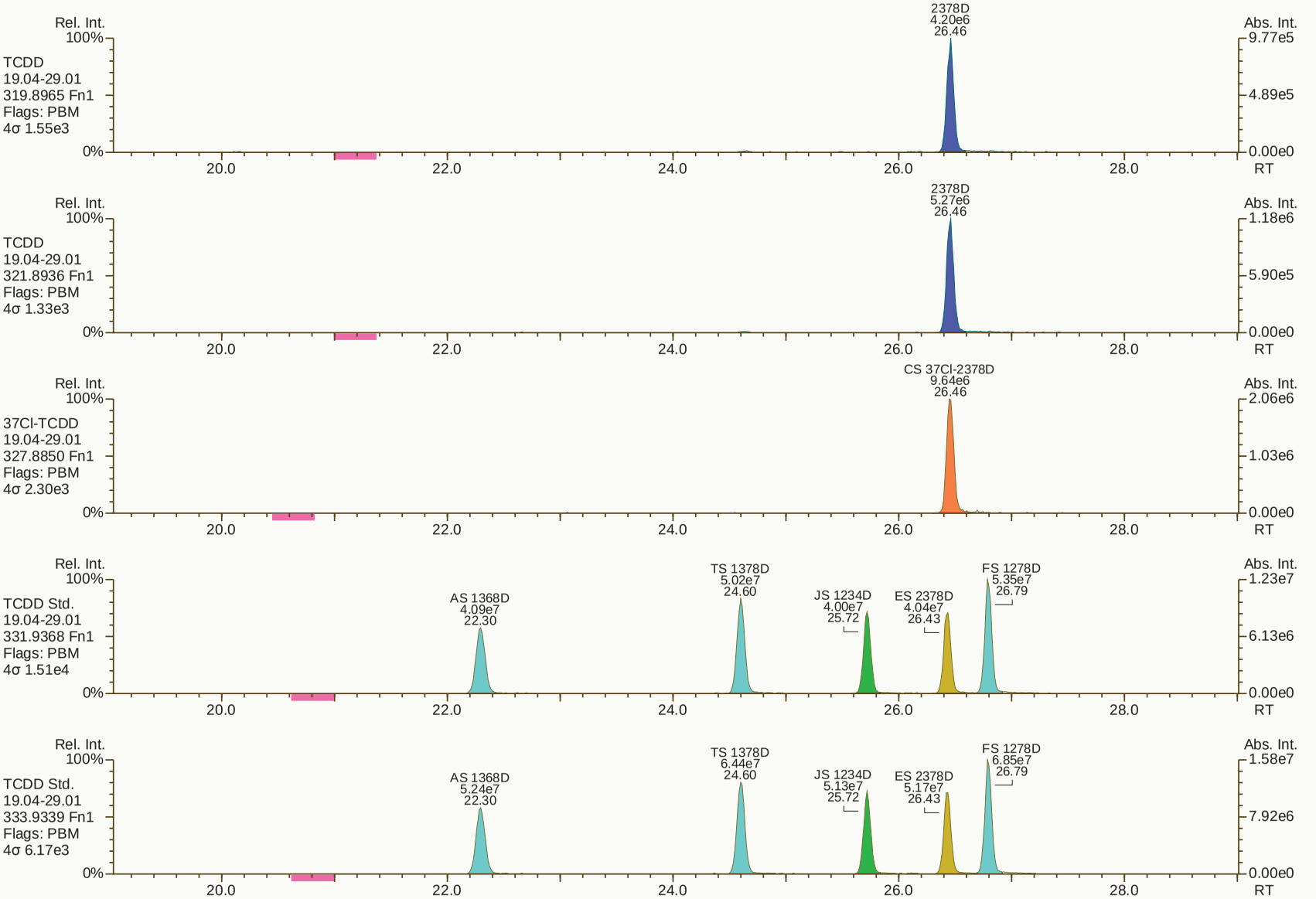
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	9.13E+07	0.78	Y	-	-	-
JS 1234-TCDF	23.95	1.24E+08	0.72	Y	-	-	-
JS 123467-HxCDD	36.46	3.67E+07	1.28	Y	-	-	-
CS 37Cl-2378-TCDD	26.46	9.64E+06	n/a	-	1.05	1.06	0%
CS 12347-PeCDD	31.64	8.05E+07	1.57	Y	0.91	0.88	-3%
CS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.98	0.94	-3%
CS 123469-HxCDF	35.62	8.59E+07	0.52	Y	1.25	1.17	-6%
CS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.85	0.80	-5%
SS 37Cl-2378-TCDD	26.46	9.64E+06	n/a	-	1.03	1.05	2%
SS 12347-PeCDD	31.64	8.05E+07	1.57	Y	0.92	0.93	1%
SS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.99	0.97	-2%
SS 123469-HxCDF	35.62	8.59E+07	0.52	Y	0.89	0.88	-1%
SS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.87	0.87	0%
AS 1368-TCDD	22.30	9.33E+07	0.78	Y	1.02	1.02	0%
AS 1368-TCDF	20.16	1.73E+08	0.73	Y	1.41	1.39	-1%
FS 1278-TCDD	26.79	1.22E+08	0.78	Y	1.31	1.32	1%
FS 12478-PeCDD	30.88	1.01E+08	1.62	Y	1.15	1.17	2%
FS 123468-HxCDD	35.09	9.91E+07	1.26	Y	1.31	1.34	2%
FS 1234679-HpCDD	38.90	8.55E+07	1.04	Y	1.24	1.28	3%
TS 1378-TCDD	24.60	1.15E+08	0.78	Y	1.23	1.24	1%
OCDD-a	42.06	3.03E+06	2.34	Y	0.06	0.06	-2%
OCDF-a	42.22	3.69E+06	2.80	Y	0.06	0.06	-4%

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



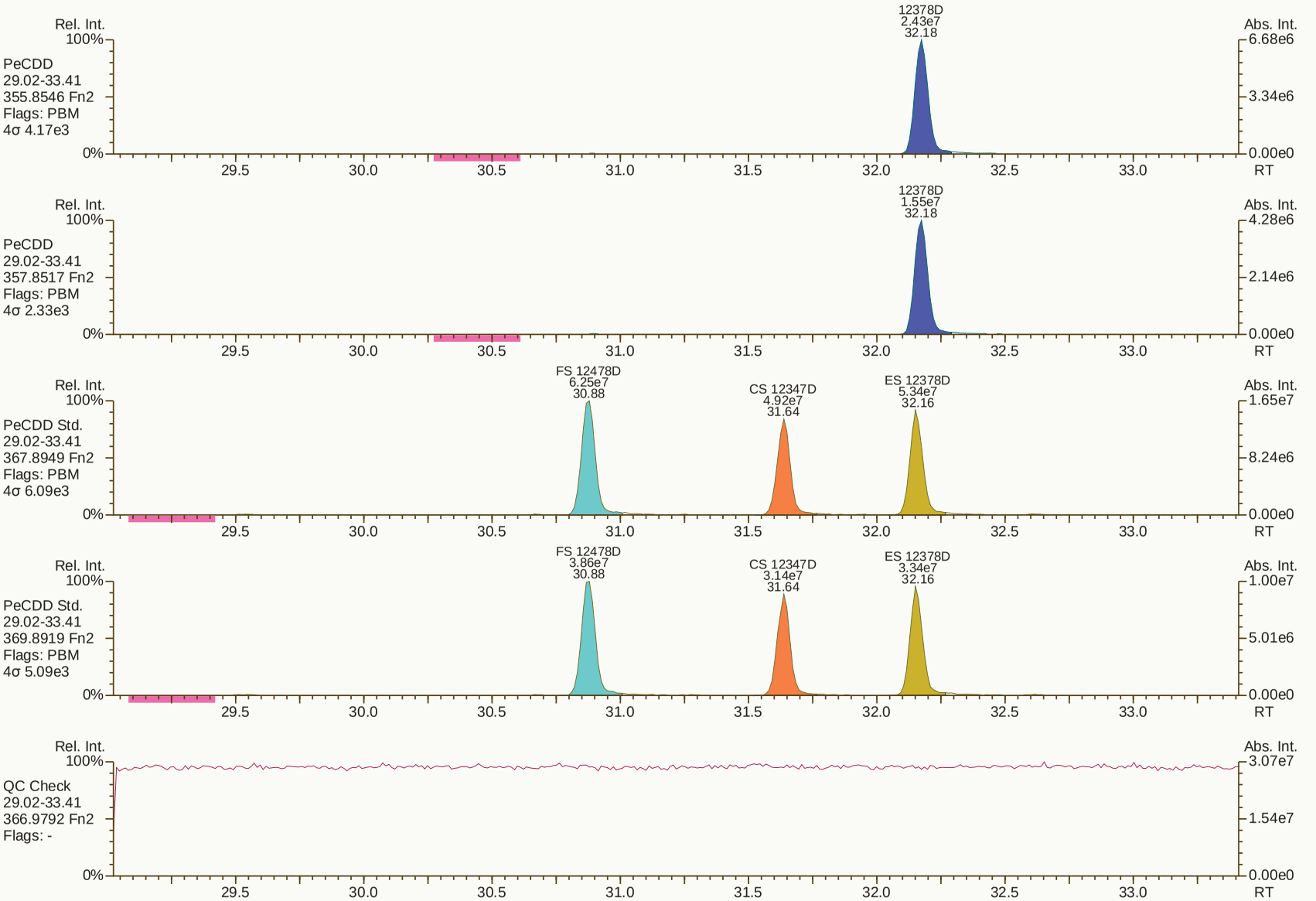
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 686-028 | *PKD: n/a Printed: 15-Jul-2016 14:49 Page 1 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9077, 4622, 1223 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 2 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



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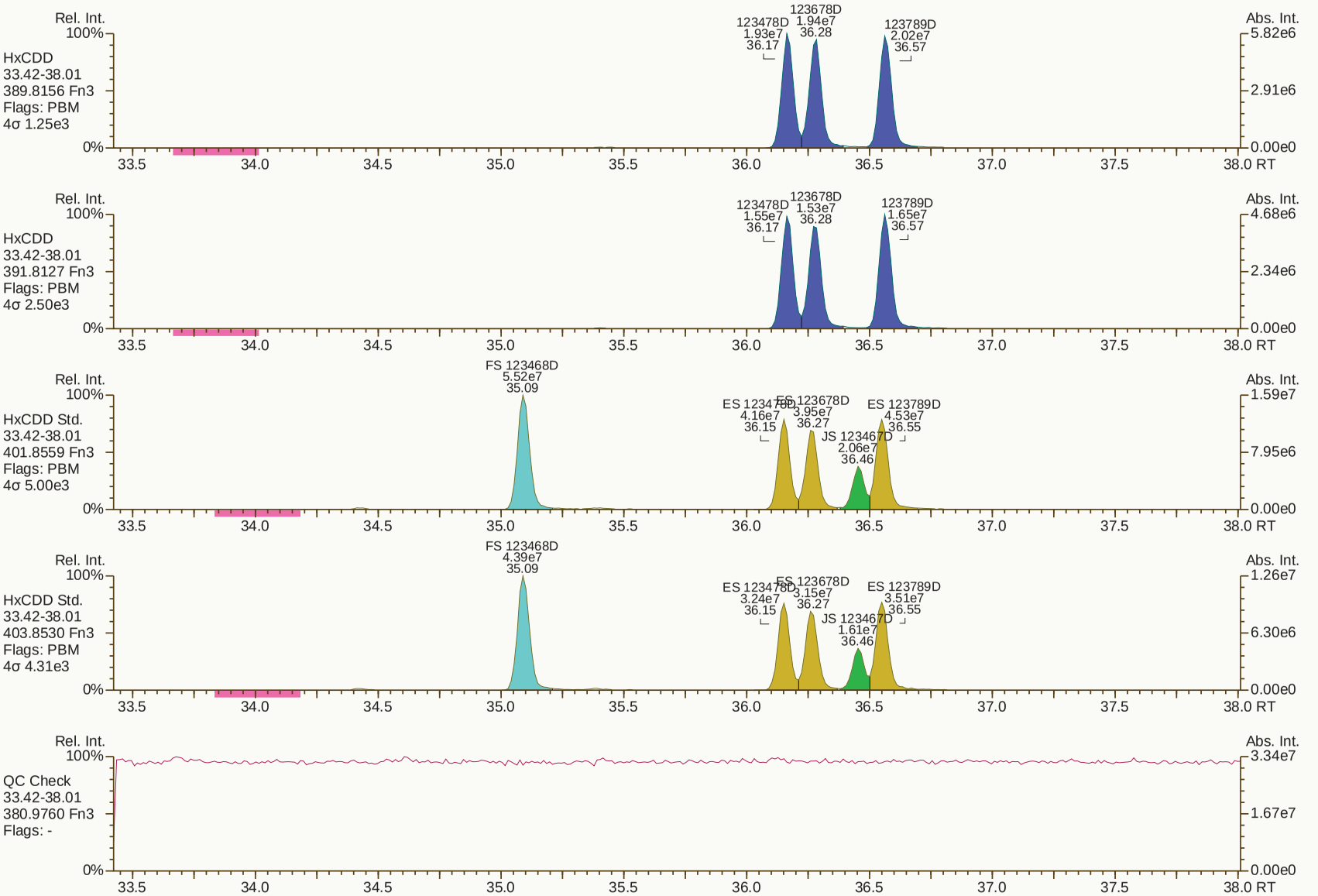
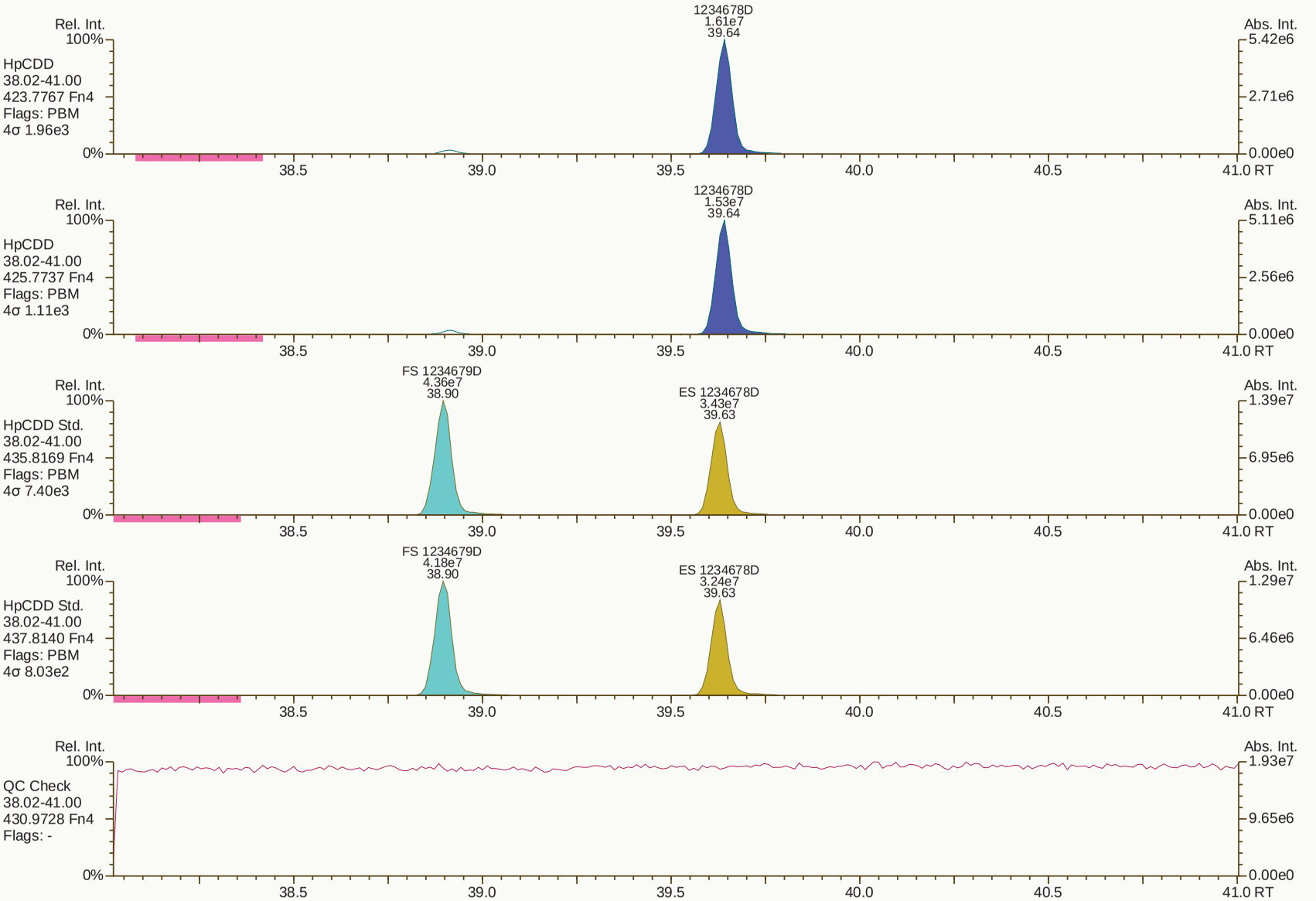
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9970, 1744 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 3 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2345, 2479 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 4 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4646, 3956 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 5 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0893, 0066 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 6 of 12*

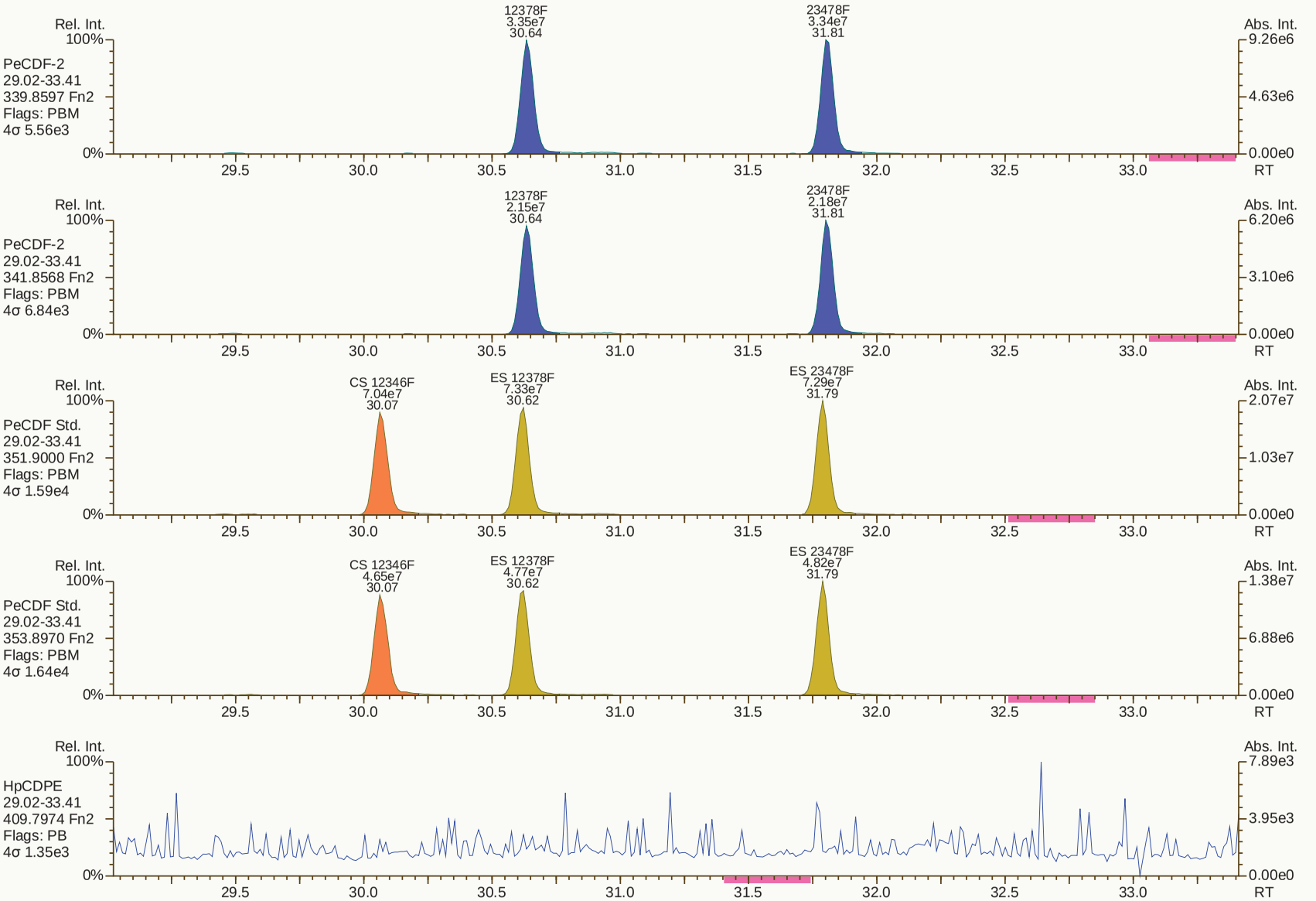
SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2088, 8662, 6355 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 7 of 12*

SGS ID: CS3_160714_DF_PC **Sample ID: SIL 15-104-2** **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: LKB Datafile: 160714P17**

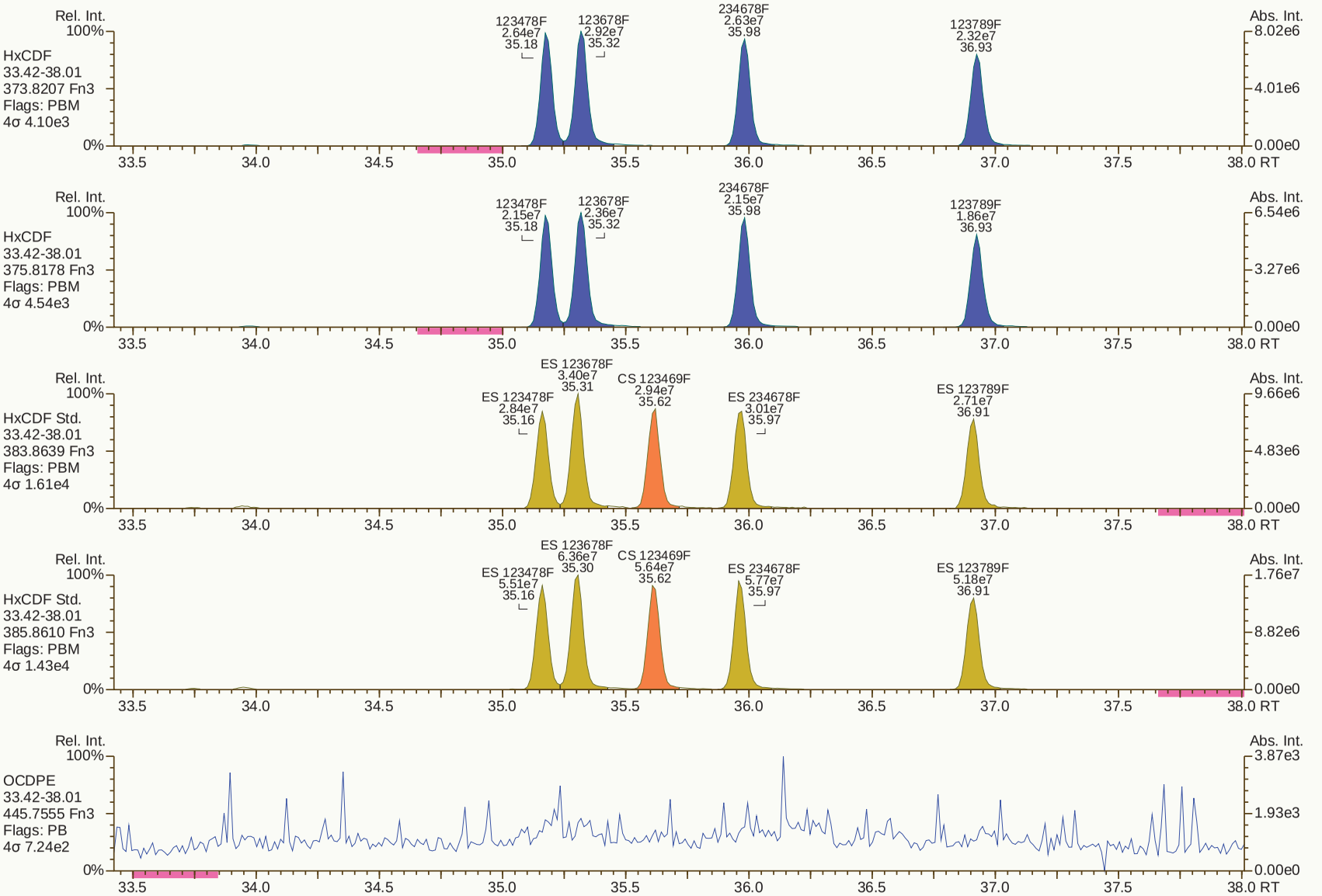
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5967 scc: 686-028 *Revised: 15-Jul-2016 10:01 (LKB) Printed: 15-Jul-2016 14:49 Page 8 of 12*

SGS ID: CS3_160714_DF_PC **Sample ID: SIL 15-104-2** **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: LKB Datafile: 160714P17**



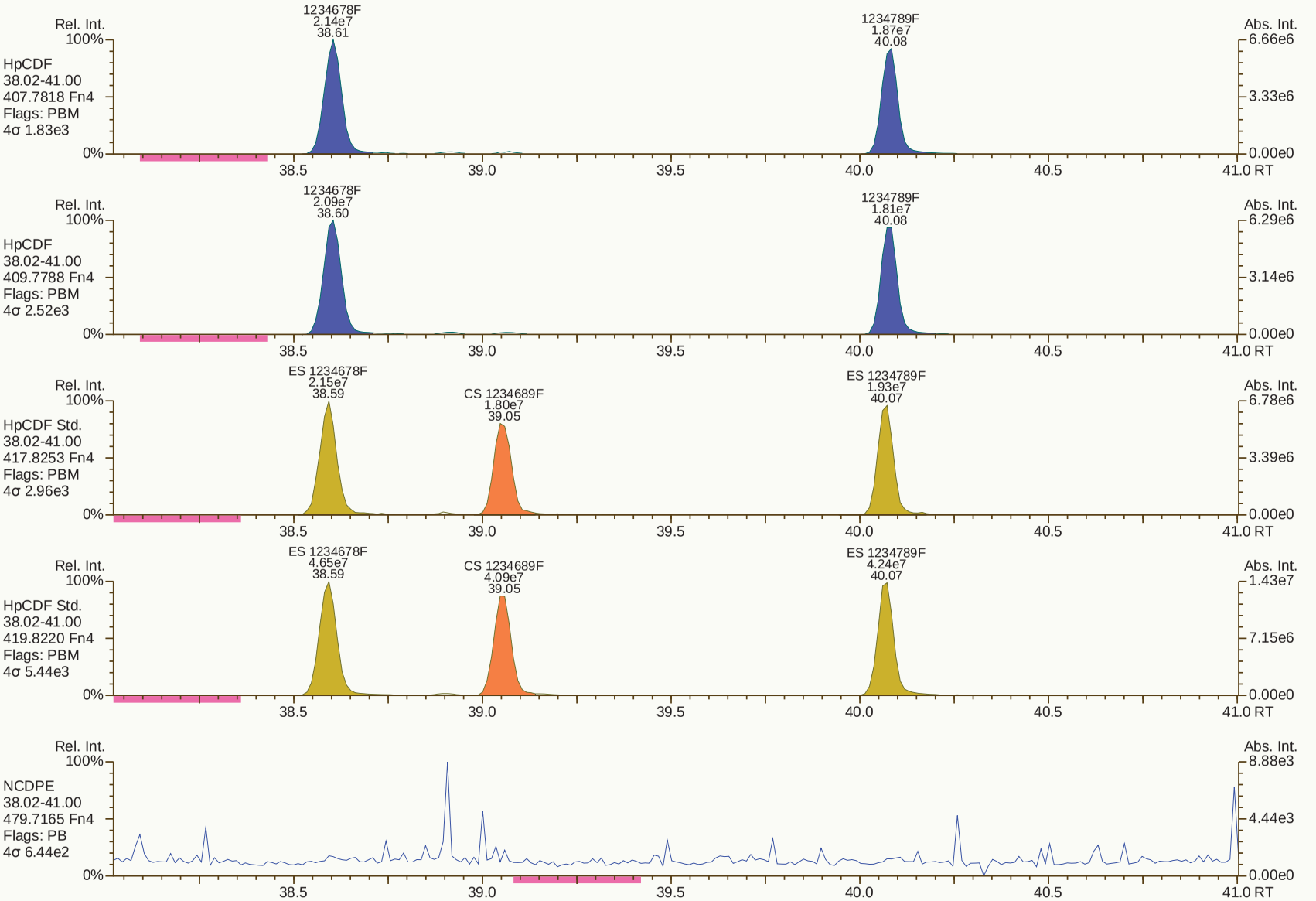
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3395, 5432, 6377 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 9 of 12*

SGS ID: CS3_160714_DF_PC **Sample ID: SIL 15-104-2** **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: LKB Datafile: 160714P17**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS3_160714_DF_PC.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2405, 2569, 0843 scc: 686-028 *Revised: 15-Jul-2016 10:03 (LKB) Printed: 15-Jul-2016 14:49 Page 10 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



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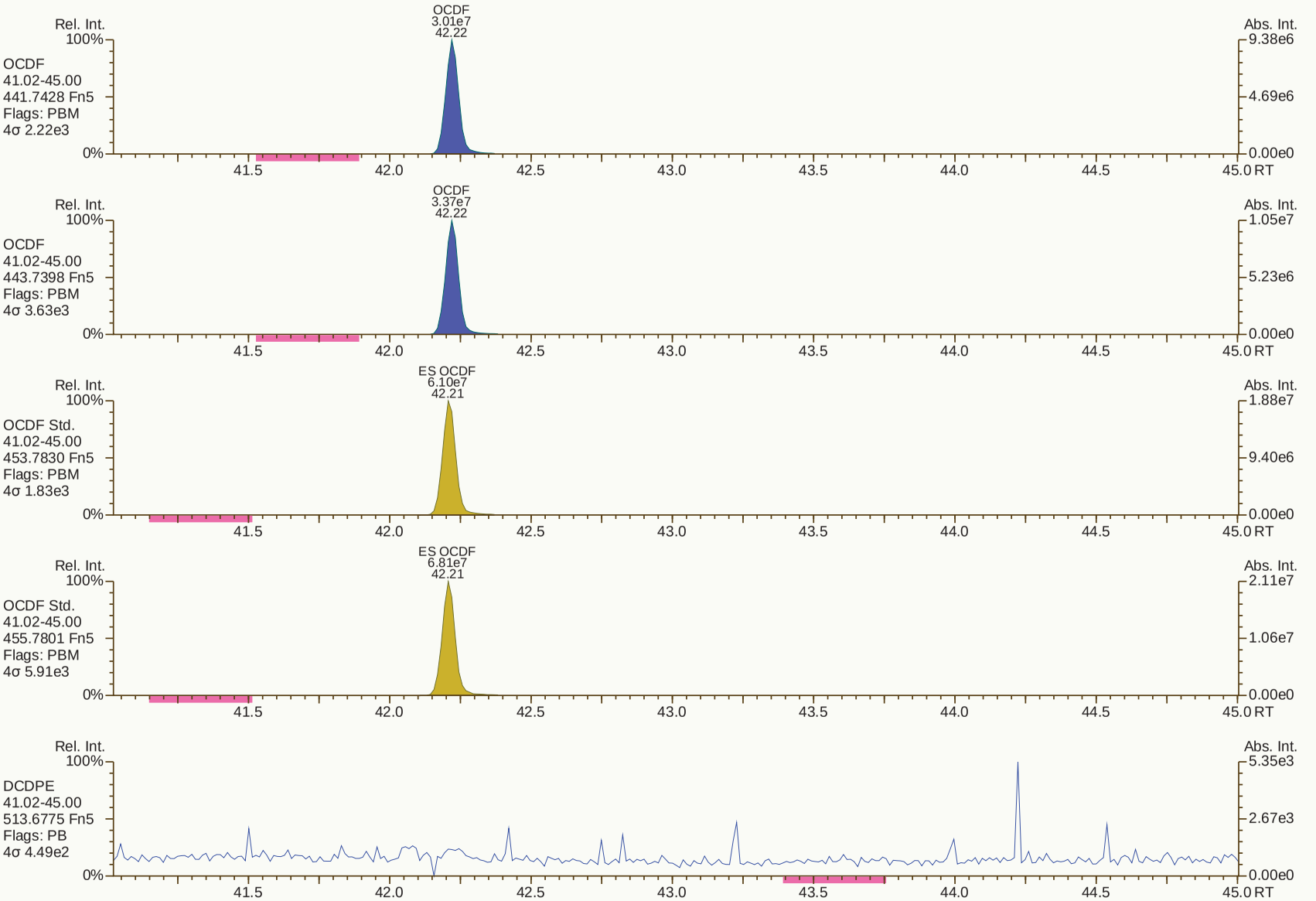
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8024, 1743, 7082 scc: 686-028 *Revised: 15-Jul-2016 14:30 (LKB) Printed: 15-Jul-2016 14:49 Page 11 of 12*

SGS ID: CS3_160714_DF_PC | **Sample ID: SIL 15-104-2** | **Acq: 14-Jul-2016 17:49:22**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: LKB Datafile: 160714P17**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6899, 8207, 5571 scc: 686-028 *PKD: 15-Jul-2016 10:03 Printed: 15-Jul-2016 14:49 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 18:38 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS4_160714_DF_PB	UTP: 15-Jul-2016 14:40:56 LKB	Checkcode: 345-926-ZBZ
Sample ID: SIL 15-104-1	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P18

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.46	4.00E+07	0.77	Y	1.04	1.11	7%
12378-PeCDD	32.18	1.72E+08	1.55	Y	0.93	0.98	6%
123478-HxCDD	36.17	1.52E+08	1.24	Y	0.97	1.03	5%
123678-HxCDD	36.28	1.46E+08	1.25	Y	1.00	1.05	6%
123789-HxCDD	36.57	1.58E+08	1.25	Y	0.92	0.96	5%
1234678-HpCDD	39.64	1.34E+08	1.04	Y	0.96	1.01	6%
OCDD	42.06	2.31E+08	0.89	Y	1.03	1.09	6%
2378-TCDF	25.49	5.10E+07	0.77	Y	0.99	1.03	4%
12378-PeCDF	30.64	2.29E+08	1.55	Y	0.94	0.99	5%
23478-PeCDF	31.81	2.37E+08	1.54	Y	0.93	0.99	6%
123478-HxCDF	35.18	2.06E+08	1.23	Y	1.19	1.25	5%
123678-HxCDF	35.32	2.20E+08	1.23	Y	1.10	1.17	6%
234678-HxCDF	35.98	2.04E+08	1.23	Y	1.11	1.18	7%
123789-HxCDF	36.93	1.84E+08	1.24	Y	1.08	1.15	7%
1234678-HpCDF	38.60	1.79E+08	1.02	Y	1.28	1.35	6%
1234789-HpCDF	40.08	1.60E+08	1.02	Y	1.22	1.29	6%
OCDF	42.22	2.86E+08	0.90	Y	1.01	1.08	7%
ES 2378-TCDD	26.43	8.99E+07	0.79	Y	1.04	1.01	-2%
ES 12378-PeCDD	32.16	8.72E+07	1.61	Y	1.00	0.98	-2%
ES 123478-HxCDD	36.15	7.43E+07	1.29	Y	1.08	1.11	4%
ES 123678-HxCDD	36.26	6.95E+07	1.26	Y	1.03	1.04	1%
ES 123789-HxCDD	36.55	8.21E+07	1.27	Y	1.18	1.23	4%
ES 1234678-HpCDD	39.63	6.60E+07	1.05	Y	0.97	0.99	2%
ES OCDD	42.05	1.05E+08	0.91	Y	0.76	0.79	5%
ES 2378-TCDF	25.47	1.24E+08	0.73	Y	1.06	1.05	-2%
ES 12378-PeCDF	30.62	1.16E+08	1.51	Y	0.99	0.98	-2%
ES 23478-PeCDF	31.79	1.20E+08	1.56	Y	1.02	1.01	-1%
ES 123478-HxCDF	35.16	8.23E+07	0.53	Y	1.20	1.24	3%
ES 123678-HxCDF	35.3	9.46E+07	0.54	Y	1.40	1.42	1%
ES 234678-HxCDF	35.96	8.63E+07	0.52	Y	1.27	1.30	2%
ES 123789-HxCDF	36.91	7.95E+07	0.54	Y	1.16	1.19	3%
ES 1234678-HpCDF	38.59	6.62E+07	0.45	Y	0.98	0.99	2%
ES 1234789-HpCDF	40.07	6.17E+07	0.45	Y	0.90	0.93	3%
ES OCDF	42.21	1.33E+08	0.90	Y	0.96	1.00	4%

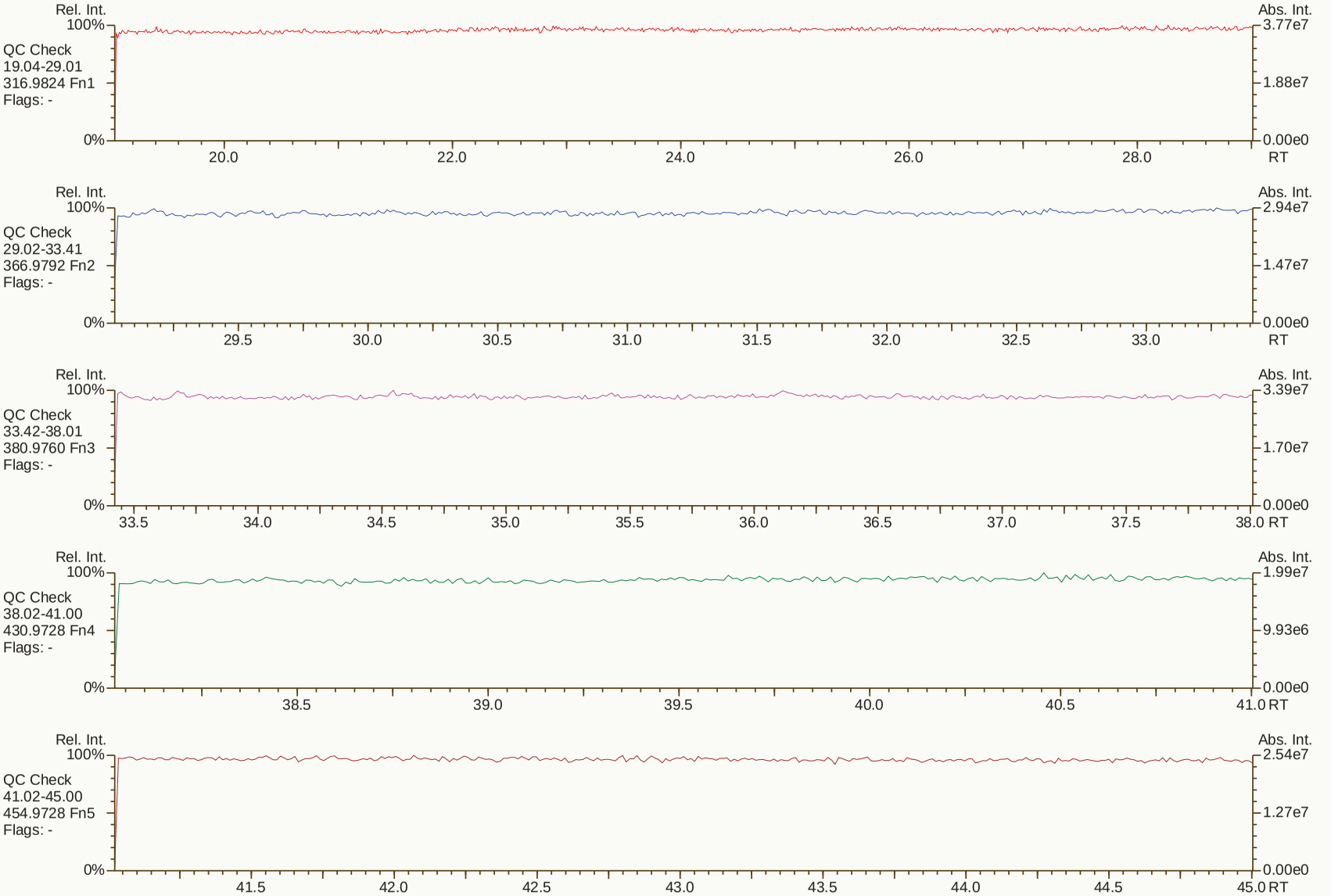
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 18:38 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS4_160714_DF_PB | **UTP: 15-Jul-2016 14:40:56 LKB** | **Checkcode: 345-926-ZBZ**

Sample ID: SIL 15-104-1 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P18**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	8.91E+07	0.80	Y	-	-	-
JS 1234-TCDF	23.95	1.19E+08	0.72	Y	-	-	-
JS 123467-HxCDD	36.45	3.33E+07	1.31	Y	-	-	-
CS 37Cl-2378-TCDD	26.46	4.00E+07	n/a	-	1.05	1.12	6%
CS 12347-PeCDD	31.64	8.05E+07	1.60	Y	0.91	0.90	-1%
CS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.98	0.98	1%
CS 123469-HxCDF	35.61	8.66E+07	0.53	Y	1.25	1.30	4%
CS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.85	0.88	4%
SS 37Cl-2378-TCDD	26.46	4.00E+07	n/a	-	1.03	1.11	8%
SS 12347-PeCDD	31.64	8.05E+07	1.60	Y	0.92	0.92	1%
SS 12346-PeCDF	30.07	1.17E+08	1.51	Y	0.99	1.01	2%
SS 123469-HxCDF	35.61	8.66E+07	0.53	Y	0.89	0.92	3%
SS 1234689-HpCDF	39.05	5.89E+07	0.44	Y	0.87	0.89	2%
AS 1368-TCDD	22.30	8.74E+07	0.79	Y	1.02	0.98	-4%
AS 1368-TCDF	20.16	1.63E+08	0.72	Y	1.41	1.37	-3%
FS 1278-TCDD	26.80	1.17E+08	0.78	Y	1.31	1.31	0%
FS 12478-PeCDD	30.88	9.91E+07	1.58	Y	1.15	1.14	-1%
FS 123468-HxCDD	35.09	9.82E+07	1.23	Y	1.31	1.32	1%
FS 1234679-HpCDD	38.90	8.40E+07	1.05	Y	1.24	1.27	3%
TS 1378-TCDD	24.60	1.11E+08	0.77	Y	1.23	1.23	0%
OCDD-a	42.06	1.39E+07	2.59	Y	0.06	0.07	11%
OCDF-a	42.22	1.66E+07	2.57	Y	0.06	0.06	4%

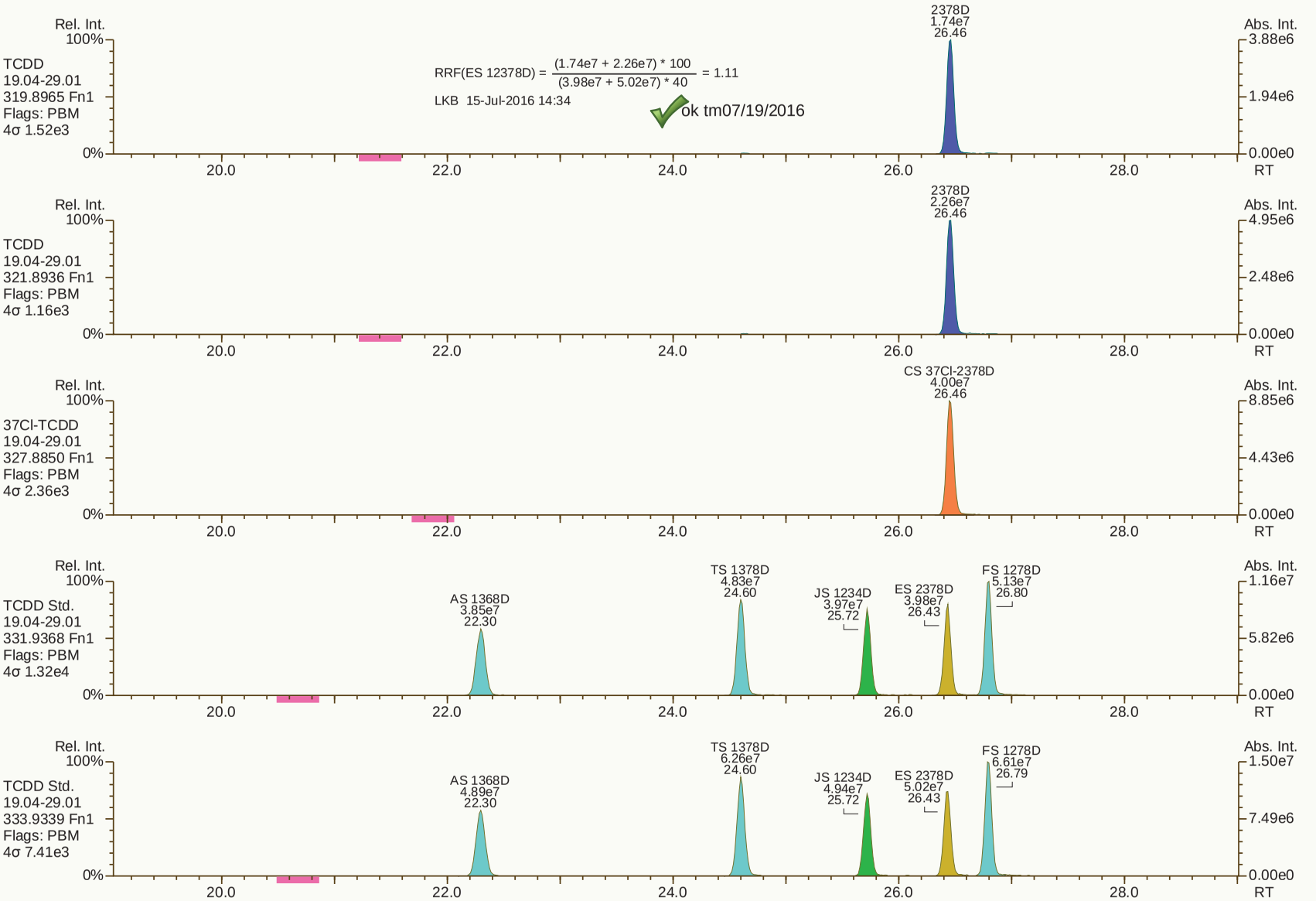
SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB)
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 345-926

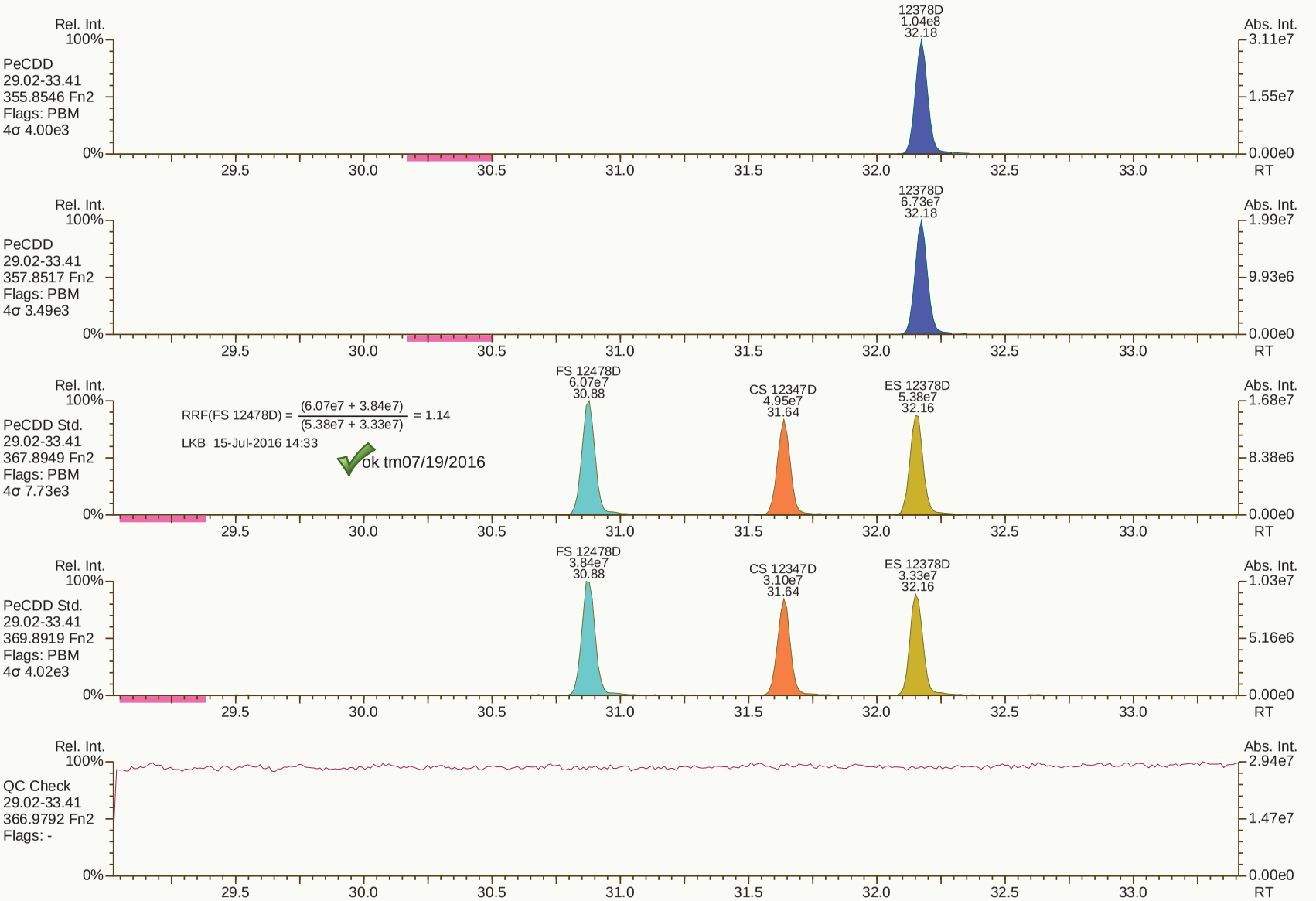
Peak annotation: Areas, Centroids
PKD: n/a Printed: 15-Jul-2016 14:49 Page 1 of 12

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0922, 6502, 0512 scc: 345-926 *Revised: 15-Jul-2016 14:31 (LKB) Printed: 15-Jul-2016 14:49 Page 2 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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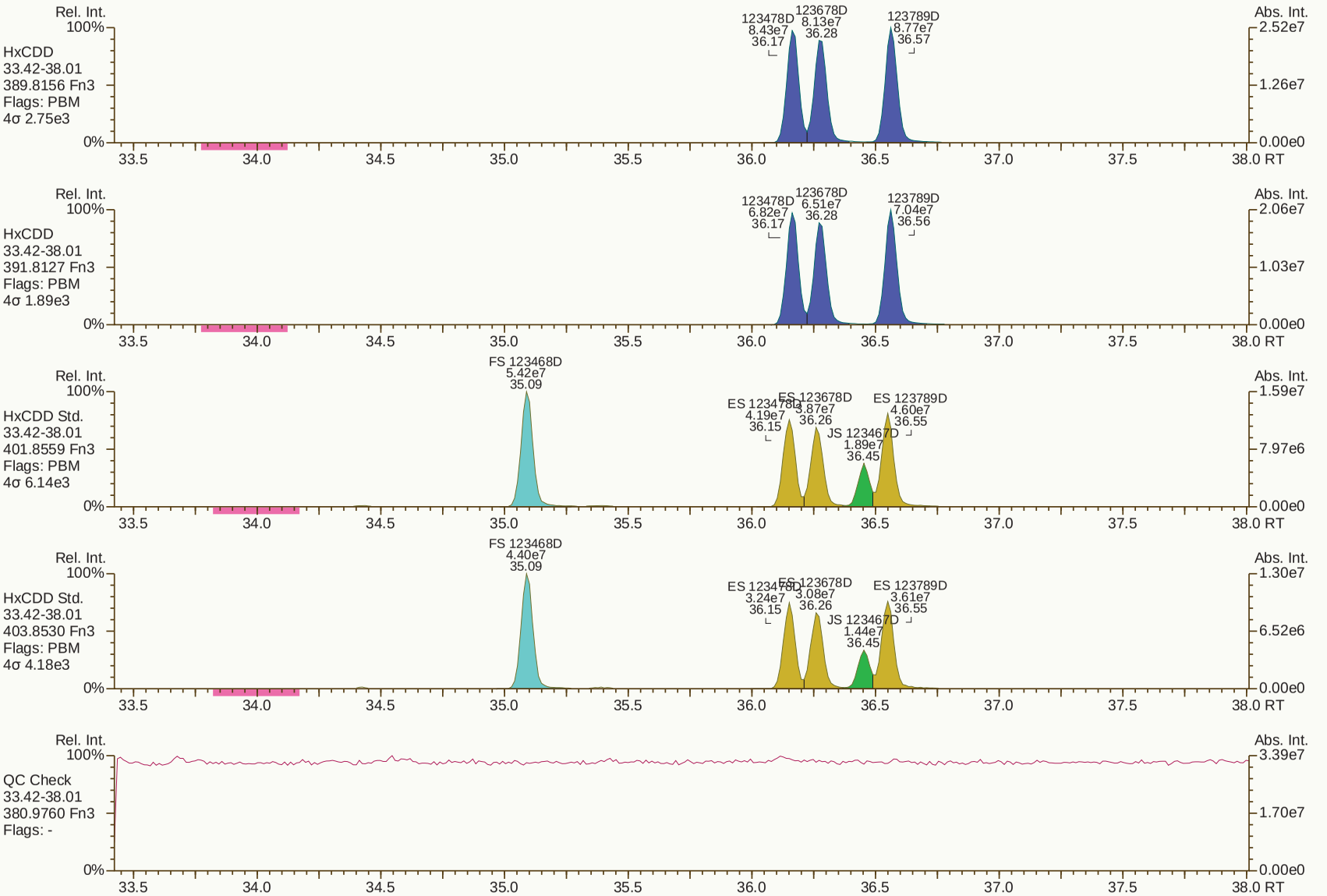
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7547, 3552 scc: 345-926 *Revised: 15-Jul-2016 13:52 (LKB) Printed: 15-Jul-2016 14:49 Page 3 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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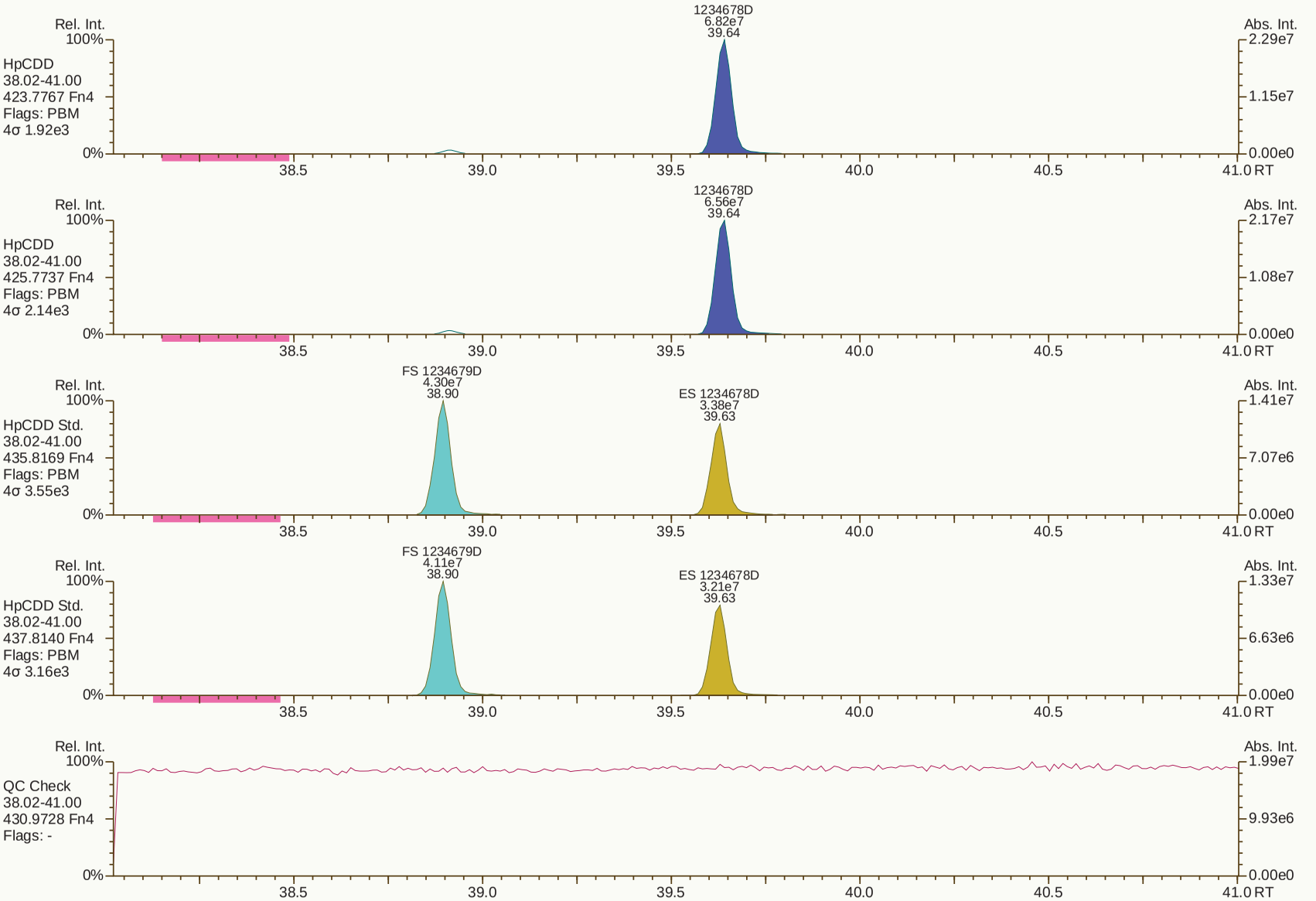
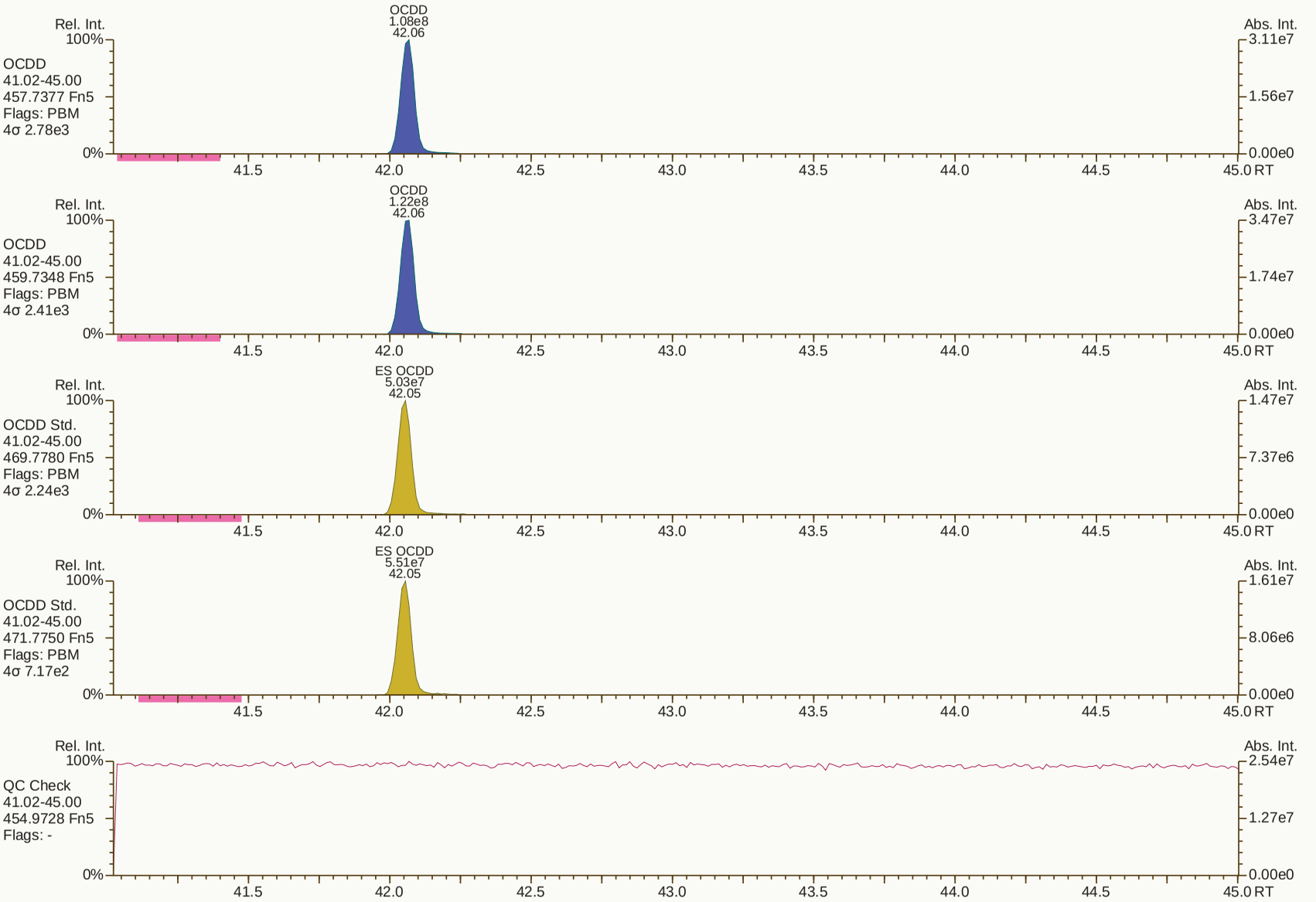
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4229, 8057 scc: 345-926 *PKD: 15-Jul-2016 10:13 Printed: 15-Jul-2016 14:49 Page 4 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4140, 7541 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 5 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5066, 8723 scc: 345-926 *PKD: 15-Jul-2016 13:52 Printed: 15-Jul-2016 14:49 Page 6 of 12*

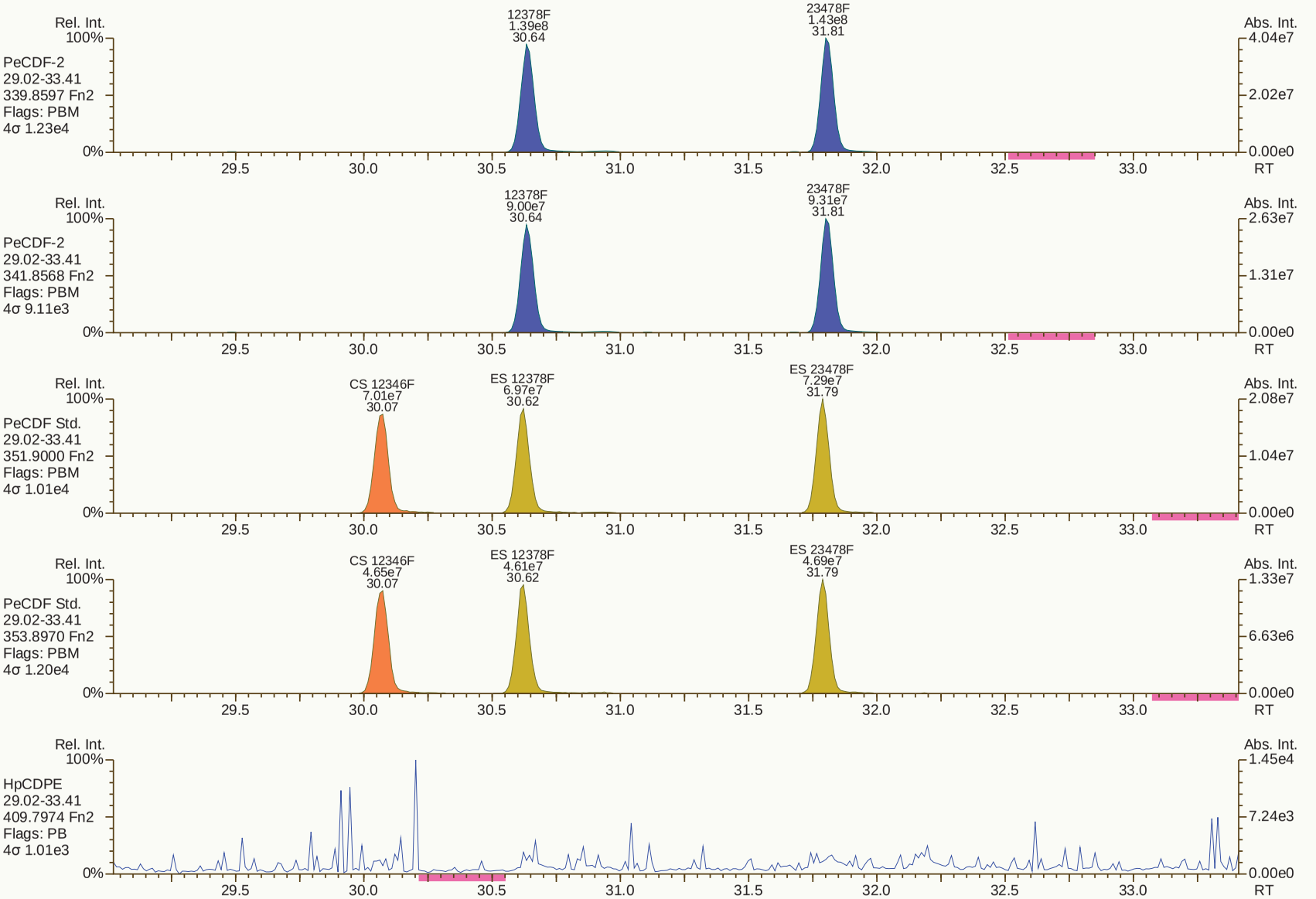
SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6357, 0780, 6150 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 7 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7788 scc: 345-926 *Revised: 15-Jul-2016 10:12 (LKB) Printed: 15-Jul-2016 14:49 Page 8 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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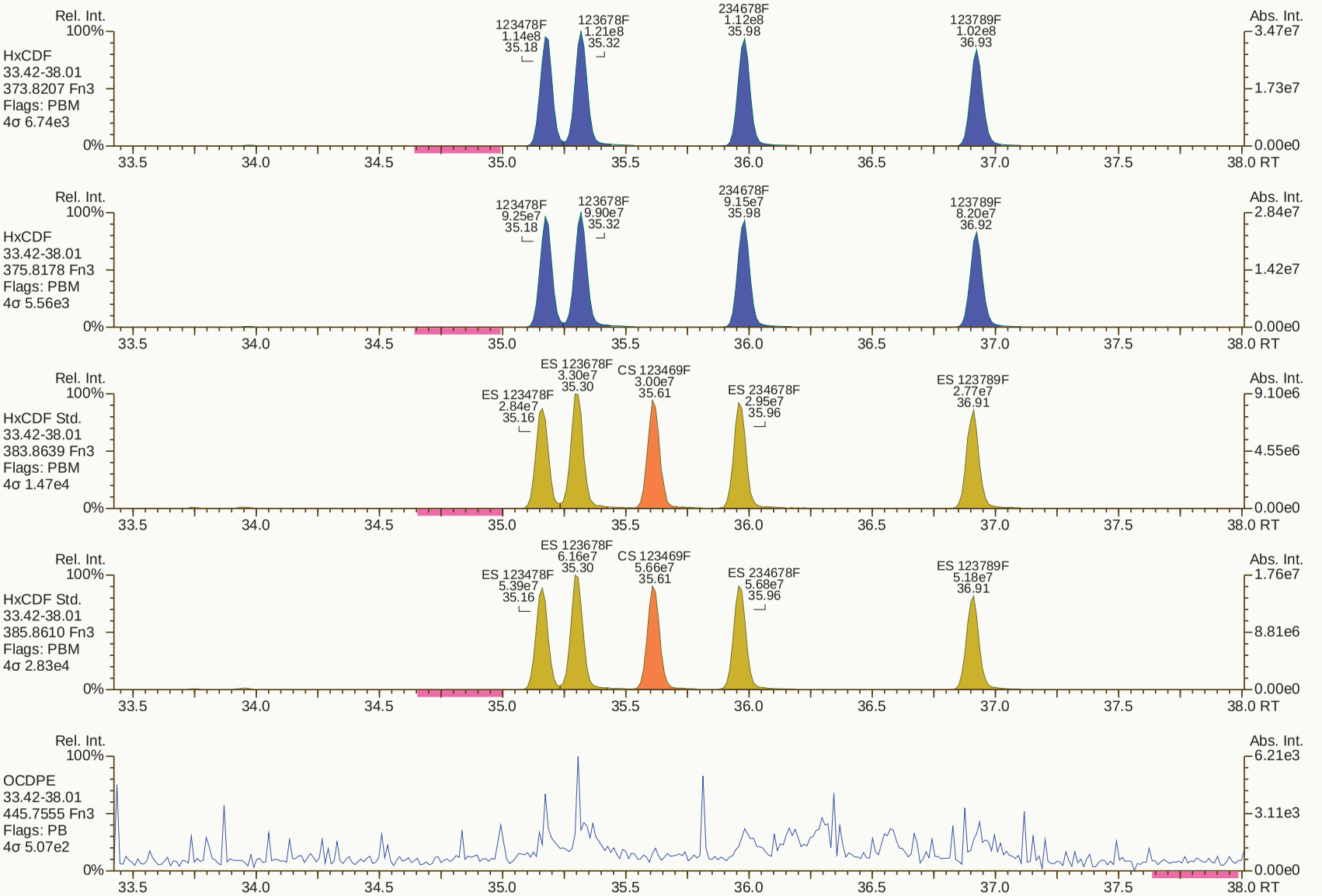
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2049, 0534, 9259 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 9 of 12*

SGS ID: CS4_160714_DF_PB **Sample ID: SIL 15-104-1** **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** **User: LKB Datafile: 160714P18**



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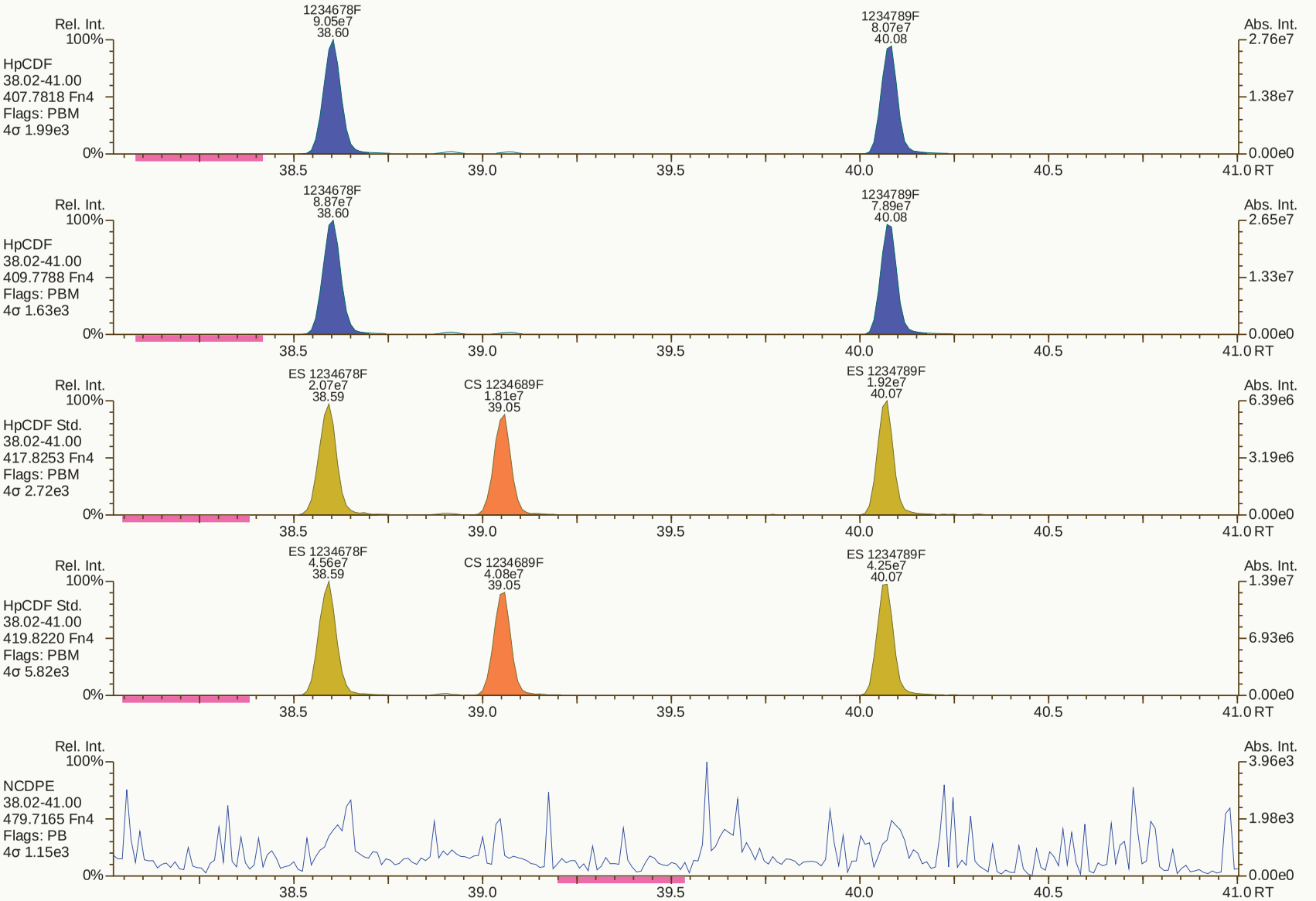
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1210, 9898, 5387 scc: 345-926 *Revised: 15-Jul-2016 10:16 (LKB) Printed: 15-Jul-2016 14:49 Page 10 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8668, 7842, 3833 scc: 345-926 *PKD: 15-Jul-2016 10:16 Printed: 15-Jul-2016 14:49 Page 11 of 12*

SGS ID: CS4_160714_DF_PB | **Sample ID: SIL 15-104-1** | **Acq: 14-Jul-2016 18:38:32**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 11** | **User: LKB Datafile: 160714P18**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS4_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4354, 1847, 8891 scc: 345-926 *PKD: 15-Jul-2016 10:17 Printed: 15-Jul-2016 14:49 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 19:27 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS5_160714_DF_PB	UTP: 15-Jul-2016 14:40:57 LKB	Checkcode: 617-885-RCZ
Sample ID: SIL 15-103-4	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P19

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.46	1.57E+08	0.78	Y	1.04	1.10	6%
12378-PeCDD	32.18	6.81E+08	1.55	Y	0.93	0.99	6%
123478-HxCDD	36.17	5.98E+08	1.24	Y	0.97	1.03	5%
123678-HxCDD	36.28	5.91E+08	1.24	Y	1.00	1.02	2%
123789-HxCDD	36.57	6.18E+08	1.24	Y	0.92	0.95	3%
1234678-HpCDD	39.65	5.32E+08	1.04	Y	0.96	1.00	4%
OCDD	42.07	9.12E+08	0.89	Y	1.03	1.08	5%
2378-TCDF	25.49	1.99E+08	0.77	Y	0.99	1.02	3%
12378-PeCDF	30.65	9.21E+08	1.55	Y	0.94	1.01	7%
23478-PeCDF	31.81	9.37E+08	1.53	Y	0.93	0.98	5%
123478-HxCDF	35.18	8.23E+08	1.23	Y	1.19	1.25	5%
123678-HxCDF	35.33	8.95E+08	1.22	Y	1.10	1.16	5%
234678-HxCDF	35.99	8.03E+08	1.23	Y	1.11	1.15	4%
123789-HxCDF	36.93	7.35E+08	1.24	Y	1.08	1.15	6%
1234678-HpCDF	38.61	7.09E+08	1.02	Y	1.28	1.32	3%
1234789-HpCDF	40.08	6.34E+08	1.02	Y	1.22	1.28	5%
OCDF	42.23	1.13E+09	0.90	Y	1.01	1.04	3%
ES 2378-TCDD	26.43	7.13E+07	0.79	Y	1.04	1.05	2%
ES 12378-PeCDD	32.16	6.90E+07	1.58	Y	1.00	1.02	2%
ES 123478-HxCDD	36.16	5.83E+07	1.23	Y	1.08	1.06	-1%
ES 123678-HxCDD	36.27	5.79E+07	1.25	Y	1.03	1.05	2%
ES 123789-HxCDD	36.56	6.51E+07	1.27	Y	1.18	1.18	0%
ES 1234678-HpCDD	39.63	5.35E+07	1.04	Y	0.97	0.97	0%
ES OCDD	42.06	8.45E+07	0.91	Y	0.76	0.77	1%
ES 2378-TCDF	25.46	9.72E+07	0.73	Y	1.06	1.07	1%
ES 12378-PeCDF	30.63	9.14E+07	1.51	Y	0.99	1.01	2%
ES 23478-PeCDF	31.8	9.54E+07	1.53	Y	1.02	1.05	3%
ES 123478-HxCDF	35.17	6.56E+07	0.53	Y	1.20	1.19	-1%
ES 123678-HxCDF	35.31	7.72E+07	0.53	Y	1.40	1.40	0%
ES 234678-HxCDF	35.97	6.98E+07	0.52	Y	1.27	1.27	0%
ES 123789-HxCDF	36.92	6.42E+07	0.52	Y	1.16	1.17	1%
ES 1234678-HpCDF	38.6	5.38E+07	0.44	Y	0.98	0.98	0%
ES 1234789-HpCDF	40.07	4.94E+07	0.45	Y	0.90	0.90	0%
ES OCDF	42.22	1.09E+08	0.90	Y	0.96	0.99	3%

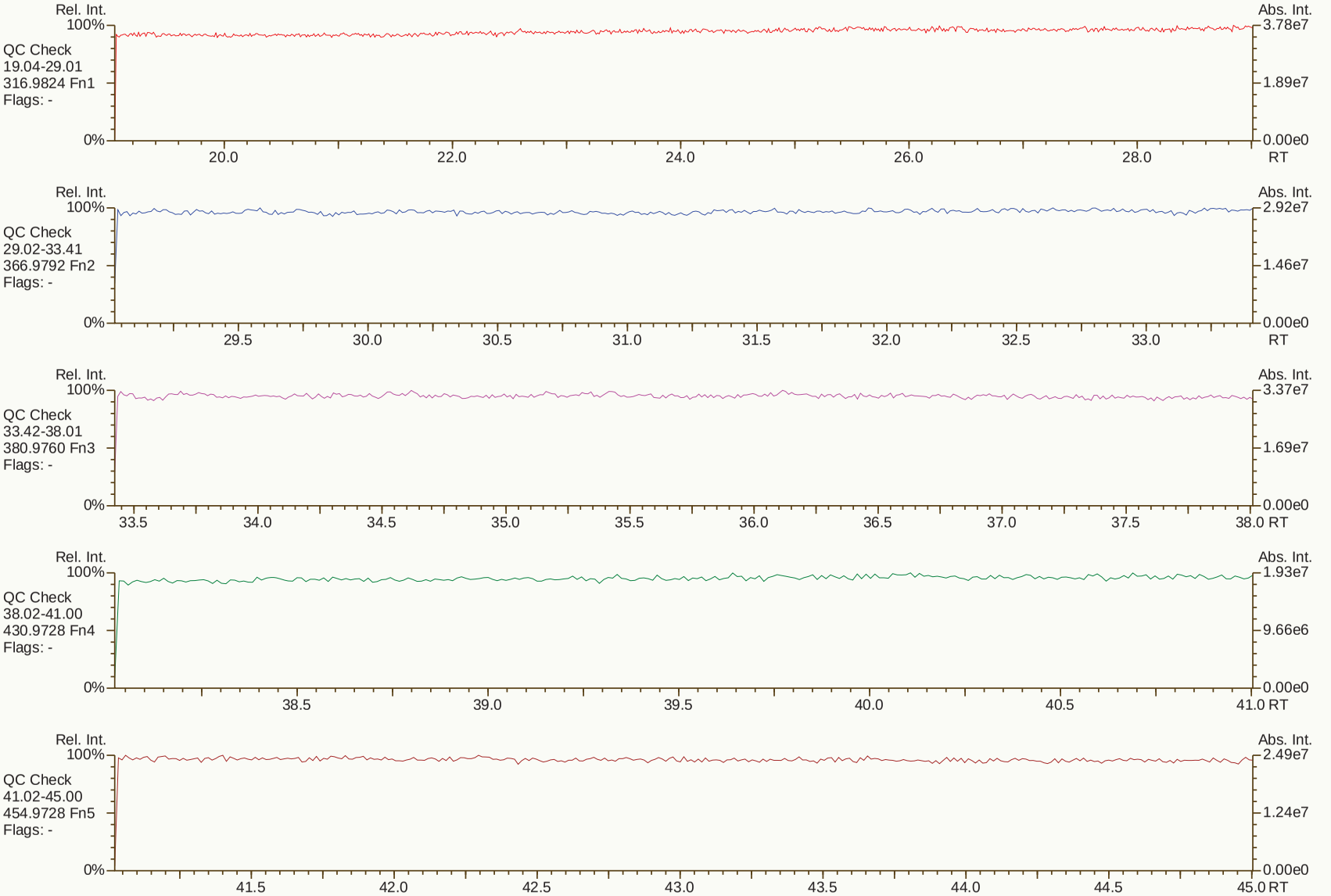
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 19:27 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS5_160714_DF_PB | **UTP: 15-Jul-2016 14:40:57 LKB** | **Checkcode: 617-885-RCZ**

Sample ID: SIL 15-103-4 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P19**

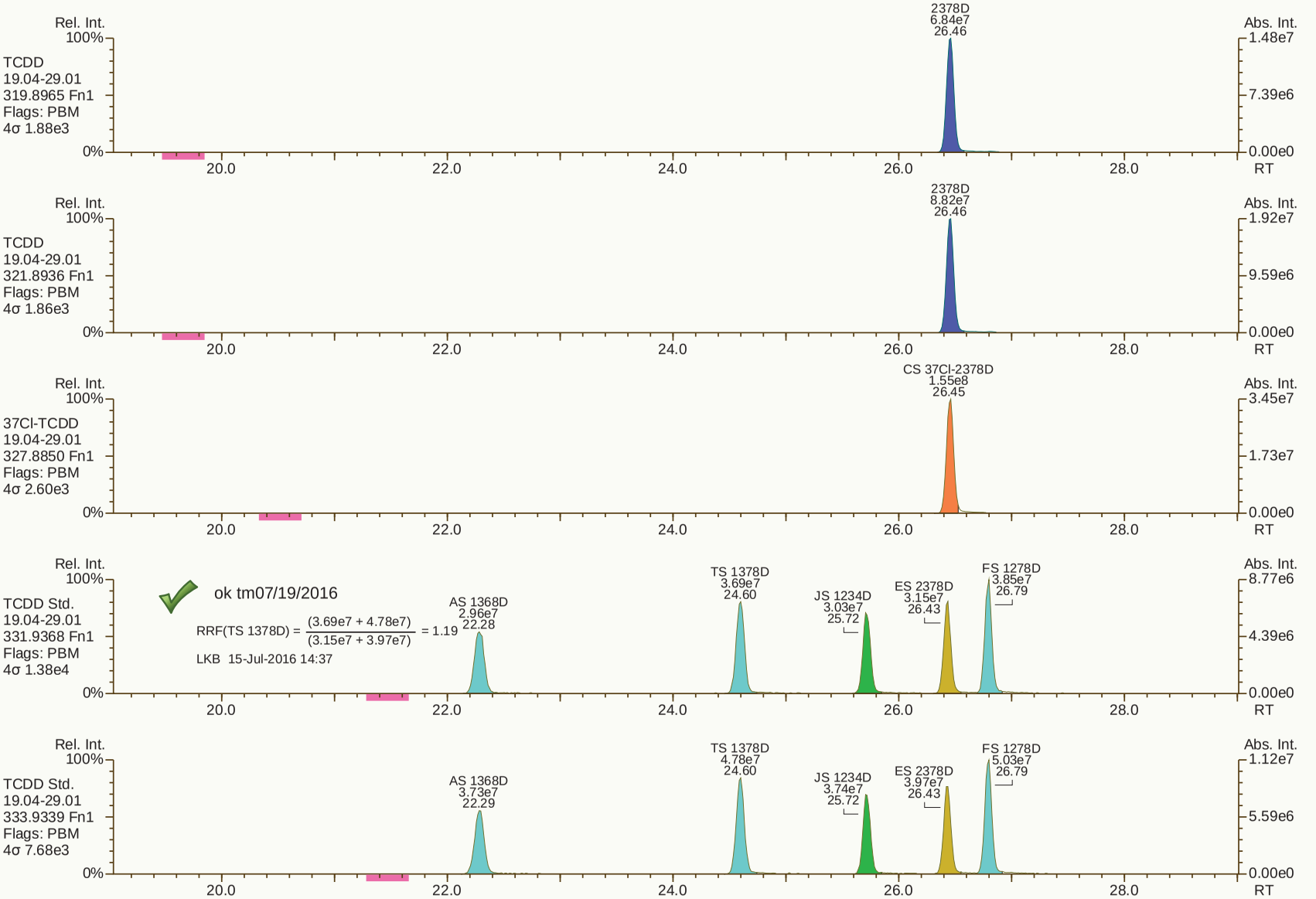
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.72	6.77E+07	0.81	Y	-	-	-
JS 1234-TCDF	23.94	9.09E+07	0.73	Y	-	-	-
JS 123467-HxCDD	36.46	2.75E+07	1.25	Y	-	-	-
CS 37Cl-2378-TCDD	26.45	1.55E+08	n/a	-	1.05	1.14	8%
CS 12347-PeCDD	31.64	6.23E+07	1.60	Y	0.91	0.92	1%
CS 12346-PeCDF	30.08	8.95E+07	1.50	Y	0.98	0.99	1%
CS 123469-HxCDF	35.62	6.75E+07	0.52	Y	1.25	1.23	-2%
CS 1234689-HpCDF	39.06	4.54E+07	0.45	Y	0.85	0.82	-3%
SS 37Cl-2378-TCDD	26.45	1.55E+08	n/a	-	1.03	1.09	6%
SS 12347-PeCDD	31.64	6.23E+07	1.60	Y	0.92	0.90	-2%
SS 12346-PeCDF	30.08	8.95E+07	1.50	Y	0.99	0.98	-1%
SS 123469-HxCDF	35.62	6.75E+07	0.52	Y	0.89	0.87	-2%
SS 1234689-HpCDF	39.06	4.54E+07	0.45	Y	0.87	0.84	-3%
AS 1368-TCDD	22.28	6.69E+07	0.79	Y	1.02	0.99	-3%
AS 1368-TCDF	20.15	1.25E+08	0.71	Y	1.41	1.37	-3%
FS 1278-TCDD	26.79	8.89E+07	0.77	Y	1.31	1.25	-5%
FS 12478-PeCDD	30.88	7.39E+07	1.59	Y	1.15	1.07	-7%
FS 123468-HxCDD	35.10	7.30E+07	1.24	Y	1.31	1.25	-5%
FS 1234679-HpCDD	38.90	6.15E+07	1.07	Y	1.24	1.15	-8%
TS 1378-TCDD	24.60	8.47E+07	0.77	Y	1.23	1.19	-4%
OCDD-a	42.07	5.64E+07	2.49	Y	0.06	0.07	12%
OCDF-a	42.22	6.87E+07	2.56	Y	0.06	0.06	6%

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 617-885 | *PKD: n/a Printed: 15-Jul-2016 14:49 Page 1 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



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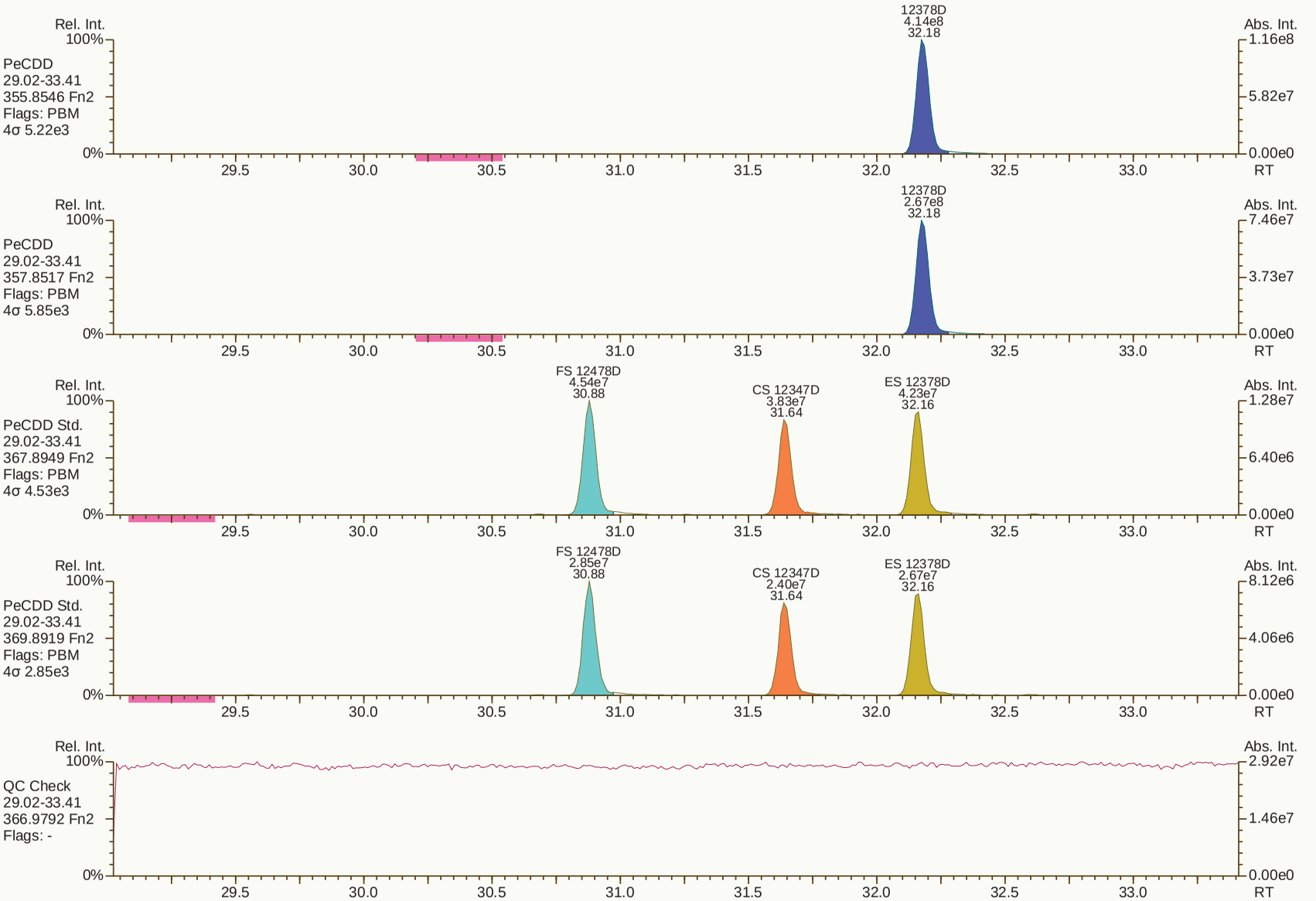
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0495, 4103, 6679 scc: 617-885 *Revised: 15-Jul-2016 10:21 (LKB) Printed: 15-Jul-2016 14:49 Page 2 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**



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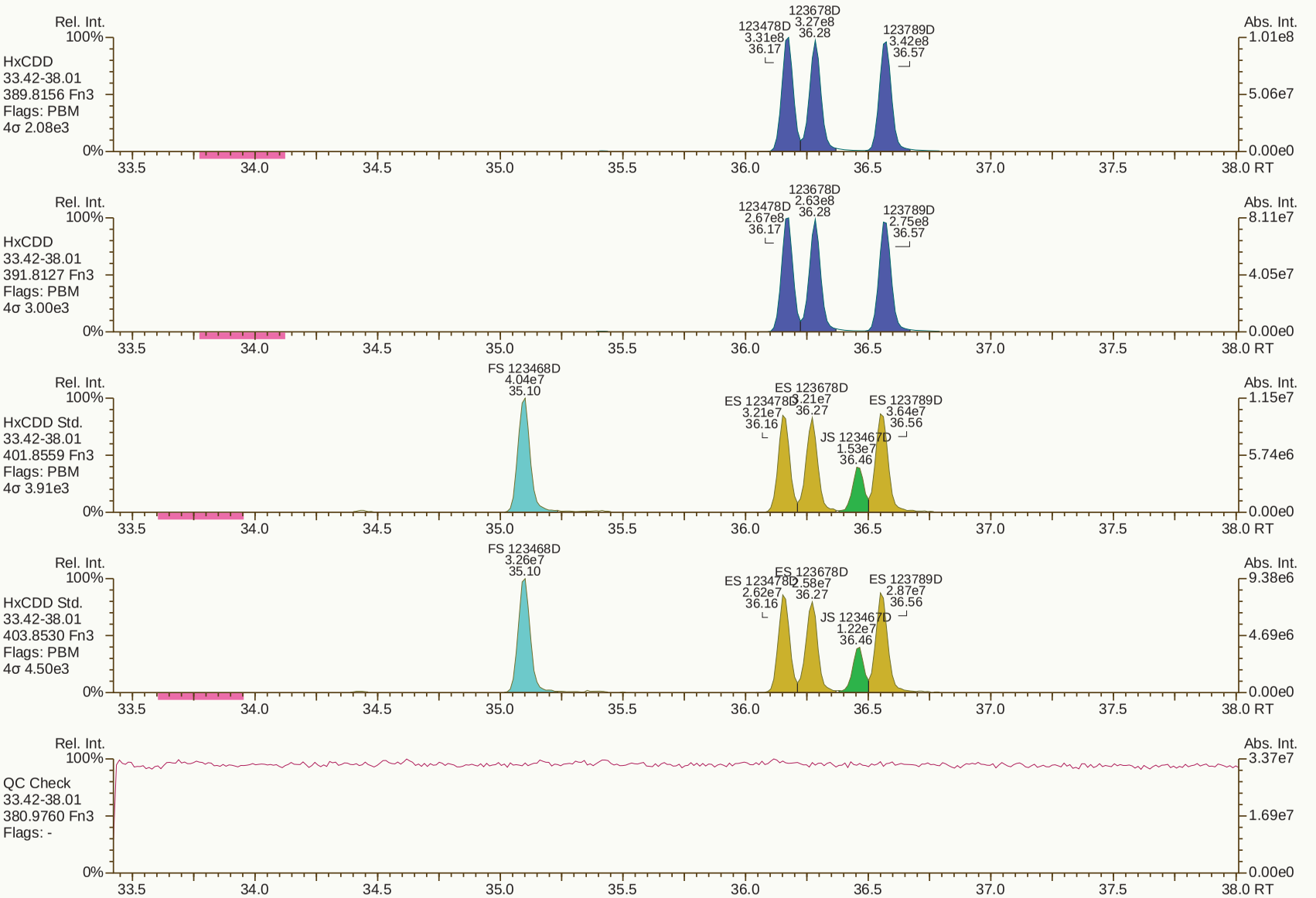
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0016, 3046 scc: 617-885 *Revised: 15-Jul-2016 10:21 (LKB) Printed: 15-Jul-2016 14:49 Page 3 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**

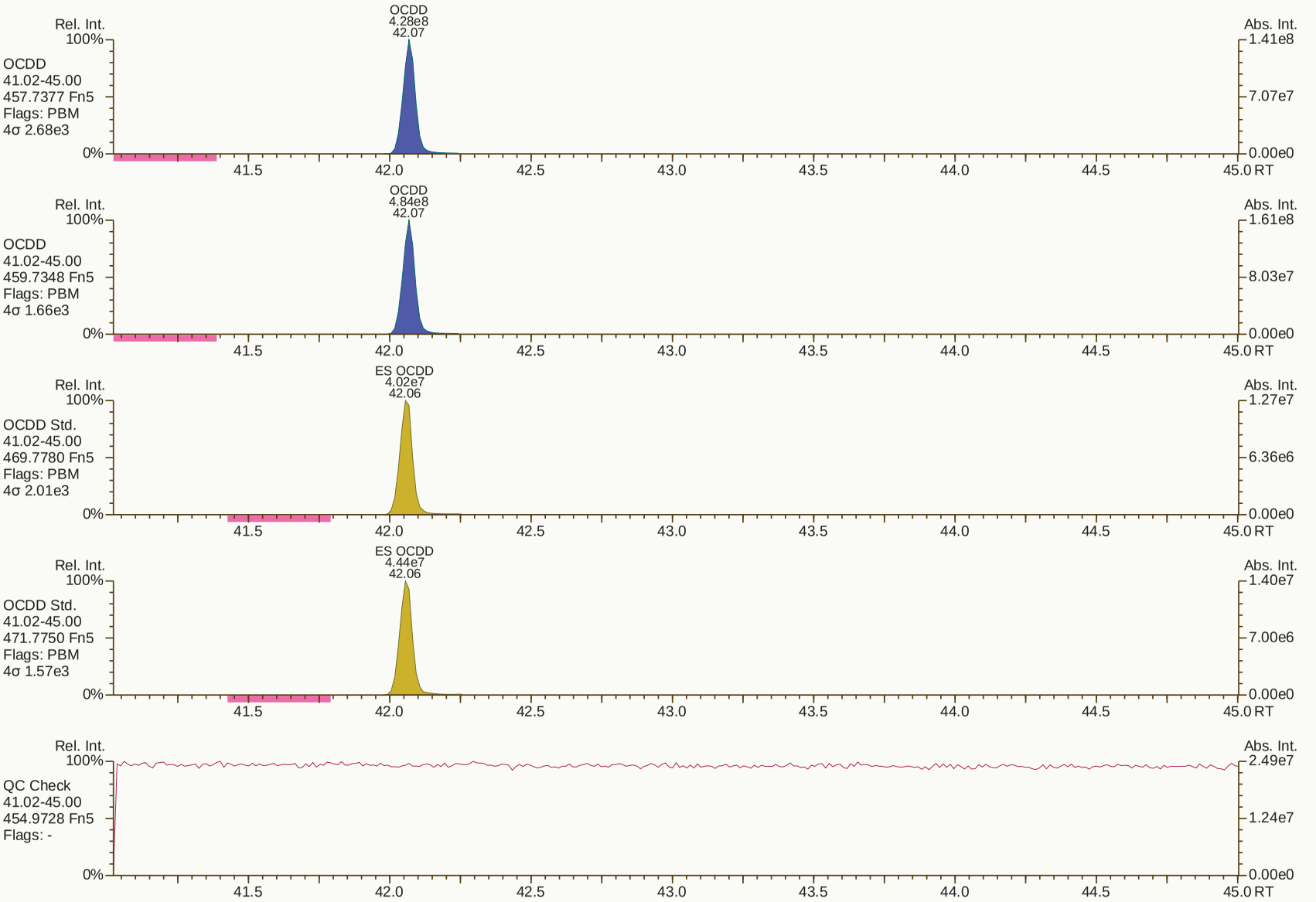


Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5228, 4947 scc: 617-885 *Revised: 15-Jul-2016 10:21 (LKB) Printed: 15-Jul-2016 14:49 Page 4 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3937, 9551 scc: 617-885 | *PKD: 15-Jul-2016 10:21 Printed: 15-Jul-2016 14:49 Page 5 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0413, 7162 scc: 617-885 *PKD: 15-Jul-2016 10:20 Printed: 15-Jul-2016 14:49 Page 6 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3960, 1920, 4165 scc: 617-885 *PKD: 15-Jul-2016 10:20 Printed: 15-Jul-2016 14:49 Page 7 of 12*

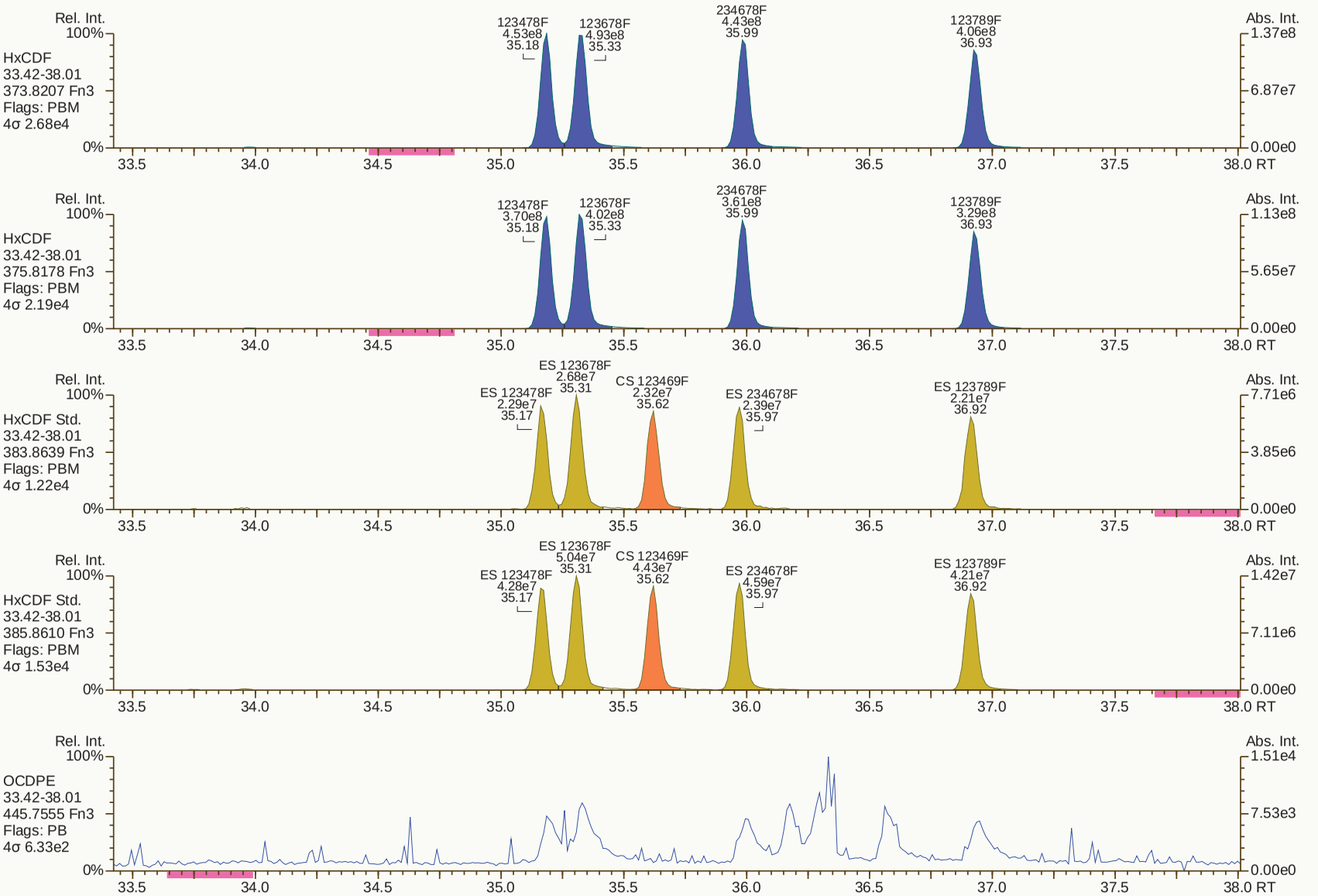
SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6380 scc: 617-885 *Revised: 15-Jul-2016 10:19 (LKB) Printed: 15-Jul-2016 14:49 Page 8 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**

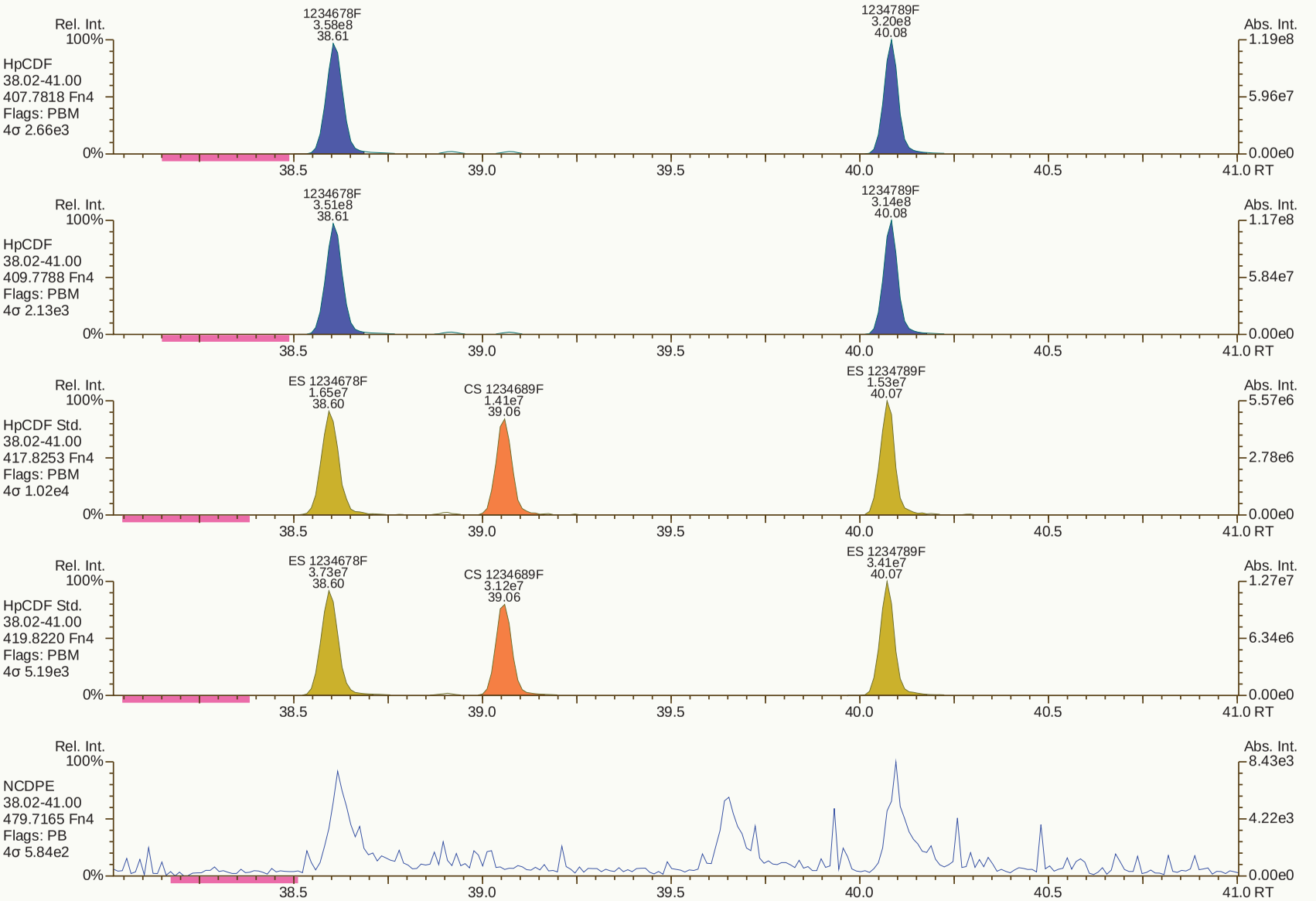
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9373, 6975, 3504 scc: 617-885 *Revised: 15-Jul-2016 10:22 (LKB) Printed: 15-Jul-2016 14:49 Page 9 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



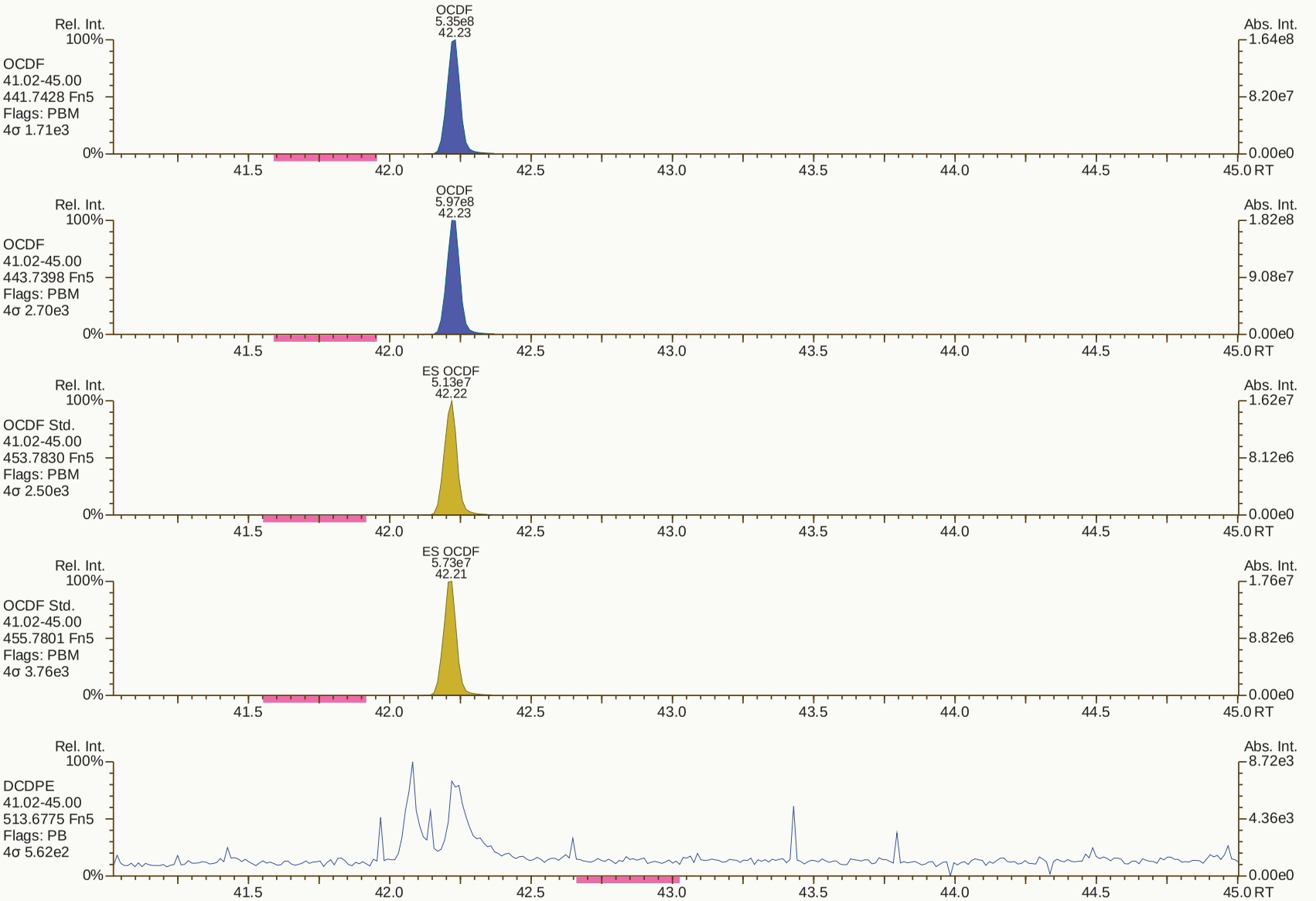
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3475, 8078, 5392 scc: 617-885 *Revised: 15-Jul-2016 10:22 (LKB) Printed: 15-Jul-2016 14:49 Page 10 of 12*

SGS ID: CS5_160714_DF_PB **Sample ID: SIL 15-103-4** **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4019, 7480, 2920 scc: 617-885 *PKD: 15-Jul-2016 10:22 Printed: 15-Jul-2016 14:49 Page 11 of 12*

SGS ID: CS5_160714_DF_PB | **Sample ID: SIL 15-103-4** | **Acq: 14-Jul-2016 19:27:43**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 12** | **User: LKB Datafile: 160714P19**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS5_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1117, 4064, 7522 scc: 617-885 *PKD: 15-Jul-2016 10:20 Printed: 15-Jul-2016 14:49 Page 12 of 12*

Dioxin/Furan QC Summary	Acq'd: 14 Jul 2016 21:06 LKB	ICAL: MM1_DF_12212015_14JUL2016
Lab ID: CS6_160714_DF_PB	UTP: 15-Jul-2016 14:40:57 LKB	Checkcode: 450-982-VJS
Sample ID: SIL 15-103-3	Report: 15 Jul 2016 14:41 LB	Datafile: 160714P21

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.45	4.01E+08	0.78	Y	1.04	1.11	7%
12378-PeCDD	32.17	1.84E+09	1.55	Y	0.93	0.99	7%
123478-HxCDD	36.17	1.65E+09	1.25	Y	0.97	1.01	3%
123678-HxCDD	36.28	1.61E+09	1.24	Y	1.00	1.04	4%
123789-HxCDD	36.57	1.71E+09	1.24	Y	0.92	0.98	6%
1234678-HpCDD	39.64	1.47E+09	1.04	Y	0.96	1.01	6%
OCDD	42.07	2.57E+09	0.89	Y	1.03	1.08	5%
2378-TCDF	25.48	5.12E+08	0.77	Y	0.99	1.01	3%
12378-PeCDF	30.64	2.49E+09	1.53	Y	0.94	0.98	4%
23478-PeCDF	31.81	2.55E+09	1.54	Y	0.93	0.97	4%
123478-HxCDF	35.18	2.26E+09	1.23	Y	1.19	1.24	4%
123678-HxCDF	35.32	2.42E+09	1.23	Y	1.10	1.14	3%
234678-HxCDF	35.98	2.20E+09	1.23	Y	1.11	1.15	4%
123789-HxCDF	36.93	2.04E+09	1.24	Y	1.08	1.14	6%
1234678-HpCDF	38.60	2.00E+09	1.02	Y	1.28	1.33	4%
1234789-HpCDF	40.08	1.80E+09	1.02	Y	1.22	1.28	5%
OCDF	42.22	3.25E+09	0.90	Y	1.01	1.05	4%
ES 2378-TCDD	26.42	7.19E+07	0.79	Y	1.04	1.10	7%
ES 12378-PeCDD	32.16	7.40E+07	1.60	Y	1.00	1.14	14%
ES 123478-HxCDD	36.15	6.56E+07	1.29	Y	1.08	1.18	10%
ES 123678-HxCDD	36.27	6.19E+07	1.27	Y	1.03	1.11	8%
ES 123789-HxCDD	36.55	7.00E+07	1.24	Y	1.18	1.26	6%
ES 1234678-HpCDD	39.63	5.83E+07	1.06	Y	0.97	1.05	8%
ES OCDD	42.06	9.55E+07	0.91	Y	0.76	0.86	13%
ES 2378-TCDF	25.45	1.01E+08	0.74	Y	1.06	1.14	8%
ES 12378-PeCDF	30.62	1.01E+08	1.52	Y	0.99	1.15	16%
ES 23478-PeCDF	31.79	1.05E+08	1.48	Y	1.02	1.18	16%
ES 123478-HxCDF	35.16	7.28E+07	0.52	Y	1.20	1.31	9%
ES 123678-HxCDF	35.31	8.53E+07	0.53	Y	1.40	1.53	9%
ES 234678-HxCDF	35.97	7.67E+07	0.52	Y	1.27	1.38	8%
ES 123789-HxCDF	36.91	7.17E+07	0.53	Y	1.16	1.29	11%
ES 1234678-HpCDF	38.59	6.01E+07	0.46	Y	0.98	1.08	10%
ES 1234789-HpCDF	40.07	5.60E+07	0.46	Y	0.90	1.01	12%
ES OCDF	42.21	1.24E+08	0.92	Y	0.96	1.11	17%

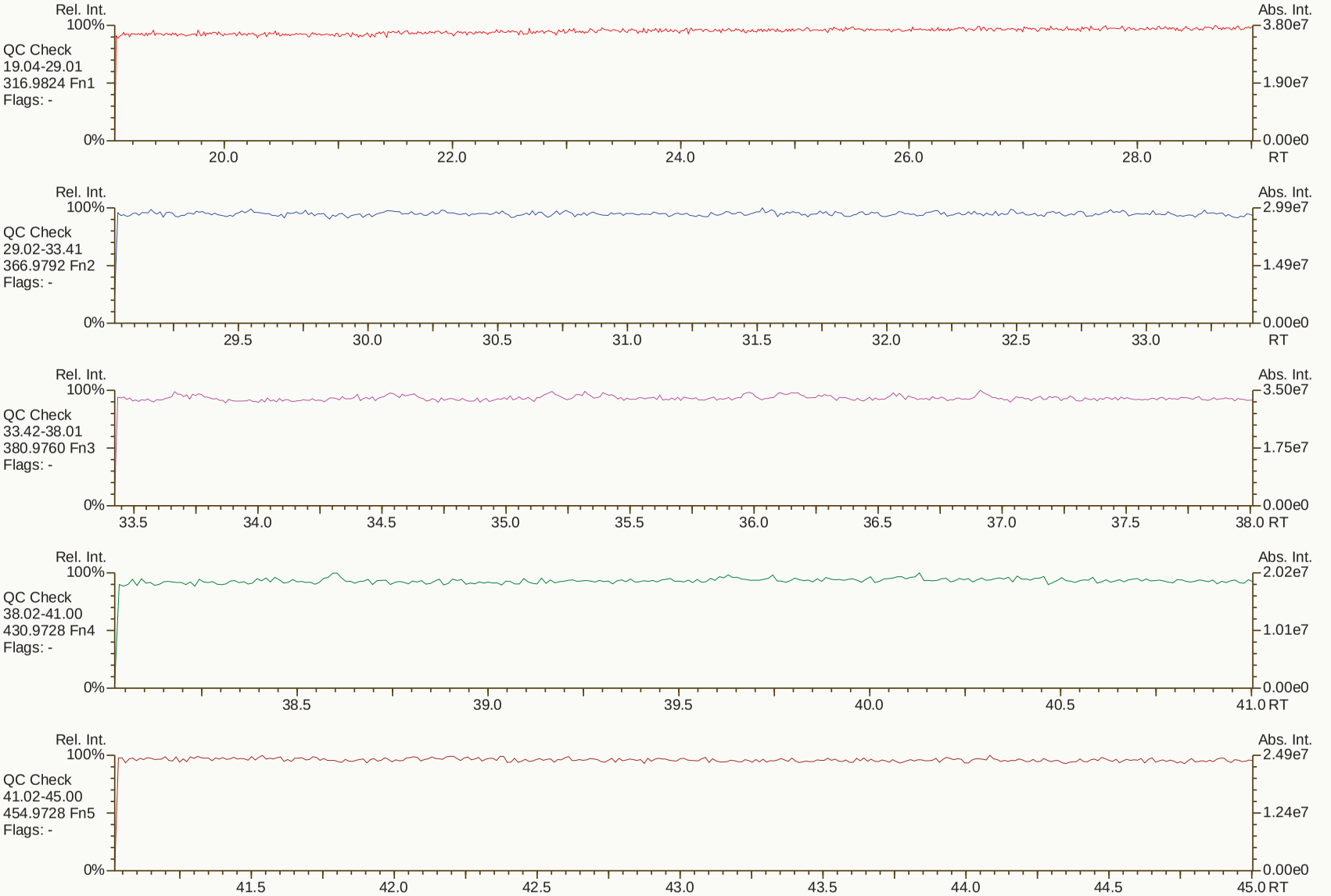
Dioxin/Furan QC Summary | **Acq'd: 14 Jul 2016 21:06 LKB** | **ICAL: MM1_DF_12212015_14JUL2016**

Lab ID: CS6_160714_DF_PB | **UTP: 15-Jul-2016 14:40:57 LKB** | **Checkcode: 450-982-VJS**

Sample ID: SIL 15-103-3 | **Report: 15 Jul 2016 14:41 LB** | **Datafile: 160714P21**

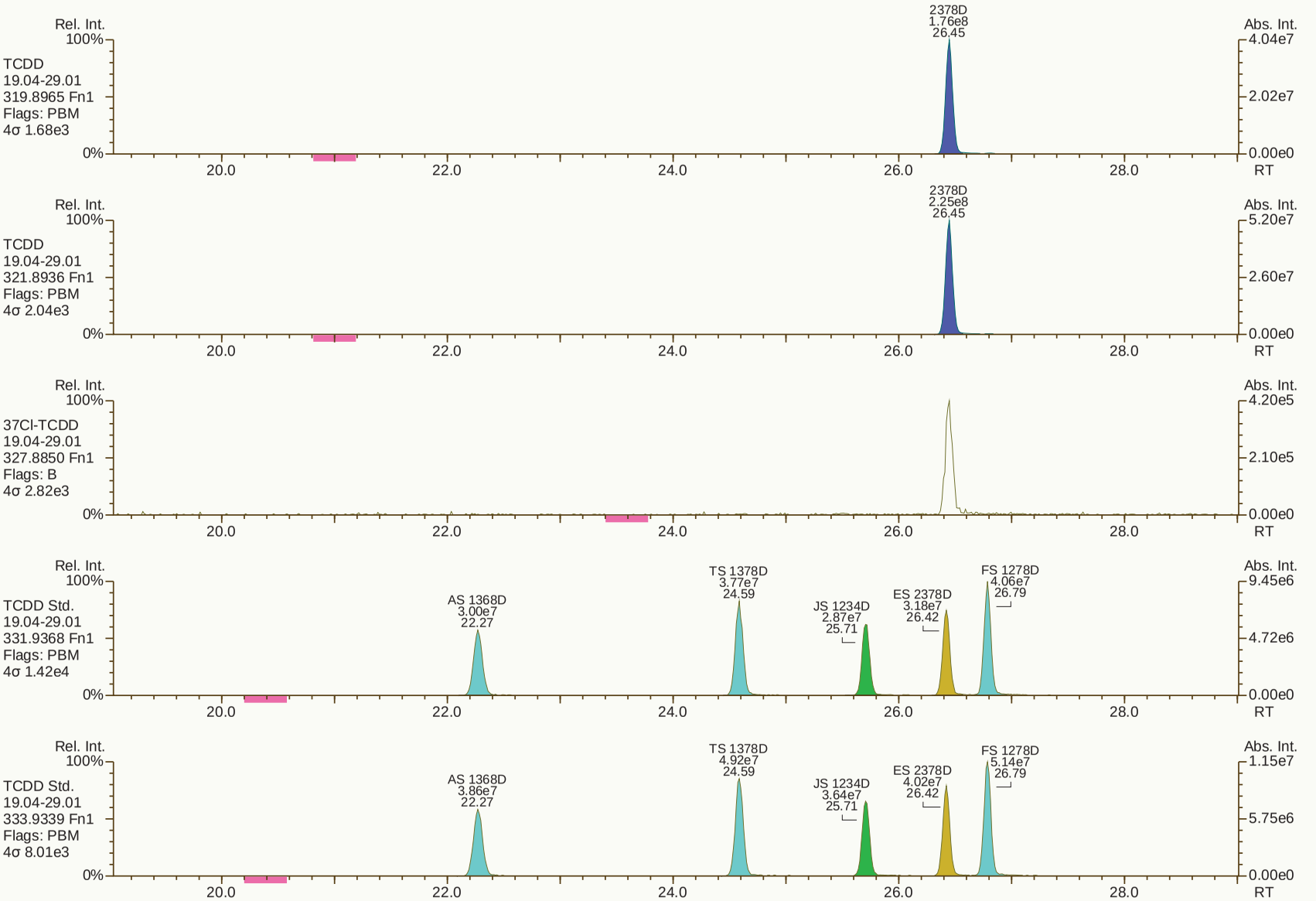
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.71	6.52E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.93	8.83E+07	0.71	Y	-	-	-
JS 123467-HxCDD	36.45	2.78E+07	1.27	Y	-	-	-
CS 37Cl-2378-TCDD	NotFnd		n/a	-	1.05		
CS 12347-PeCDD	31.64	6.39E+07	1.65	Y	0.91	0.98	7%
CS 12346-PeCDF	30.07	9.14E+07	1.51	Y	0.98	1.03	6%
CS 123469-HxCDF	35.61	6.86E+07	0.54	Y	1.25	1.23	-1%
CS 1234689-HpCDF	39.05	4.64E+07	0.45	Y	0.85	0.83	-2%
SS 37Cl-2378-TCDD	NotFnd		n/a	-	1.03		
SS 12347-PeCDD	31.64	6.39E+07	1.65	Y	0.92	0.86	-6%
SS 12346-PeCDF	30.07	9.14E+07	1.51	Y	0.99	0.90	-9%
SS 123469-HxCDF	35.61	6.86E+07	0.54	Y	0.89	0.80	-10%
SS 1234689-HpCDF	39.05	4.64E+07	0.45	Y	0.87	0.77	-11%
AS 1368-TCDD	22.27	6.86E+07	0.78	Y	1.02	1.05	3%
AS 1368-TCDF	20.13	1.30E+08	0.72	Y	1.41	1.47	4%
FS 1278-TCDD	26.79	9.20E+07	0.79	Y	1.31	1.28	-2%
FS 12478-PeCDD	30.87	7.97E+07	1.59	Y	1.15	1.08	-6%
FS 123468-HxCDD	35.09	7.63E+07	1.23	Y	1.31	1.16	-11%
FS 1234679-HpCDD	38.89	6.50E+07	1.04	Y	1.24	1.11	-10%
TS 1378-TCDD	24.59	8.68E+07	0.77	Y	1.23	1.21	-2%
OCDD-a	42.06	1.59E+08	2.48	Y	0.06	0.07	12%
OCDF-a	42.22	1.98E+08	2.53	Y	0.06	0.06	6%

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



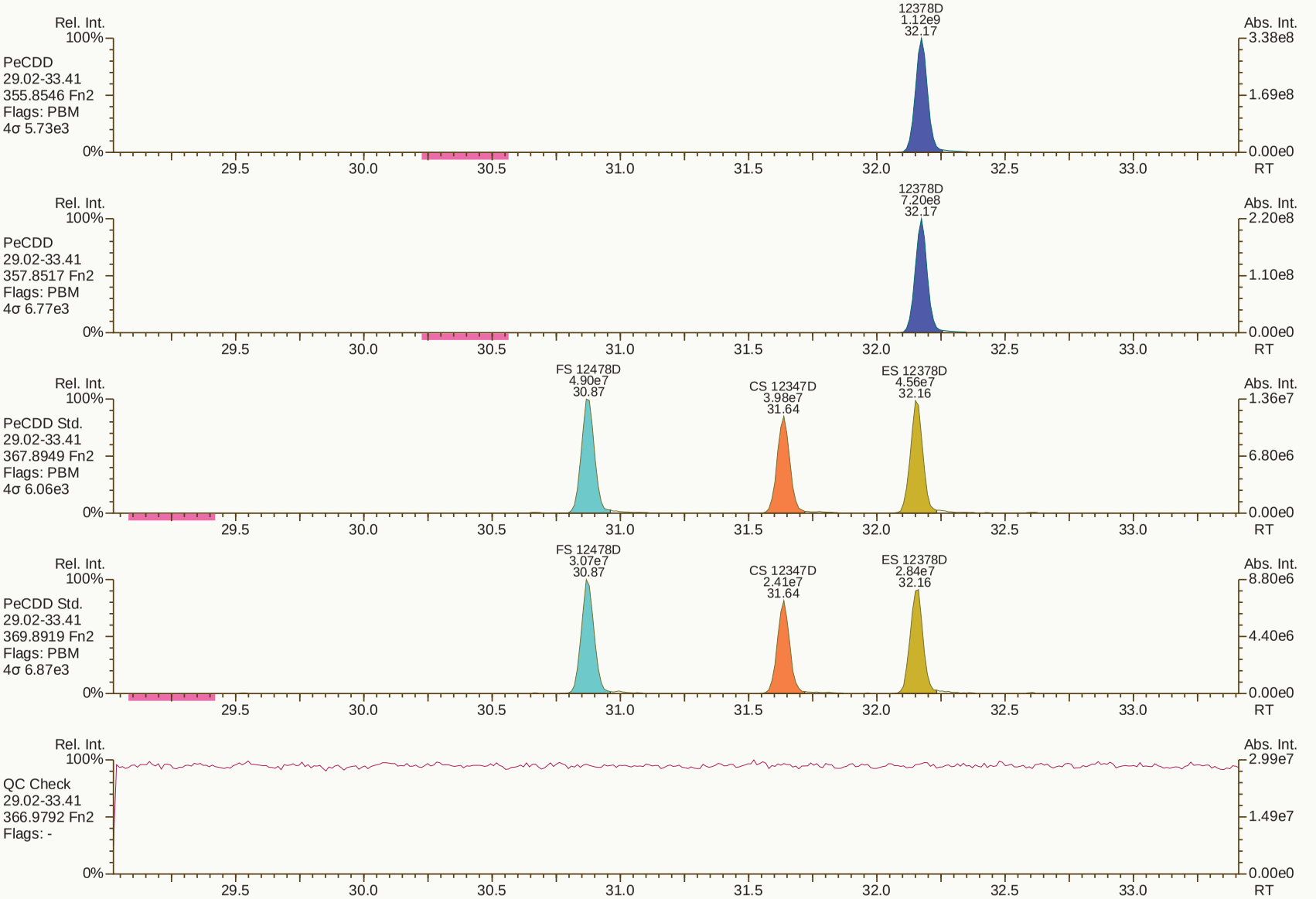
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 450-982 | *PKD: n/a Printed: 15-Jul-2016 14:50 Page 1 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



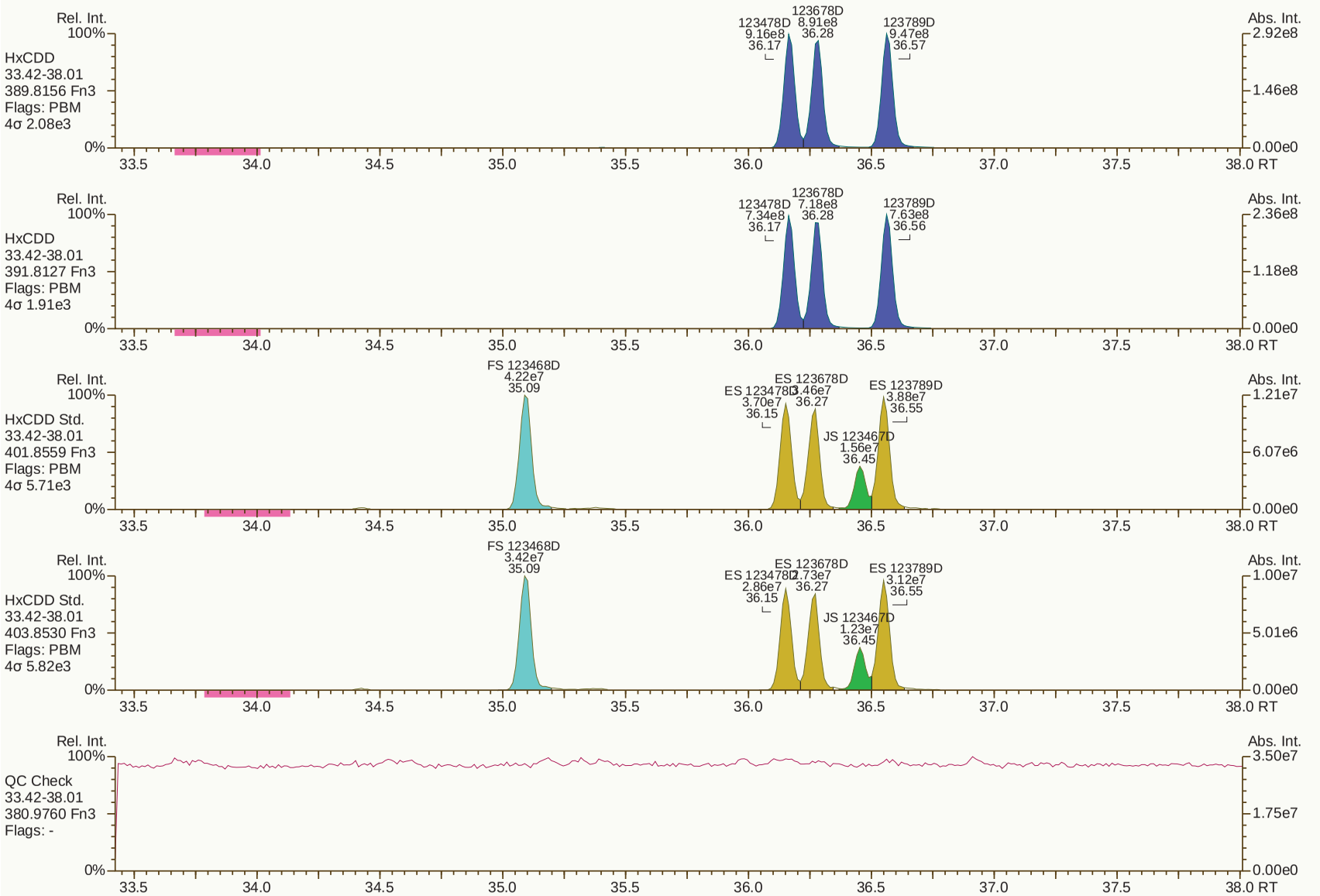
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3747, 1171, 0429 scc: 450-982 *Revised: 15-Jul-2016 10:29 (LKB) Printed: 15-Jul-2016 14:50 Page 2 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8149, 2071 scc: 450-982 *PKD: 15-Jul-2016 13:55 Printed: 15-Jul-2016 14:50 Page 3 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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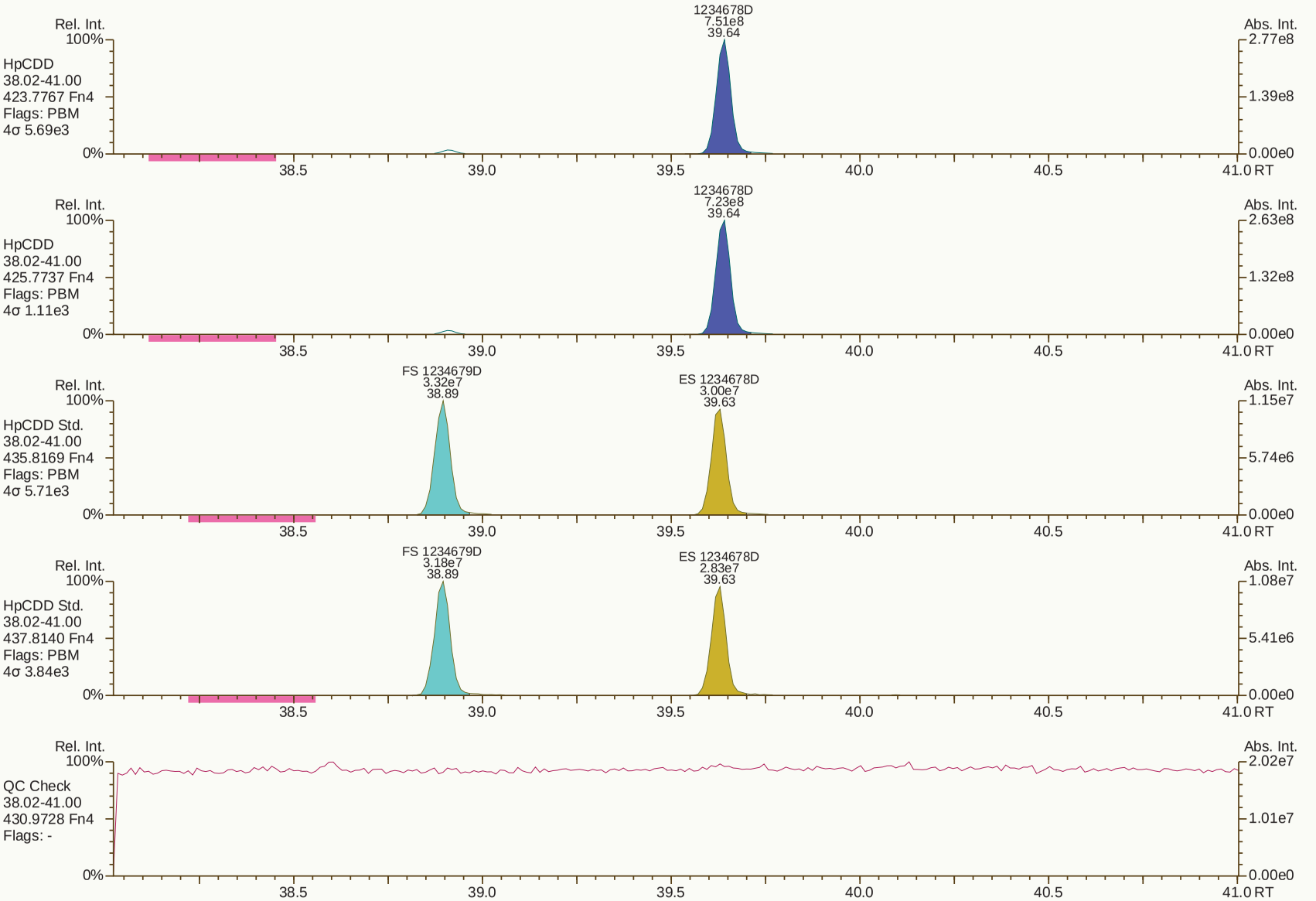
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1350, 7923 scc: 450-982 *Revised: 15-Jul-2016 13:58 (LKB) Printed: 15-Jul-2016 14:50 Page 4 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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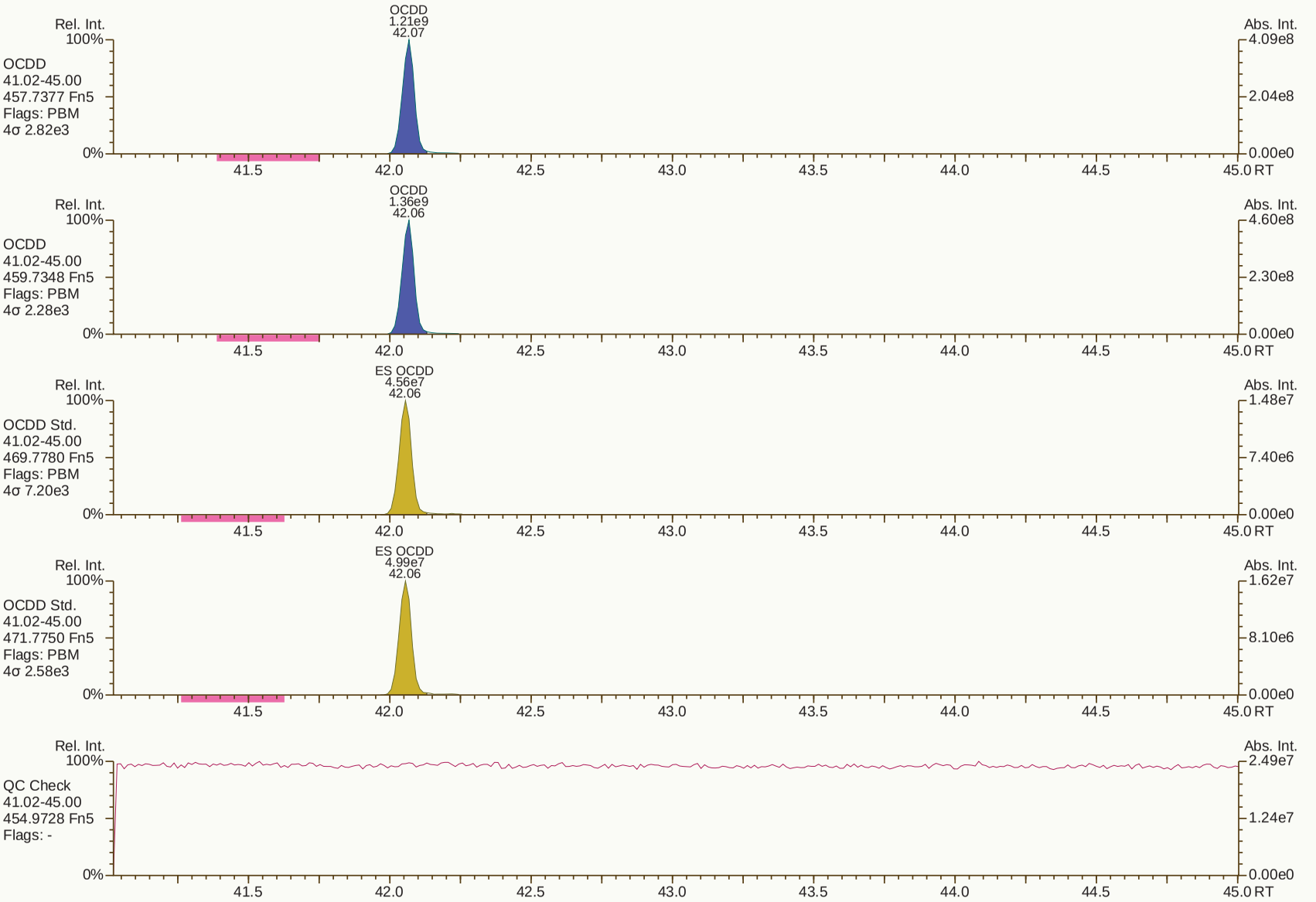
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0779, 5969 scc: 450-982 *PKD: 15-Jul-2016 13:56 Printed: 15-Jul-2016 14:50 Page 5 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8741, 2112 scc: 450-982 *PKD: 15-Jul-2016 13:47 Printed: 15-Jul-2016 14:50 Page 6 of 12*

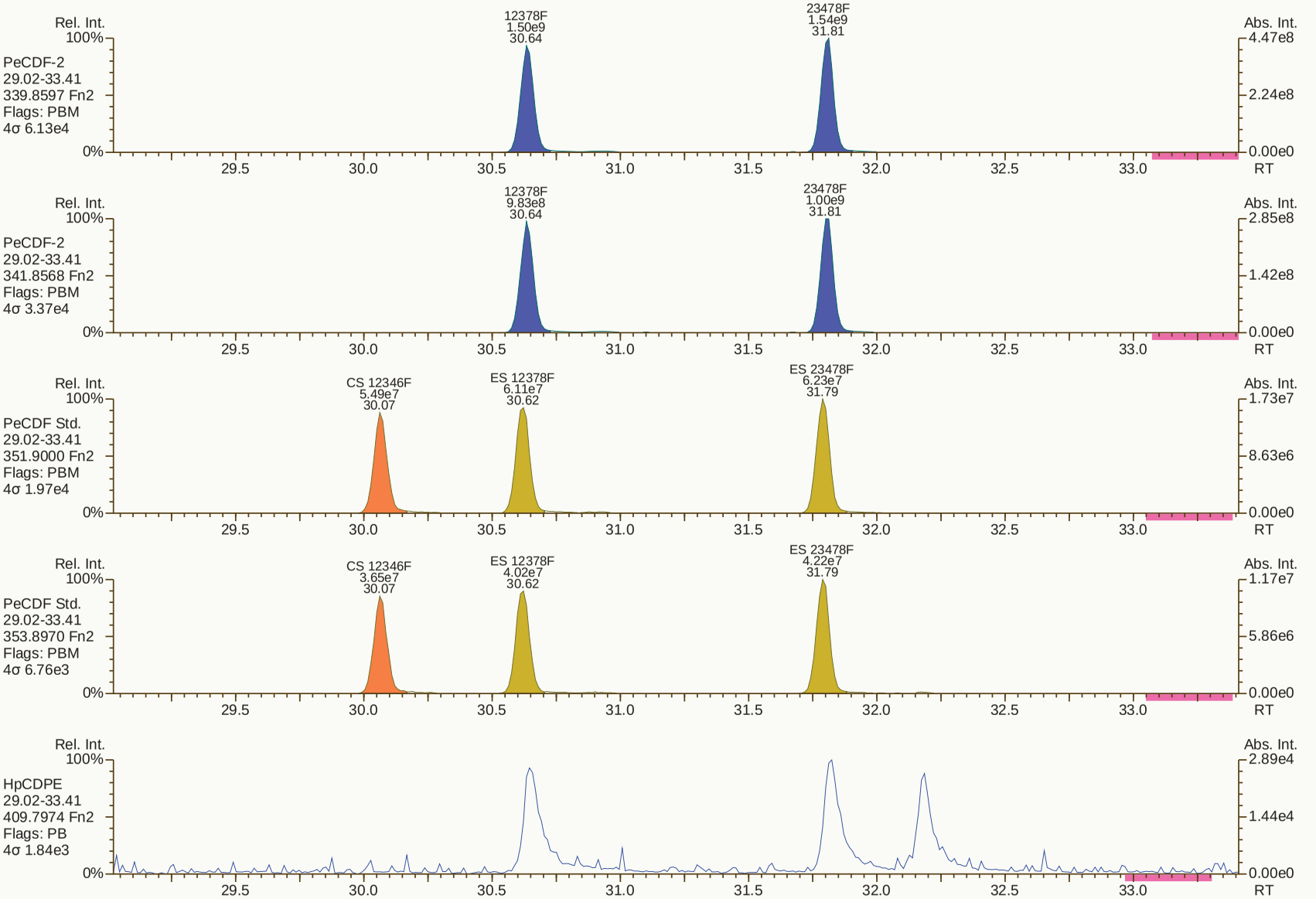
SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7929, 0093, 4633 scc: 450-982 *PKD: 15-Jul-2016 13:56 Printed: 15-Jul-2016 14:50 Page 7 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8075 scc: 450-982 *PKD: 15-Jul-2016 10:26 Printed: 15-Jul-2016 14:50 Page 8 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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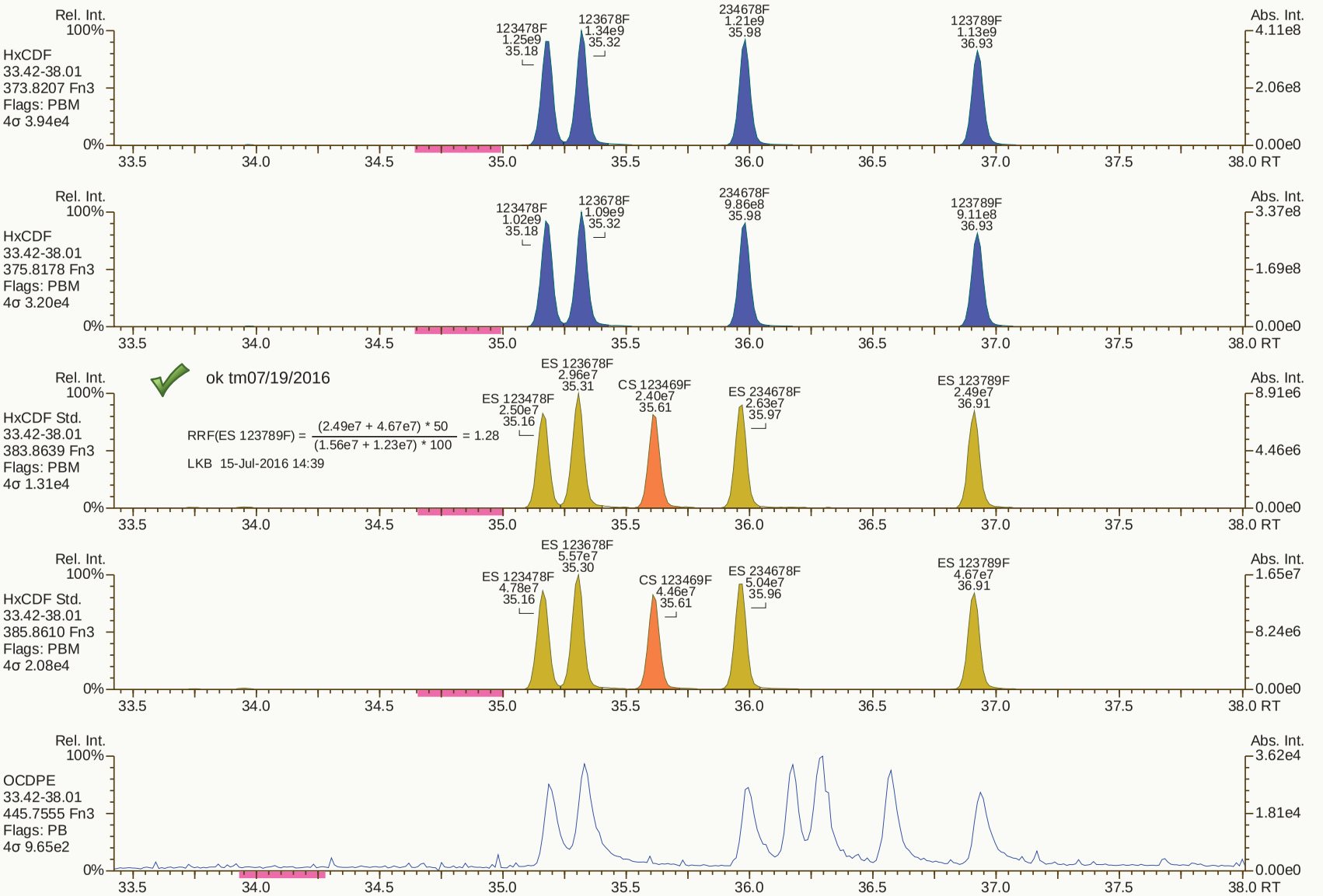
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2171, 4639, 5649 scc: 450-982 *PKD: 15-Jul-2016 13:56 Printed: 15-Jul-2016 14:50 Page 9 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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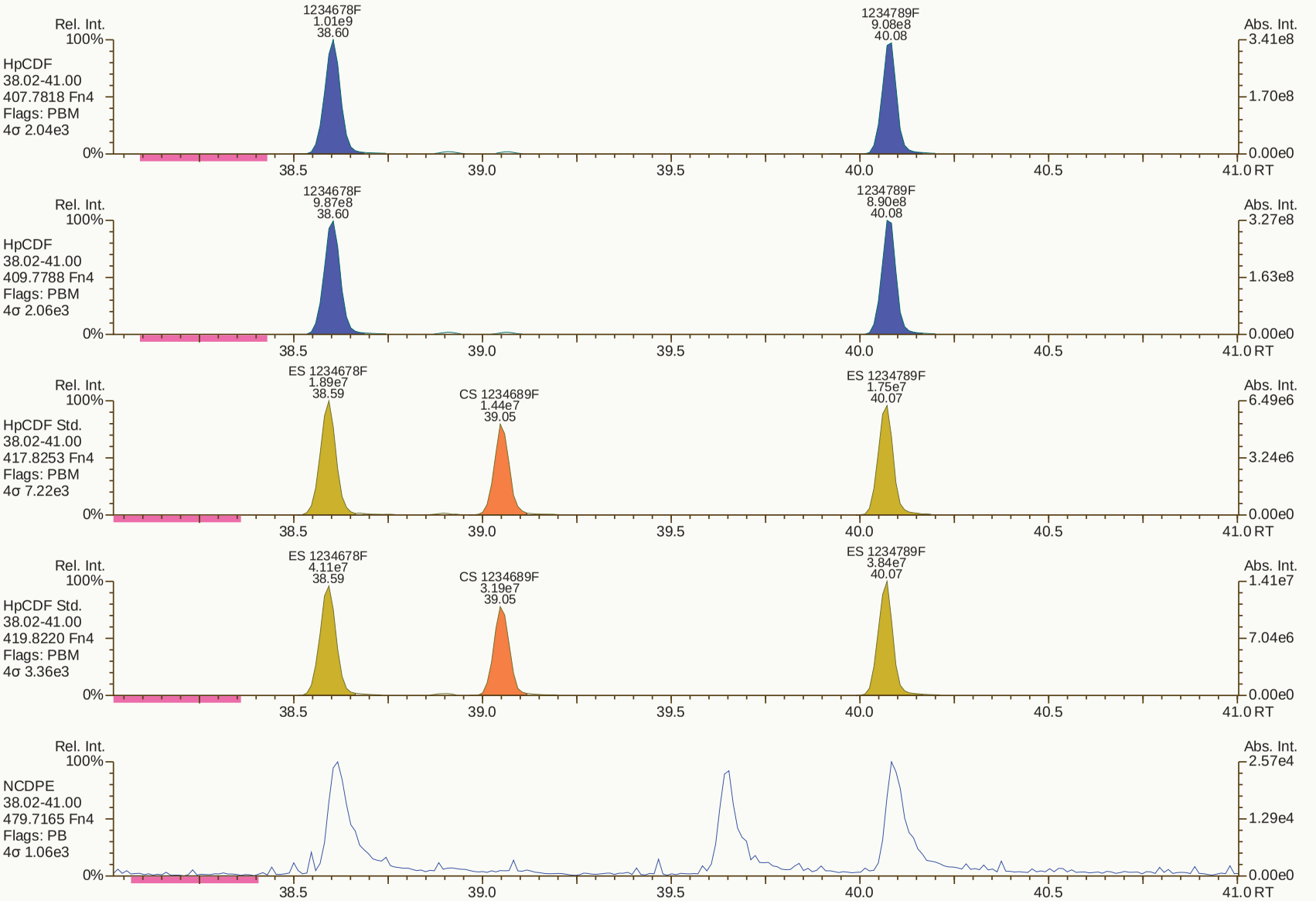
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8798, 4510, 4660 scc: 450-982 *PKD: 15-Jul-2016 13:57 Printed: 15-Jul-2016 14:50 Page 10 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**



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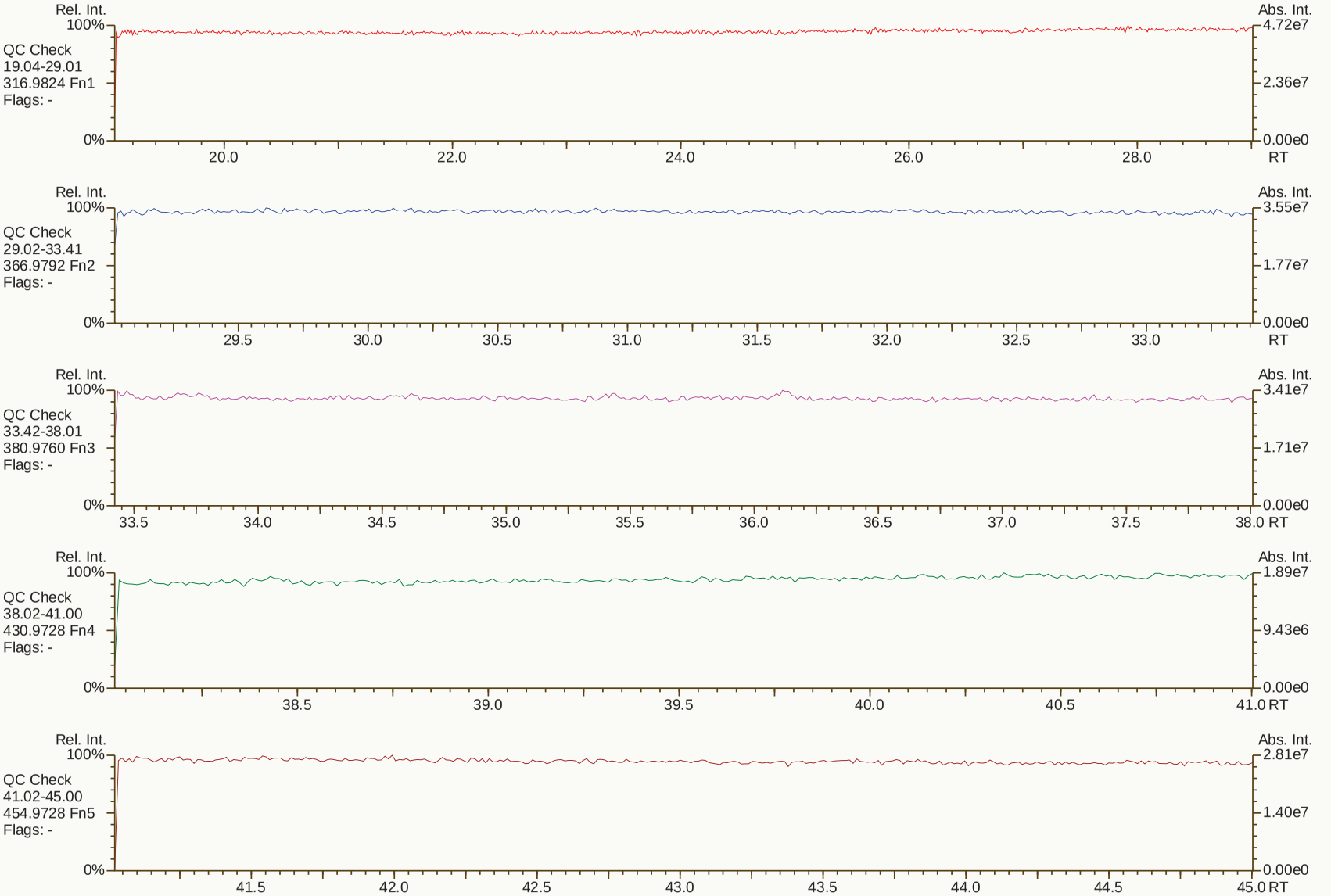
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0748, 0767, 9233 scc: 450-982 *Revised: 15-Jul-2016 13:57 (LKB) Printed: 15-Jul-2016 14:50 Page 11 of 12*

SGS ID: CS6_160714_DF_PB | **Sample ID: SIL 15-103-3** | **Acq: 14-Jul-2016 21:06:05**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 13** | **User: LKB Datafile: 160714P21**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\CS6_160714_DF_PB.utp_res, saved 15-Jul-2016 14:40 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3393, 4234, 7299 scc: 450-982 *Revised: 15-Jul-2016 13:57 (LKB) Printed: 15-Jul-2016 14:50 Page 12 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 483-666 *PKD: n/a Printed: 15-Jul-2016 14:47 Page 1 of 12*

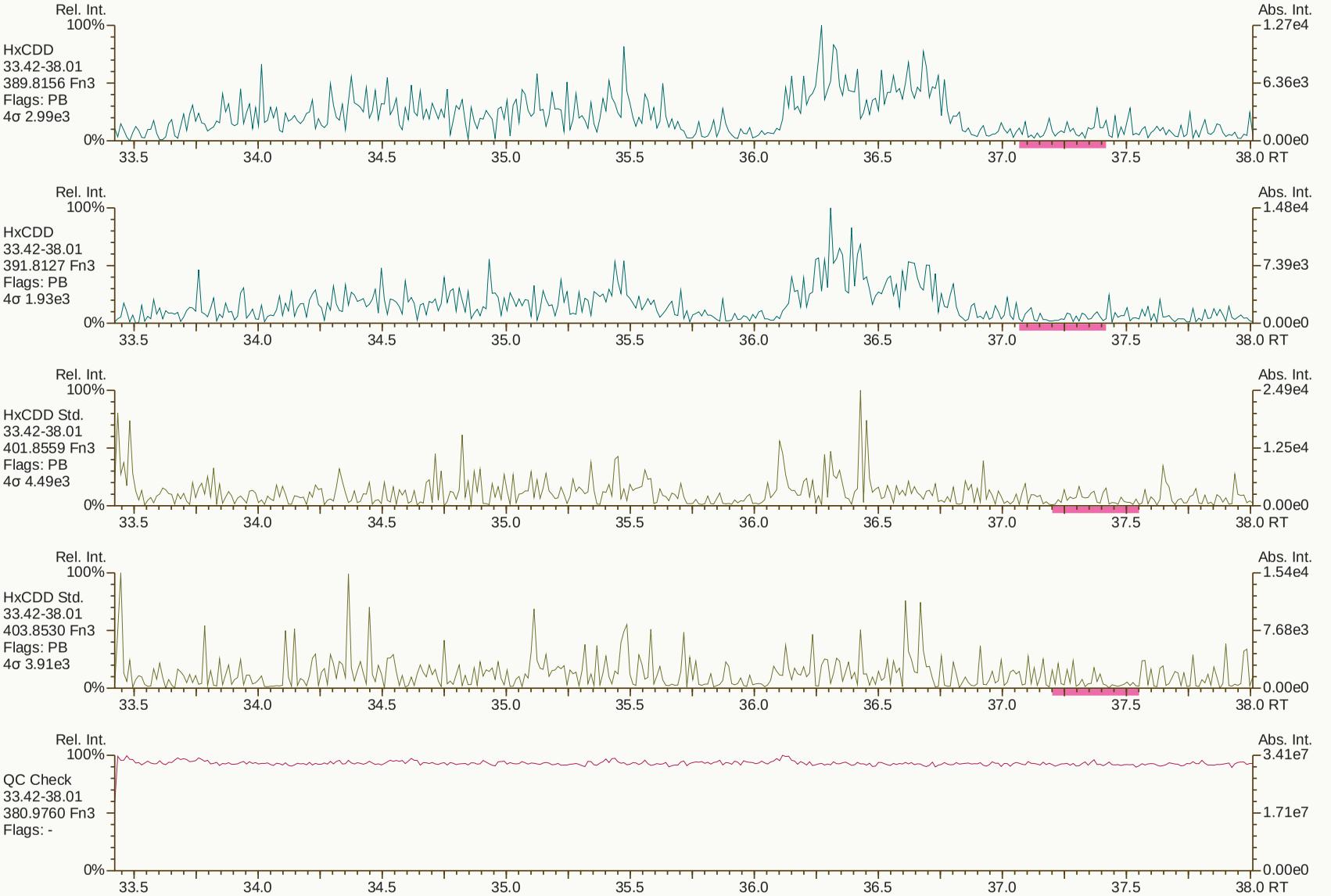
SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5453, 8572, 5553 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 2 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7872, 6842 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 3 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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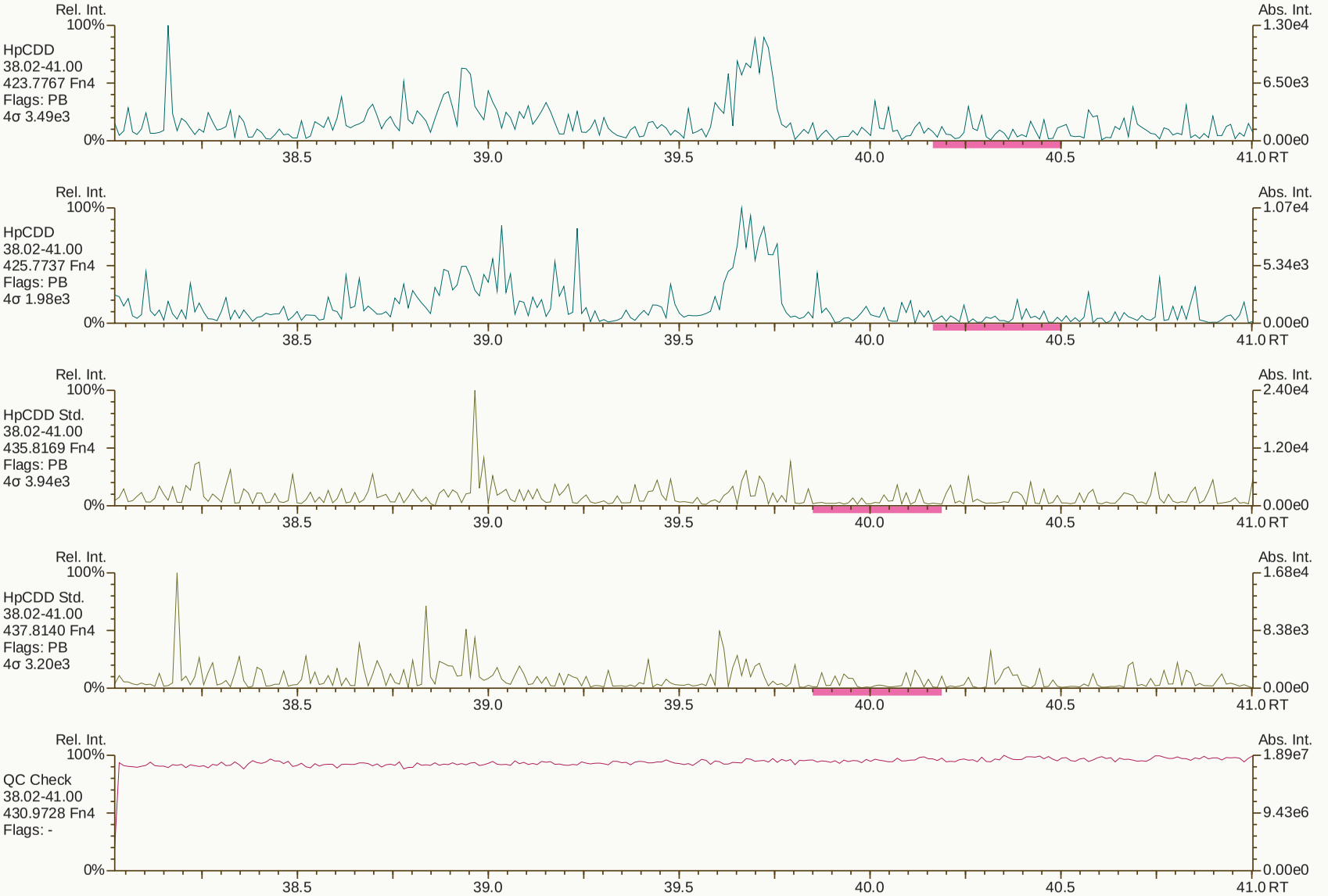
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6826, 0117 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 4 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2103, 5472 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 5 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 1841, 8337 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 6 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 2547, 0889, 7925 scc: 483-666 *Revised: 14-Jul-2016 15:07 (LKB) Printed: 15-Jul-2016 14:47 Page 7 of 12*

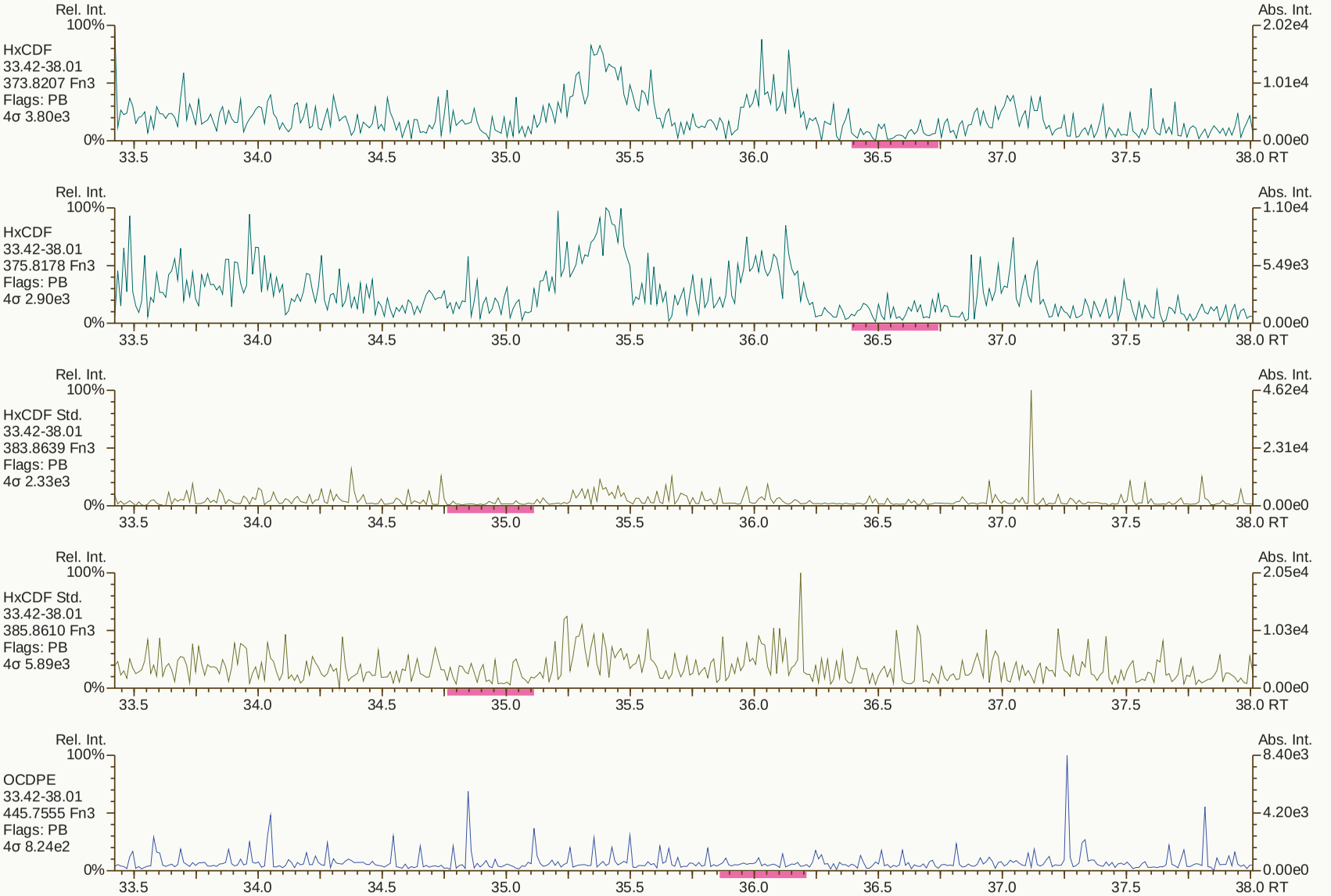
SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 9813 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 8 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4491, 9106, 7001 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 9 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4275, 3678, 7286 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 10 of 12*

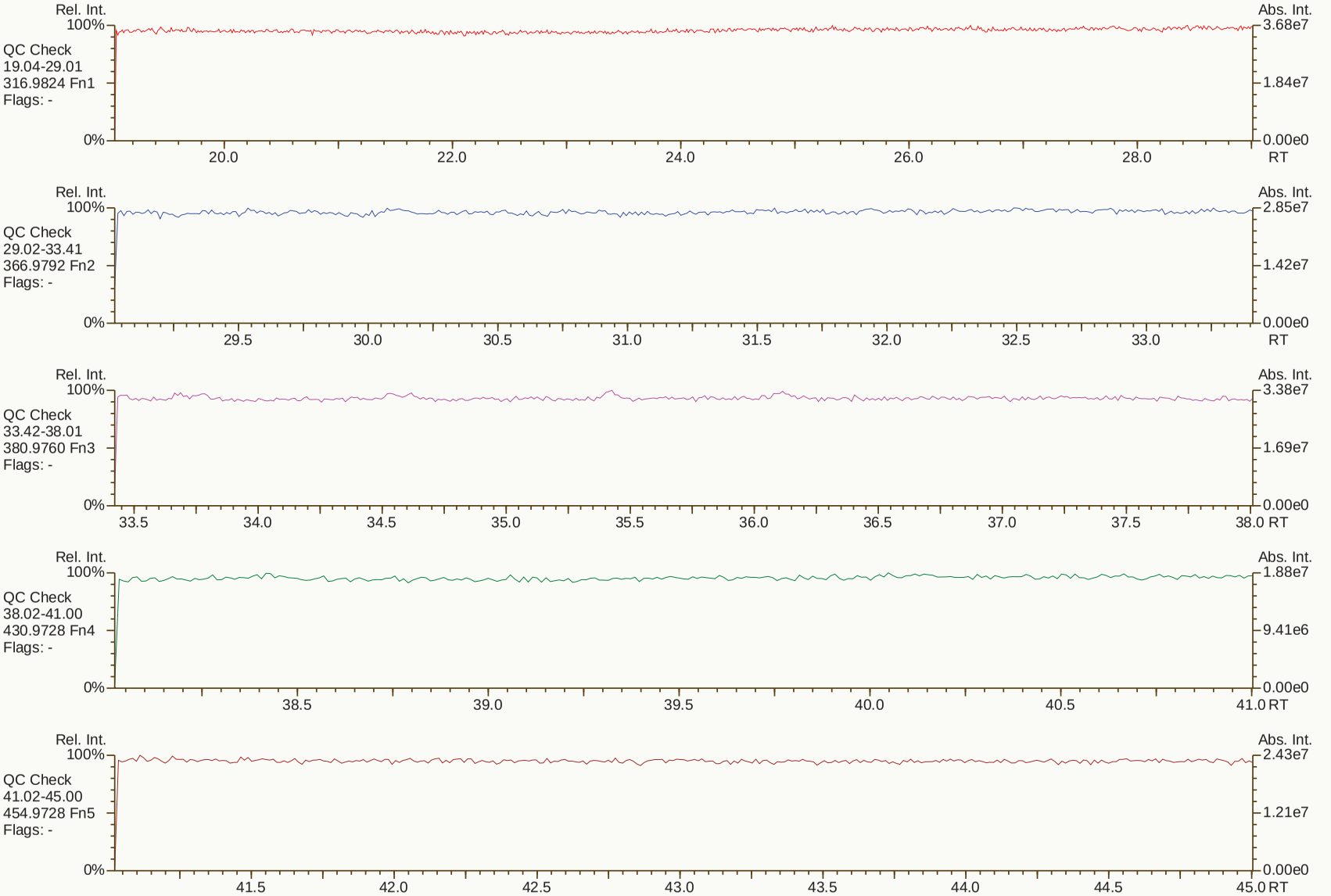
SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4491, 9484, 9772 scc: 483-666 *PKD: 14-Jul-2016 15:08 Printed: 15-Jul-2016 14:47 Page 11 of 12*

SGS ID: SBS_160714_DF_PE | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 14:22:37**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P13**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PE.utp_res, saved 14-Jul-2016 15:08 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8943, 1791, 8322 scc: 483-666 *Revised: 14-Jul-2016 15:07 (LKB) Printed: 15-Jul-2016 14:47 Page 12 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

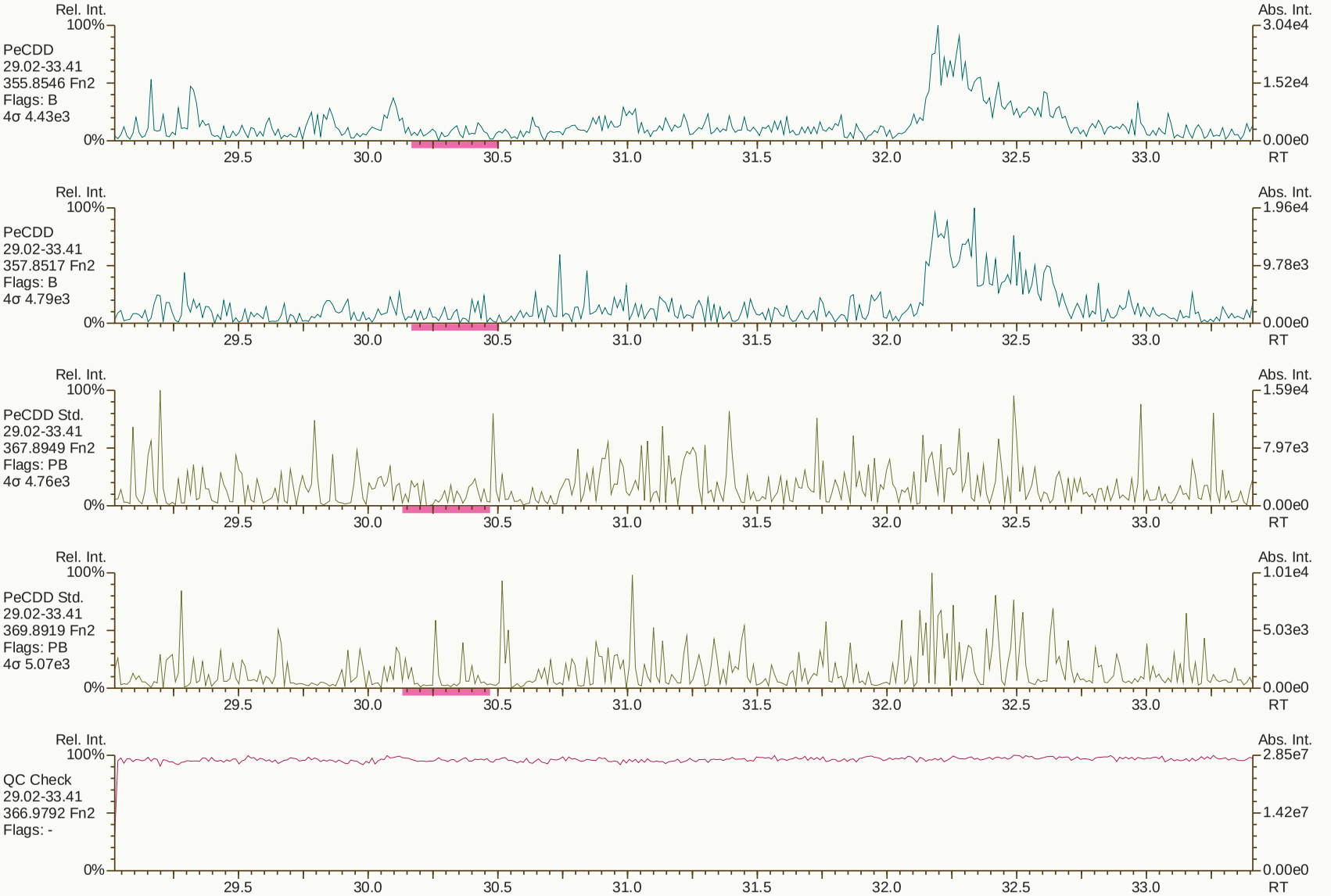


Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 scc: 334-191 | *PKD: n/a Printed: 15-Jul-2016 14:50 Page 1 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6995, 8861, 6629 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 2 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



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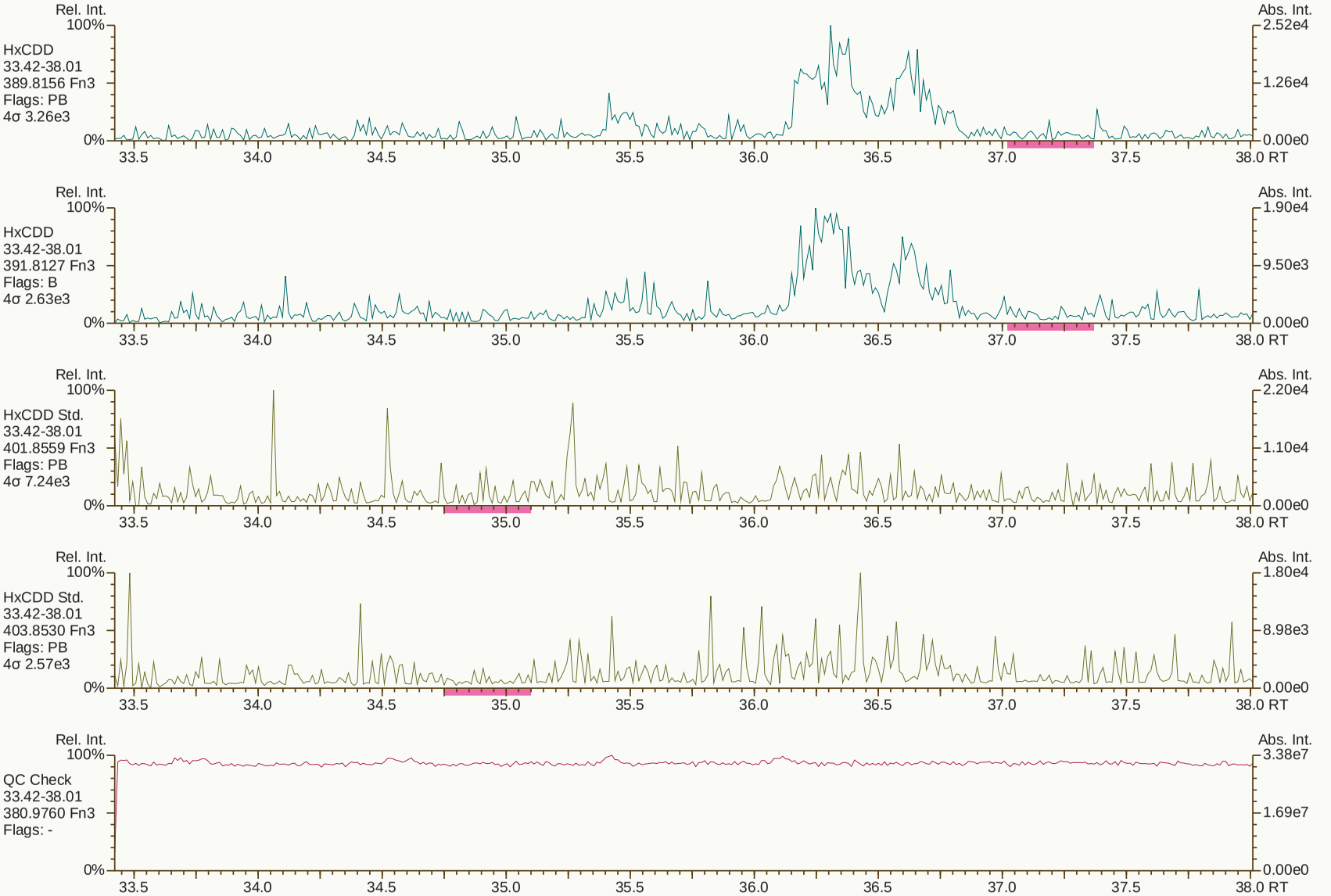
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 3356, 7366 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 3 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6489, 4320 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 4 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6114, 2040 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 5 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4369, 7063 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 6 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**

Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

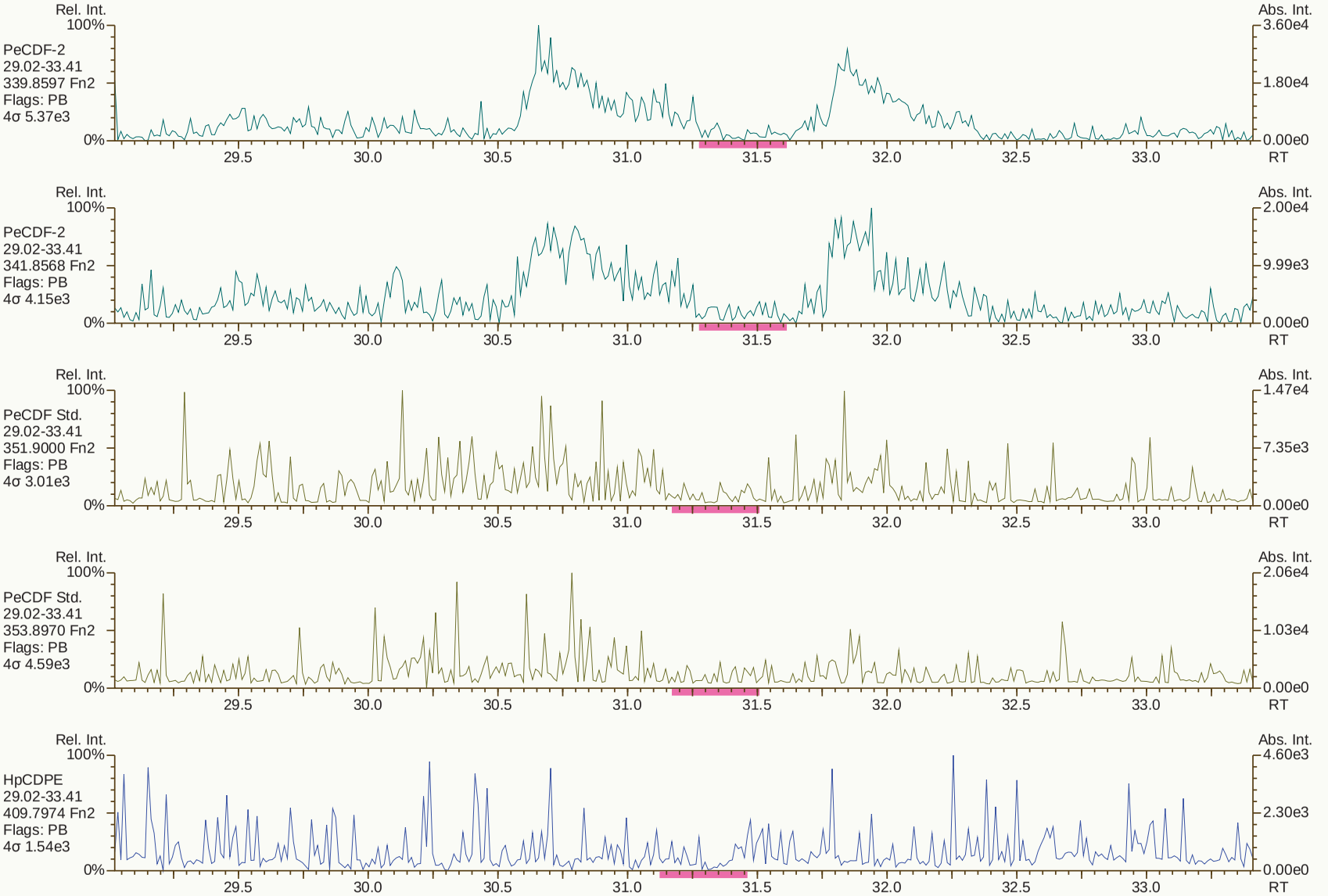
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 8761, 1786, 0172 scc: 334-191 *Revised: 15-Jul-2016 10:24 (LKB) Printed: 15-Jul-2016 14:50 Page 7 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 6461 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 8 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



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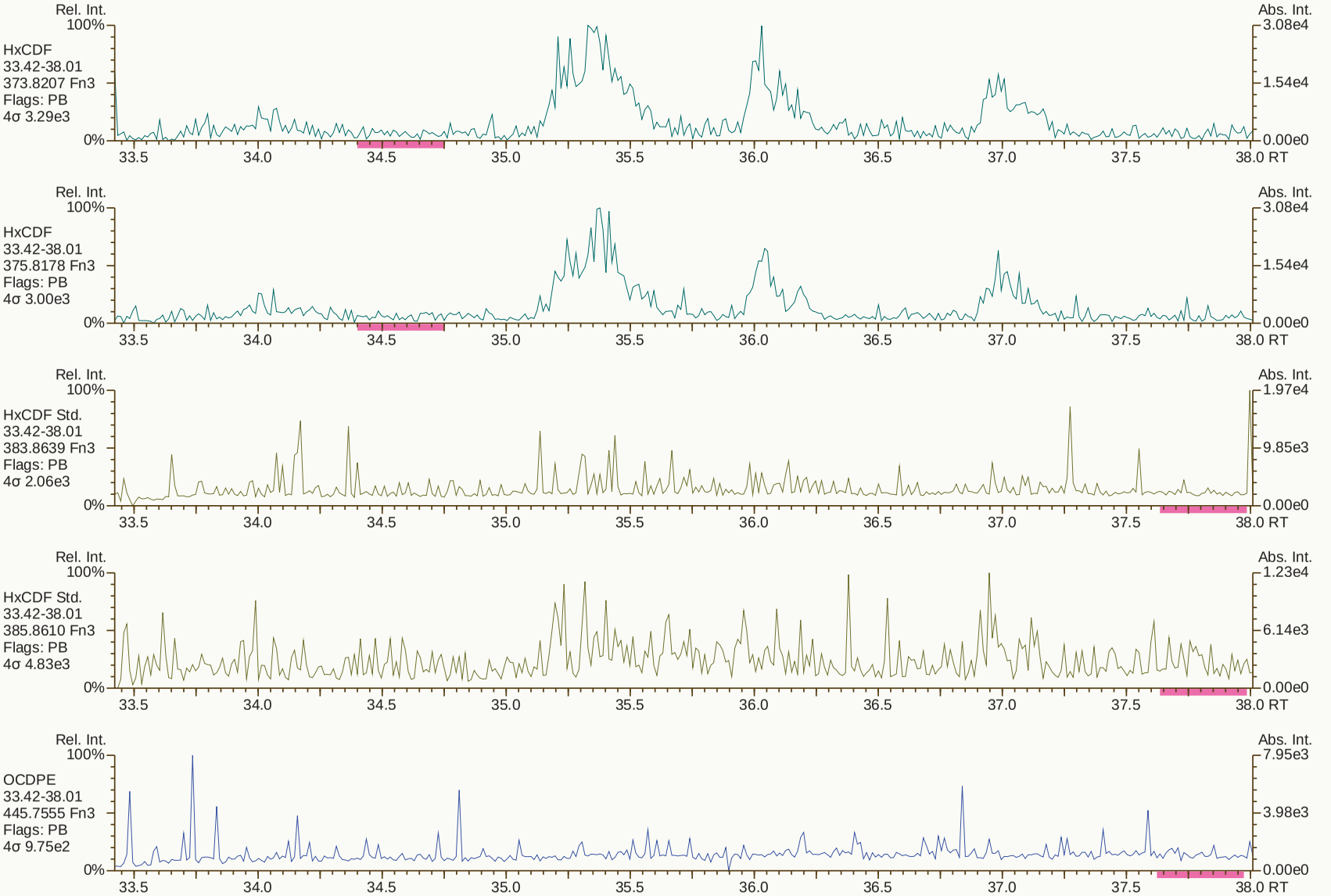
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 4716, 9969, 7774 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 9 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**



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SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 7056, 4987, 4962 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 10 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 0075, 7958, 8246 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 11 of 12*

SGS ID: SBS_160714_DF_PF | **Sample ID: SIL 15-49-1** | **Acq: 14-Jul-2016 20:16:54**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 2** | **User: LKB Datafile: 160714P20**

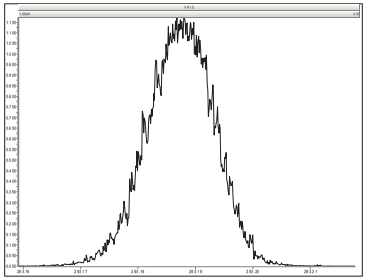
Results: T:\UltraTracePro\ICAL results\MM1\MM1_DF_12212015_14JUL2016\Resources\SBS_160714_DF_PF.utp_res, saved 15-Jul-2016 10:24 (LKB) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: LKB/US0007933 cc: 5939, 4208, 3218 scc: 334-191 *PKD: 15-Jul-2016 10:24 Printed: 15-Jul-2016 14:50 Page 12 of 12*

Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

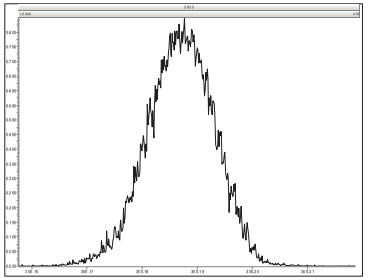
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 1 @ 200 (ppm)

Printed: Thursday, July 14, 2016 14:20:52 Eastern Daylight Time

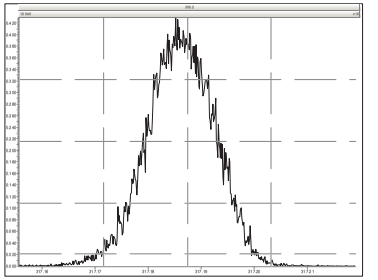
M 292.9824 R 11163



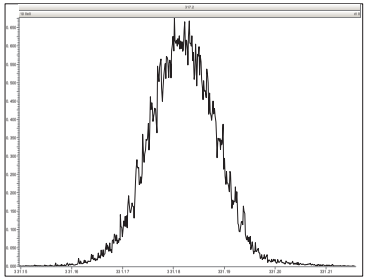
M 304.9824 R 10729



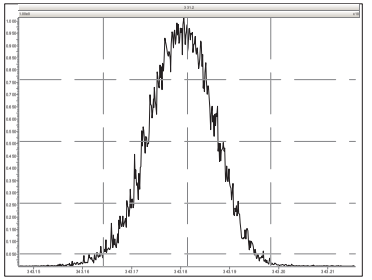
M 316.9824 R 11259



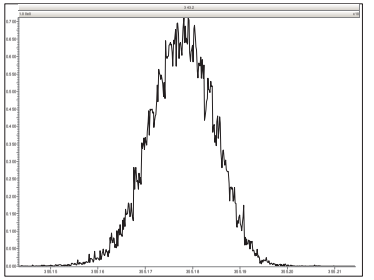
M 330.9792 R 10778



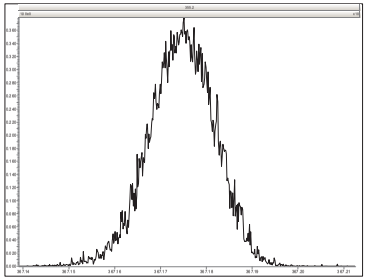
M 342.9792 R 11013



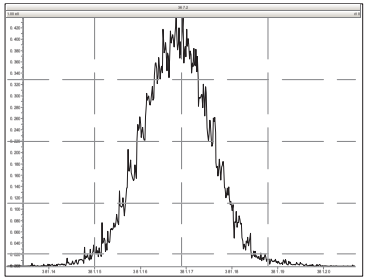
M 354.9792 R 11466



M 366.9792 R 11162



M 380.9760 R 11628

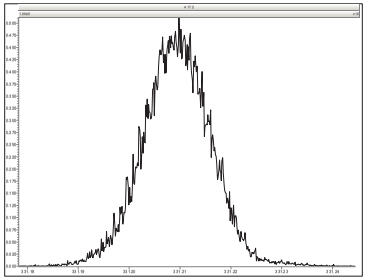


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

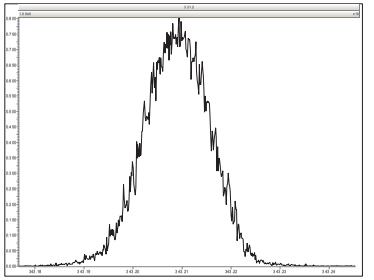
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 2 @ 200 (ppm)

Printed: Thursday, July 14, 2016 14:21:21 Eastern Daylight Time

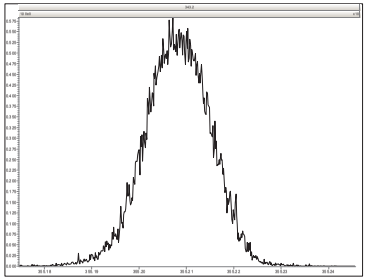
M 330.9792 R 11213



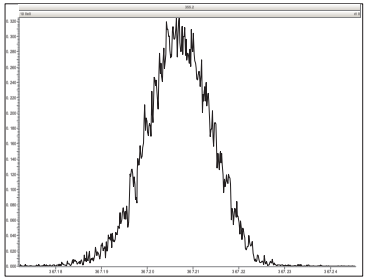
M 342.9792 R 11793



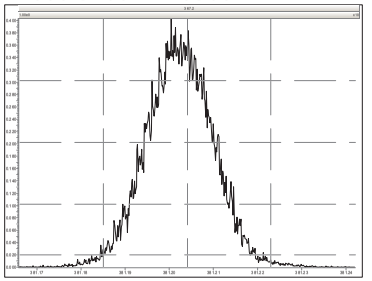
M 354.9792 R 11160



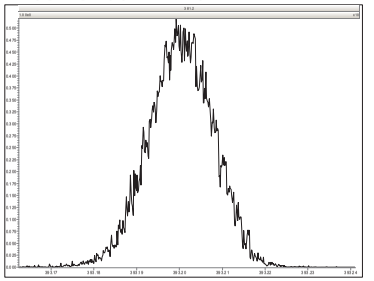
M 366.9792 R 11413



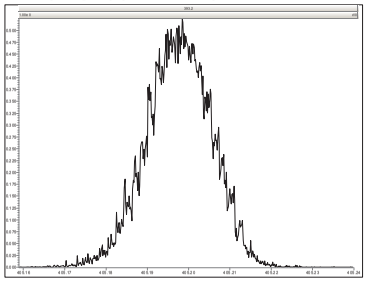
M 380.9760 R 10965



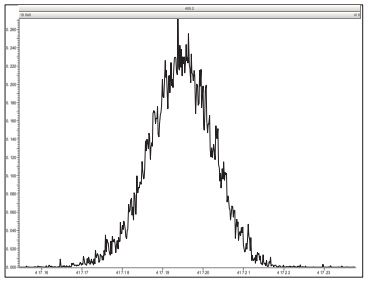
M 392.9760 R 11311



M 404.9760 R 11734



M 416.9760 R 11416

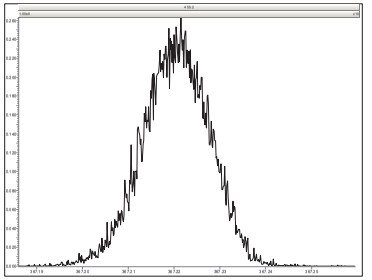


Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

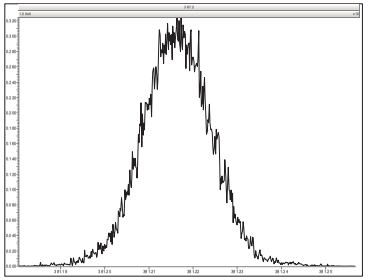
File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 3 @ 200 (ppm)

Printed: Thursday, July 14, 2016 14:21:42 Eastern Daylight Time

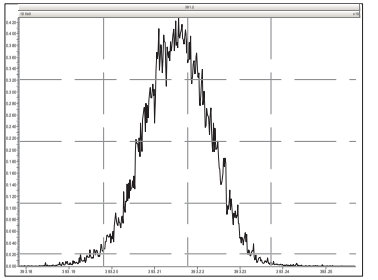
M 366.9792 R 11208



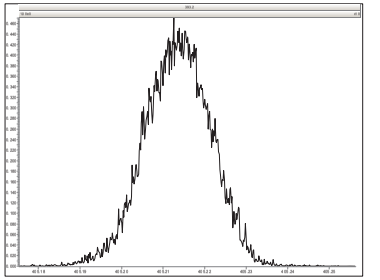
M 380.9760 R 10731



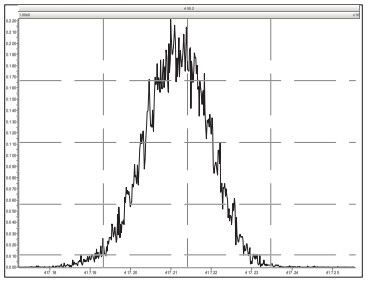
M 392.9760 R 11210



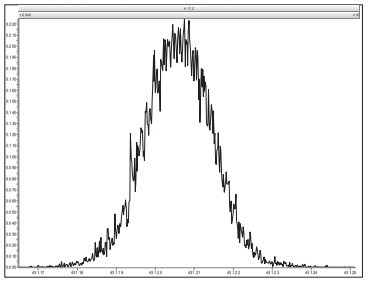
M 404.9760 R 11310



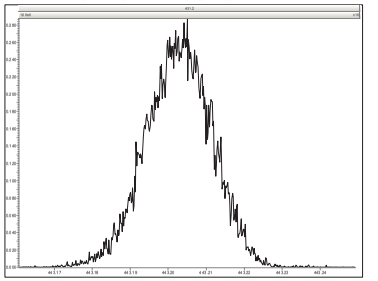
M 416.9760 R 11112



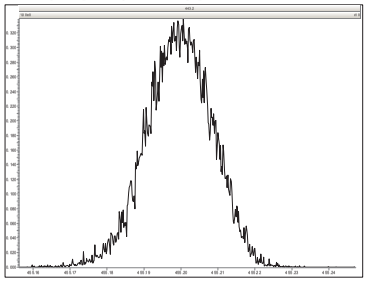
M 430.9728 R 11520



M 442.9728 R 10820



M 454.9728 R 10917



Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 4 @ 200 (ppm)

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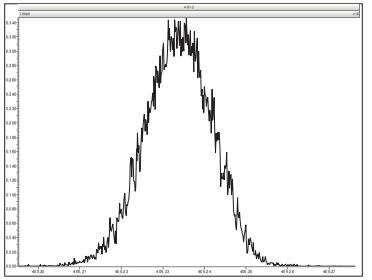
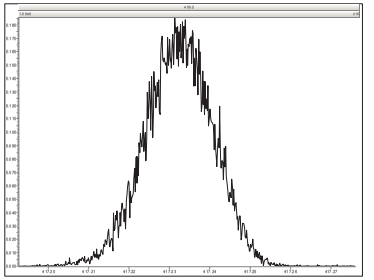
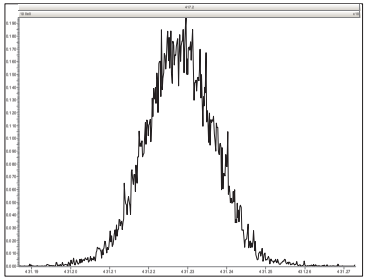
M 404.9760 R 10641



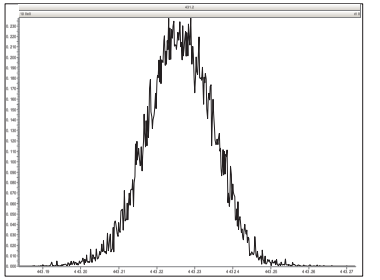
M 416.9760 R 10914



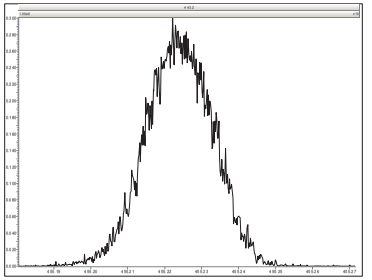
M 430.9728 R 10869



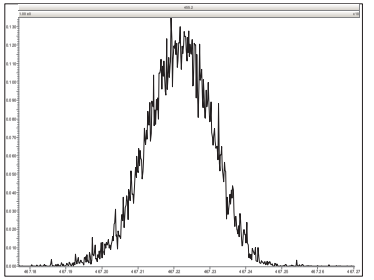
M 442.9728 R 10686



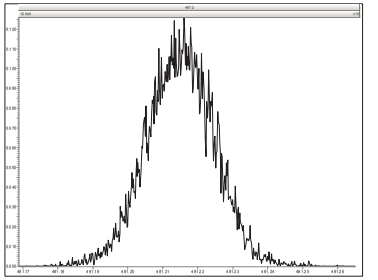
M 454.9728 R 10823



M 466.9728 R 11682



M 480.9696 R 11159



Experiment Calibration Report **MassLynx 4.1 SCN640** Page 1 of 1

File: Experiment: df_cl4-8_db5.exp Reference: Pfk2.ref Function: 5 @ 200 (ppm)

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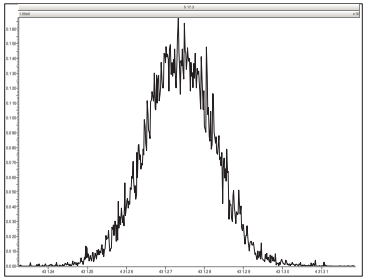
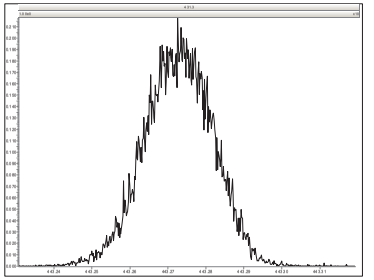
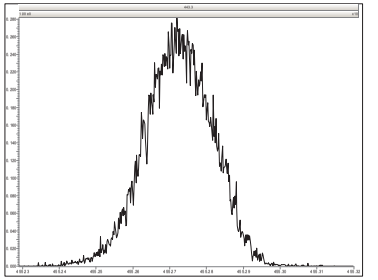
M 430.9728 R 11059



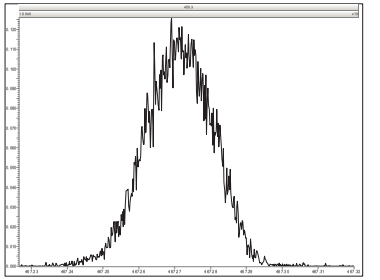
M 442.9728 R 11210



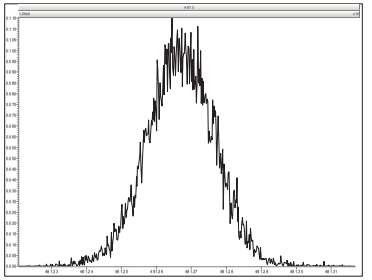
M 454.9728 R 11015



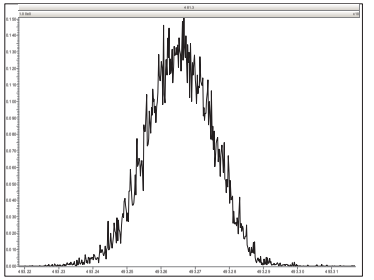
M 466.9728 R 11571



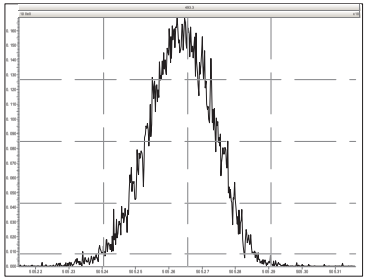
M 480.9696 R 11312



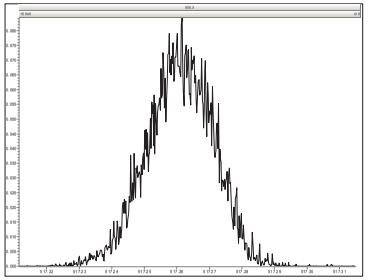
M 492.9696 R 11311



M 504.9696 R 12133



M 516.9697 R 11736



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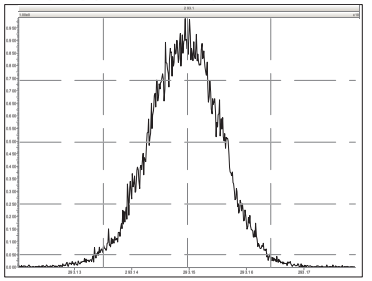
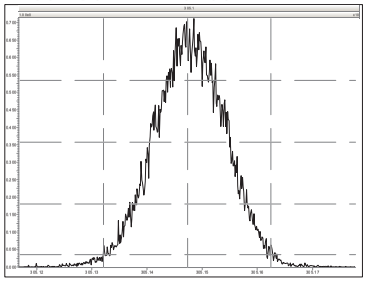
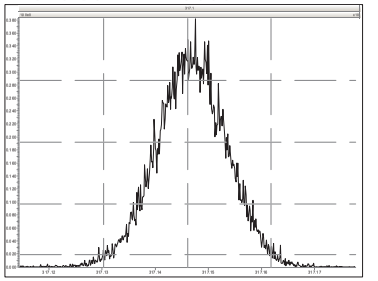
M 292.9824 R 10282



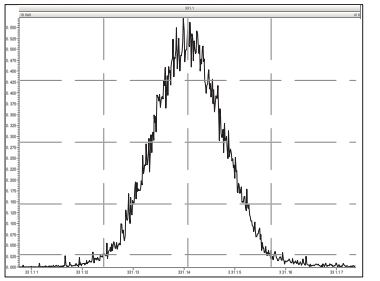
M 304.9824 R 10468



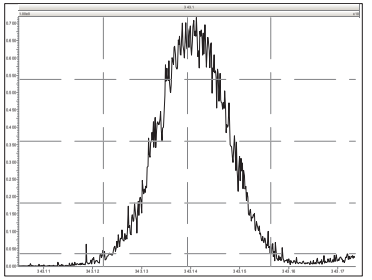
M 316.9824 R 10660



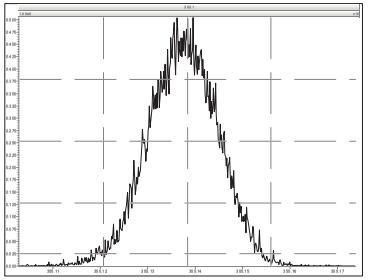
M 330.9792 R 10309



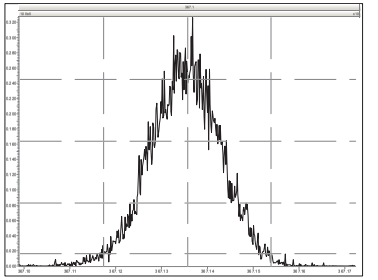
M 342.9792 R 10374



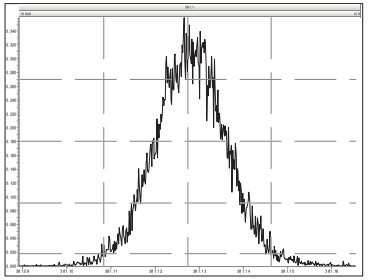
M 354.9792 R 10775



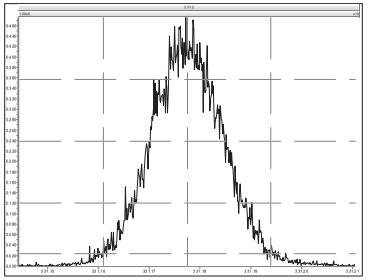
M 366.9792 R 11086



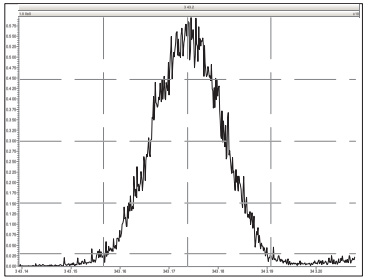
M 380.9760 R 10316



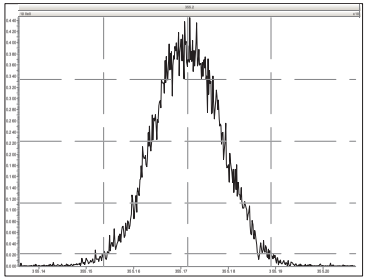
M 330.9792 R 10333



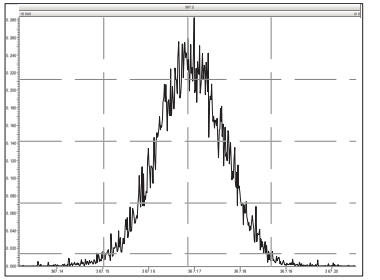
M 342.9792 R 10527



M 354.9792 R 10920



M 366.9792 R 10944



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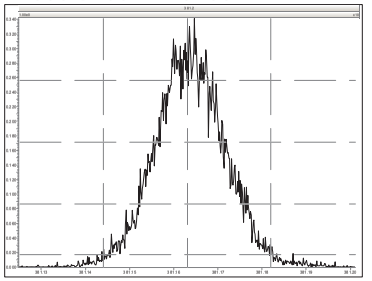
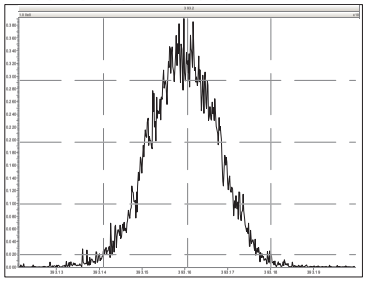
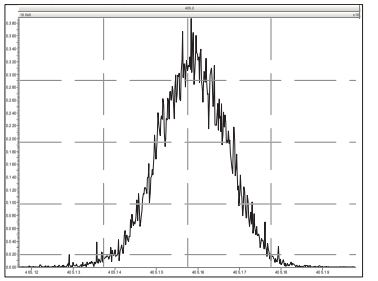
M 380.9760 R 10755



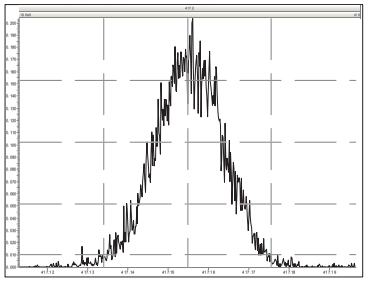
M 392.9760 R 11076



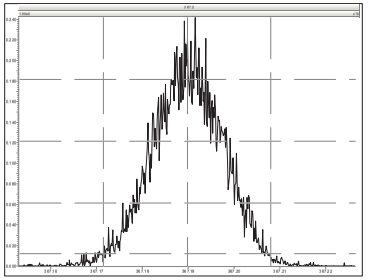
M 404.9760 R 11287



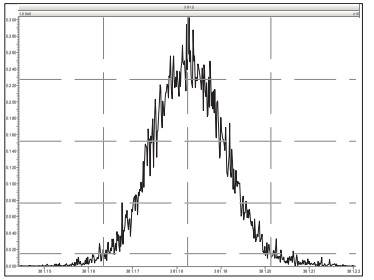
M 416.9760 R 11037



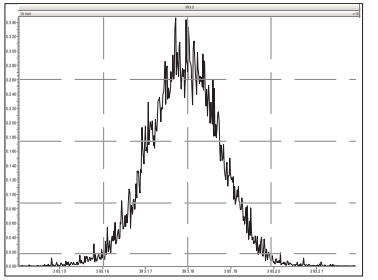
M 366.9792 R 10734



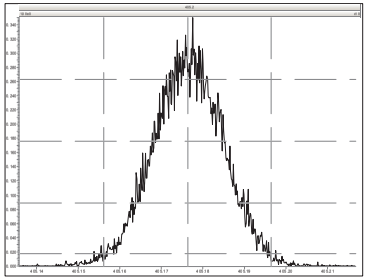
M 380.9760 R 10505



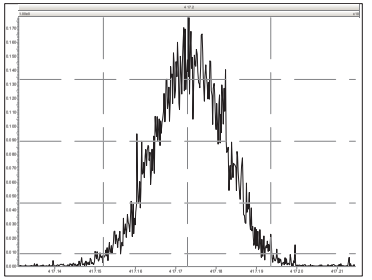
M 392.9760 R 11012



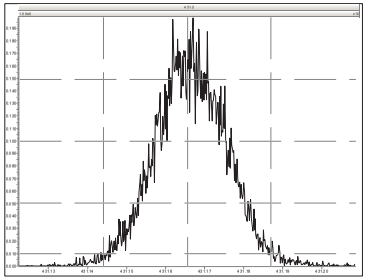
M 404.9760 R 10354



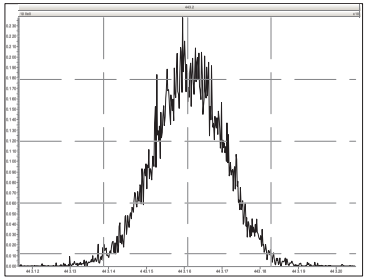
M 416.9760 R 11111



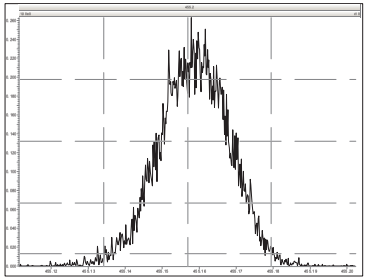
M 430.9728 R 10422



M 442.9728 R 10506



M 454.9728 R 10738



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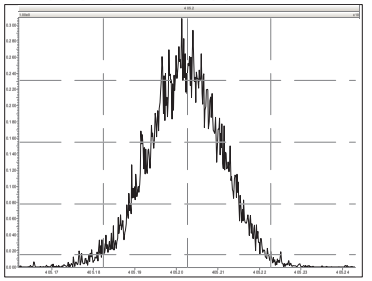
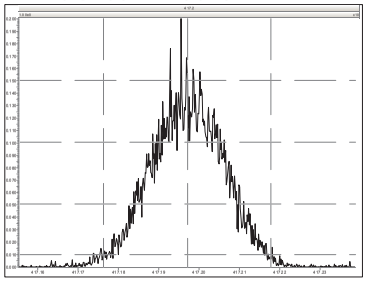
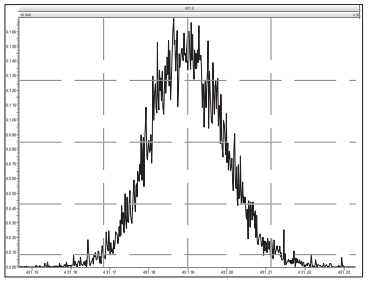
M 404.9760 R 10485



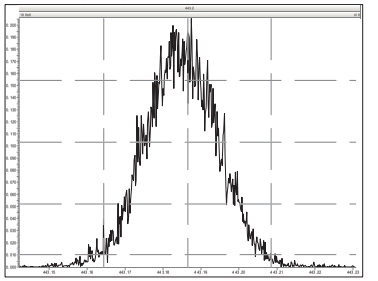
M 416.9760 R 10645



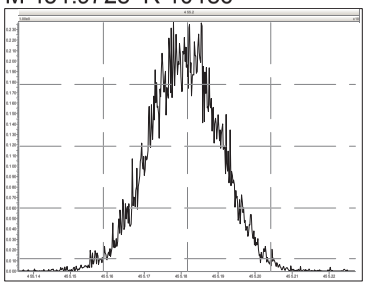
M 430.9728 R 10005



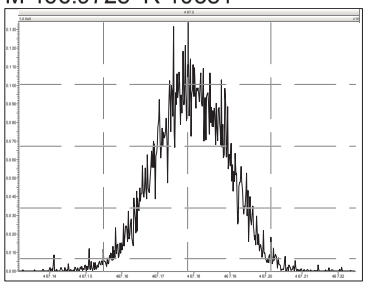
M 442.9728 R 10775



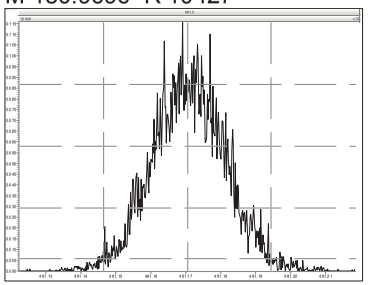
M 454.9728 R 10486



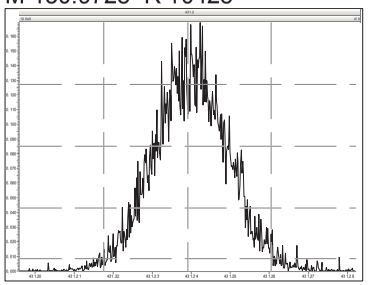
M 466.9728 R 10381



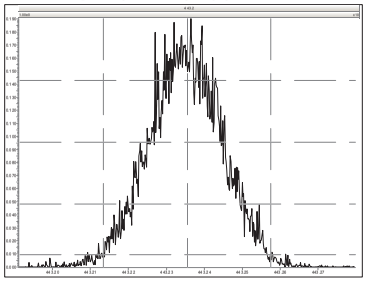
M 480.9696 R 10427



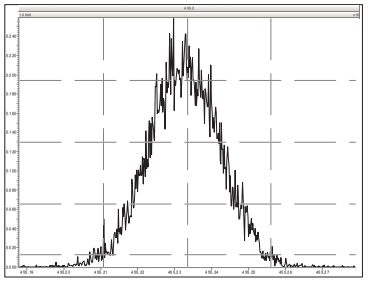
M 430.9728 R 10425



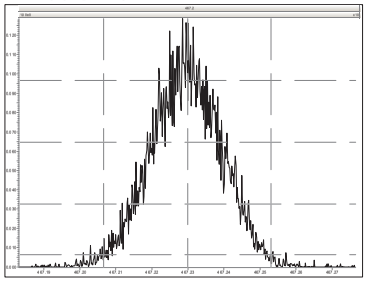
M 442.9728 R 10266



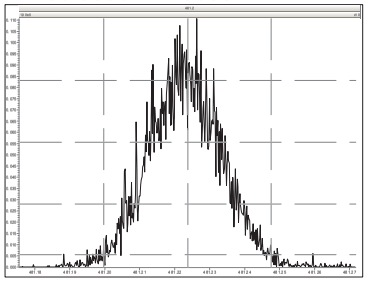
M 454.9728 R 10799



M 466.9728 R 11111



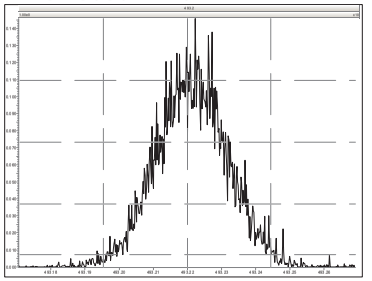
M 480.9696 R 10638



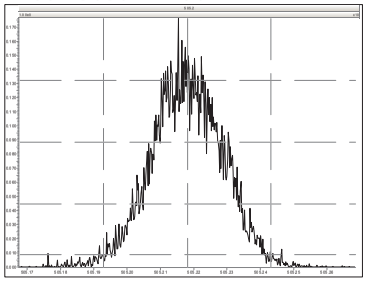
Resolution Check Report **MassLynx 4.1 SCN640** Page 4 of 4

Printed: Thursday, July 14, 2016 22:52:26 Eastern Daylight Time

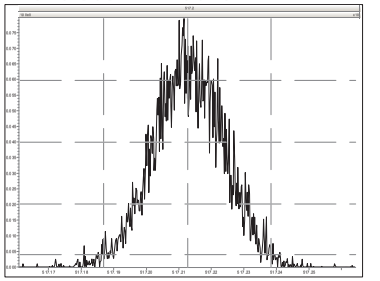
M 492.9696 R 10774



M 504.9696 R 10641



M 516.9697 R 10615



Lab ID: OPR1_14513_DF-RJ | Acq'd: 29 Nov 2016 01:50 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: 0_14513_OPR001 | UTP: 30-Nov-2016 13:02:02 JLJ | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 650-018-TCD

Datafile: 161128P13 | Report: 02 Dec 2016 11:11 JJ | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.63		1.0008	1.0008	0	1.42E+06	0.76	Y	1.04	8.98	1772	0.114

REVIEWED

By Tamara Morgan at 2:23 pm, Dec 02, 2016

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.61	1.0243	1.0245	+0.3	1.52E+07	0.74	Y	1.04	87.2

Lab ID: OPR1_14513_DF-RJ | Acq'd: 29 Nov 2016 01:50 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: 0_14513_OPR001 | UTP: 30-Nov-2016 13:02:02 JLJ | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 650-018-TCD

Datafile: 161128P13 | Report: 02 Dec 2016 11:11 JJ | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.95		-	-	-	1.68E+07	0.77	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	6.12E+06	1.21	Y	-	-
CS 37Cl-2378-TCDD	27.63		1.0252	1.0253	+0.2	6.73E+06	n/a	-	1.05	94.9

Totals	Conc	EMPC
Total TCDD	38.9	38.9

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.76	0.76
Response	1.42E+06	1.42E+06

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161128P13	Analysis Date:	29-NOV-2016 01:50:36
Lab ID:	OPR1_14513_DF-RJ		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	8.98	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 02 Dec 2016 11:11 Analyst: JJ

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
VER Data Filename:	161128P13	Analysis Date:	29-NOV-2016 01:50:36
Lab ID:	OPR1_14513_DF-RJ		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	87.2	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	38	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 02 Dec 2016 11:11 Analyst: JJ

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
CPSM Data Filename:	161128P13	Analysis Date:	29-NOV-2016 01:50:36
Lab ID:	OPR1_14513_DF-RJ		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.88	1289-TCDD	28.65

Isomer Specificity Test Standard Results

Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	27.49	2378-TCDD	27.63

Processed: 02 Dec 2016 11:11 Analyst: JJ

SGS ID: OPR1_14513_DF-RJ **Sample ID: 0_14513_OPR001** **Acq: 29-Nov-2016 01:50:36**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: PSW Datafile: 161128P13**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\OPR1_14513_DF-RJ.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 scc: 650-018 *PKD: 29-Nov-2016 11:05 Printed: 02-Dec-2016 11:04 Page 2 of 2*

SGS ID: OPR1_14513_DF-RJ **Sample ID: 0_14513_OPR001** **Acq: 29-Nov-2016 01:50:36**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: PSW Datafile: 161128P13**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\OPR1_14513_DF-RJ.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 4120, 4470, 3970 scc: 650-018 *PKD: 29-Nov-2016 11:05 Printed: 02-Dec-2016 11:04 Page 1 of 2*

Lab ID: OPR1_14513_DF-RJ2 | Acq'd: 29 Nov 2016 11:47 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: 0_14513_OPR001 | UTP: 30-Nov-2016 13:02:09 JLJ | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 797-985-NTG

Datafile: 161128P25 | Report: 02 Dec 2016 11:12 JJ | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.63		1.0008	1.0007	-0.2	1.29E+06	0.77	Y	1.04	8.8	1454	0.104

CPSM ONLY

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.61	1.0243	1.0245	+0.3	1.41E+07	0.76	Y	1.04	86.4

Lab ID: OPR1_14513_DF-RJ2 | Acq'd: 29 Nov 2016 11:47 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: 0_14513_OPR001 | UTP: 30-Nov-2016 13:02:09 JLJ | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 797-985-NTG

Datafile: 161128P25 | Report: 02 Dec 2016 11:12 JJ | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.95		-	-	-	1.58E+07	0.78	Y	-	-
JS 123467-HxCDD	37.31		-	-	-	5.60E+06	1.27	Y	-	-
CS 37Cl-2378-TCDD	27.63		1.0252	1.0254	+0.3	6.41E+06	n/a	-	1.05	96.4

Totals	Conc	EMPC
Total TCDD	38.6	38.6

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.77	0.77
Response	1.30E+06	1.29E+06

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
CPSM Data Filename:	161128P25	Analysis Date:	29-NOV-2016 11:47:03
Lab ID:	OPR1_14513_DF-RJ2		

Window Defining Standards Results

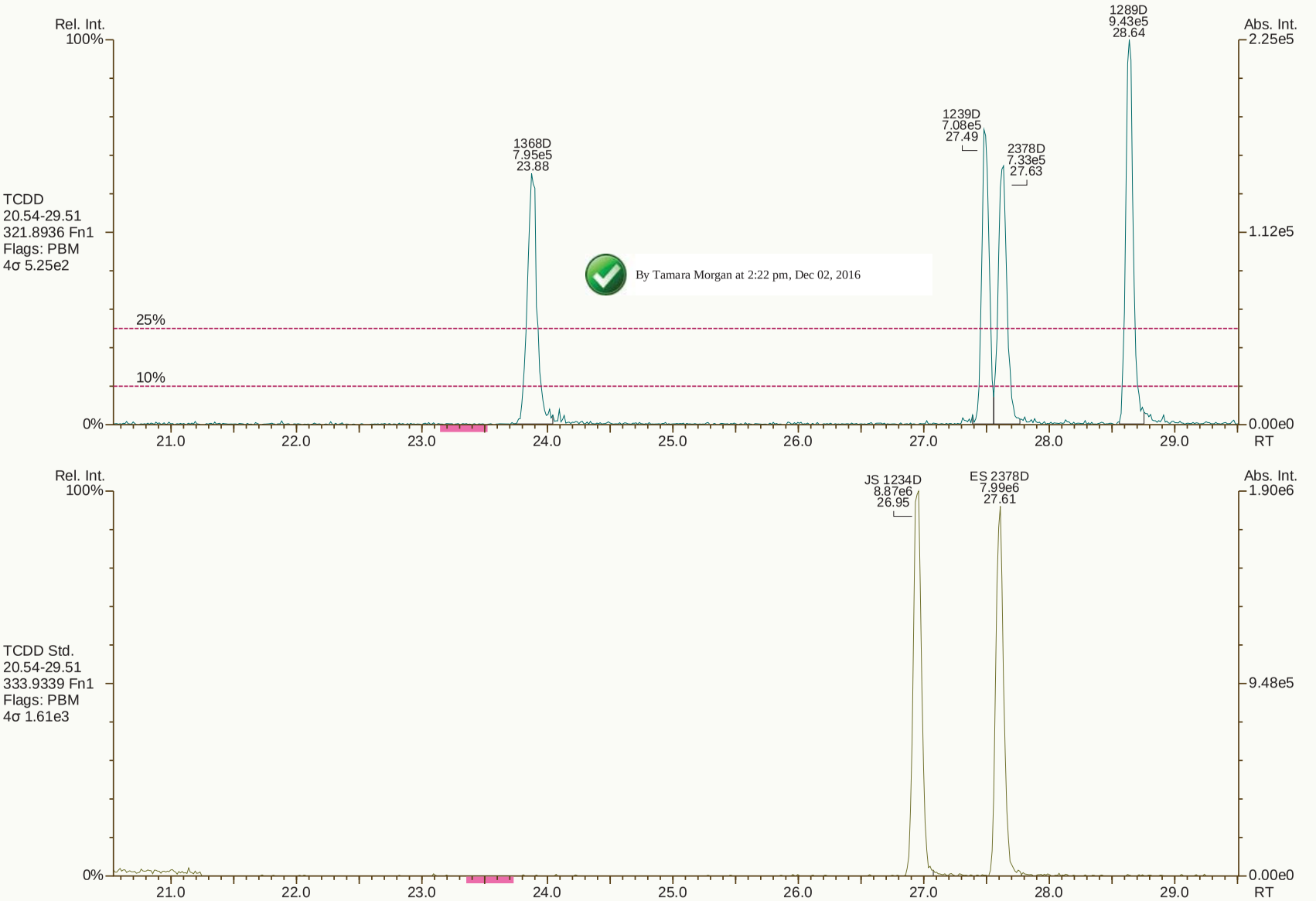
First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.88	1289-TCDD	28.64

Isomer Specificity Test Standard Results

Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	27.49	2378-TCDD	27.63

Processed: 02 Dec 2016 11:12 Analyst: JJ

SGS ID: OPR1_14513_DF-RJ2 **Sample ID: 0_14513_OPR001** **Acq: 29-Nov-2016 11:47:03**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: PSW Datafile: 161128P25**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\OPR1_14513_DF-RJ2.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 scc: 797-985 *PKD: 29-Nov-2016 14:20 Printed: 02-Dec-2016 11:05 Page 2 of 2*

SGS ID: OPR1_14513_DF-RJ2 **Sample ID: 0_14513_OPR001** **Acq: 29-Nov-2016 11:47:03**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: PSW Datafile: 161128P25**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\OPR1_14513_DF-RJ2.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 6482, 3147, 1794 scc: 797-985 *PKD: 29-Nov-2016 14:20 Printed: 02-Dec-2016 11:05 Page 1 of 2*

Lab ID: OPR1_14513_DF-RJ3 | Acq'd: 29 Nov 2016 23:41 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: 0_14513_OPR001 | UTP: 30-Nov-2016 13:02:16 JLJ | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 704-661-DTJ

Datafile: 161129P09 | Report: 02 Dec 2016 11:12 JJ | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.63		1.0008	1.0009	+0.2	1.55E+06	0.77	Y	1.04	10.4	1589	0.107

CPSM ONLY

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.60	1.0243	1.0245	+0.3	1.42E+07	0.78	Y	1.04	87.9

Lab ID: OPR1_14513_DF-RJ3 | Acq'd: 29 Nov 2016 23:41 PSW | Wt/Vol: 1 uL | ICAL: MM1_DF_12212015_14JUL2016

Client ID: 0_14513_OPR001 | UTP: 30-Nov-2016 13:02:16 JLJ | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 704-661-DTJ

Datafile: 161129P09 | Report: 02 Dec 2016 11:12 JJ | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.94		-	-	-	1.57E+07	0.79	Y	-	-
JS 123467-HxCDD	37.30		-	-	-	6.95E+06	1.33	Y	-	-
CS 37Cl-2378-TCDD	27.63		1.0252	1.0253	+0.2	6.75E+06	n/a	-	1.05	102

Totals	Conc	EMPC
Total TCDD	45.4	45.4

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.77	0.77
Response	1.55E+06	1.55E+06

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: MM1_DF_12212015_14JUL2016		
Instrument ID:	MM1	GC Column ID:	ZB-5ms
CPSM Data Filename:	161129P09	Analysis Date:	29-NOV-2016 23:41:04
Lab ID:	OPR1_14513_DF-RJ3		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.87	1289-TCDD	28.64

Isomer Specificity Test Standard Results

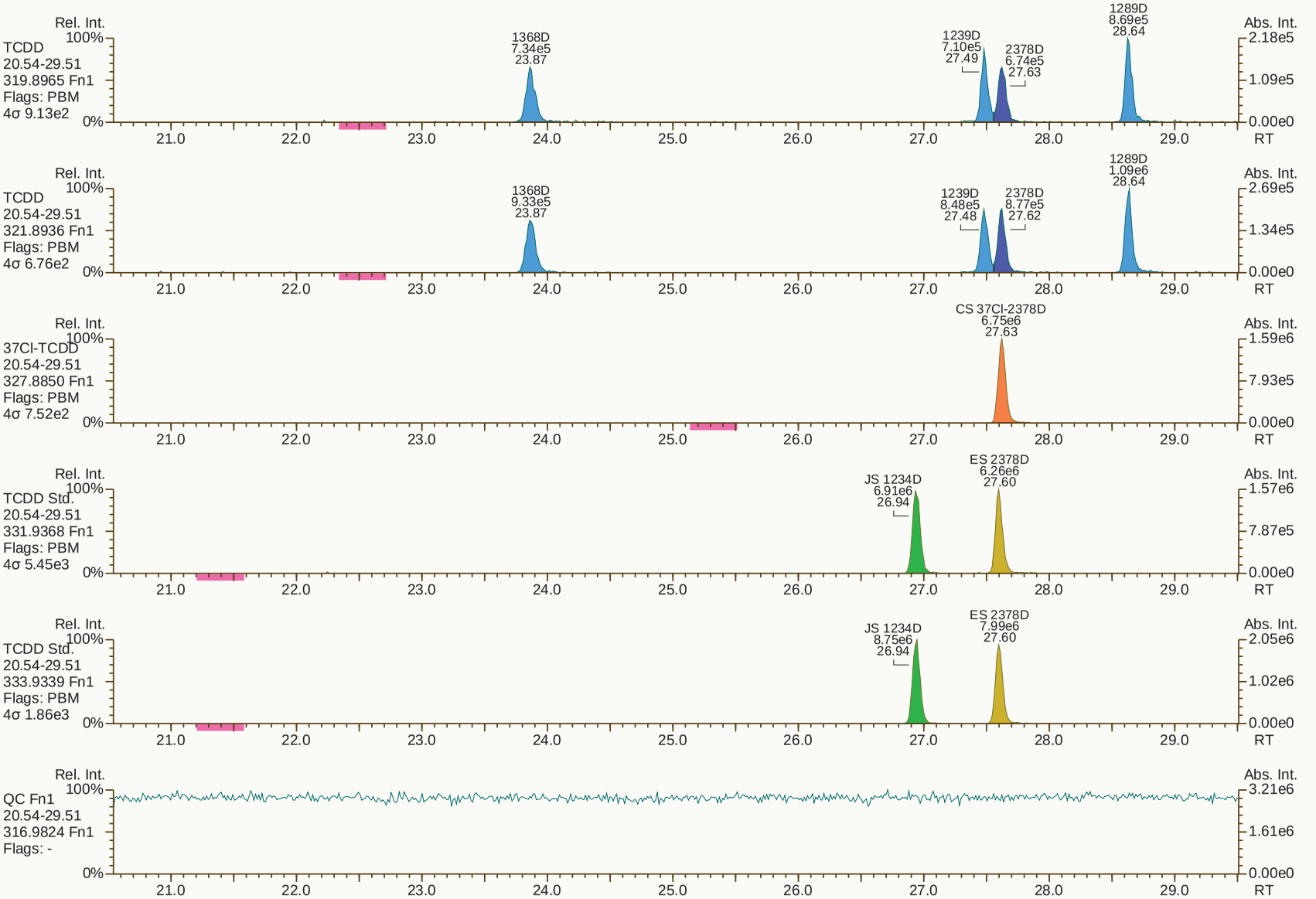
Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	27.49	2378-TCDD	27.63

Processed: 02 Dec 2016 11:12 Analyst: JJ

SGS ID: OPR1_14513_DF-RJ3 **Sample ID: 0_14513_OPR001** **Acq: 29-Nov-2016 23:41:04**
Instr: [ILM] AutoSpec-Ultima MM1 **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** **User: PSW Datafile: 161129P09**

Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\OPR1_14513_DF-RJ3.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 scc: 704-661 *PKD: 30-Nov-2016 08:33 Printed: 02-Dec-2016 11:05 Page 2 of 2*

SGS ID: OPR1_14513_DF-RJ3 | **Sample ID: 0_14513_OPR001** | **Acq: 29-Nov-2016 23:41:04**
Instr: [ILM] AutoSpec-Ultima MM1 | **VSIR EI+ Expt: df_cl4-8_db5 GC: zb5-ms_60m Vial: 10** | **User: PSW Datafile: 161129P09**



Results: P:\A9400_A9499\A9422\A9422_14513 DF\Resources\OPR1_14513_DF-RJ3.utp_res, saved 30-Nov-2016 13:02 (JLJ) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: JLJ/US0008547 cc: 6610, 2219, 3273 scc: 704-661 *PKD: 30-Nov-2016 08:33 Printed: 02-Dec-2016 11:05 Page 1 of 2*

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST

SLC

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC31431

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 26 Columbia Tpk
City: Florham Park State: NJ Zip: 07932
Project Contact: Brian Crespi E-mail: Brian.Crespi@matrix-newworld.com
Phone #: 212-324-4251 Fax #:
Sampler(s) Name(s): M. Cleland Phone #:

Project Information

Project Name: LIRR Expansion
Street:
City: State:
Project #: 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCL/TAL (FULL), TCLP (FULL), Dioxins, RCRA Char

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCL/TAL (FULL)	TCLP (FULL)	Dioxins	RCRA Char							LAB USE ONLY
1	SB37-161108	*	11/8/16	0952	MC	S	7					4			3	X	X	X	X							D48
2	SB38-161108		11/8/16	1024	MC	S	7					4			3	X	X	X	X							H3T2
3	SB39-161108		11/8/16	1227	MC	S	7					4			3	X	X	X	X							P51
4	SB36-161108		11/8/16	1352	MC	S	7					4			3	X	X	X	X							14D2
5	SB18-161109		11/9/16	0950	MC	S	7					4			3	X	X	X	X							40106
6	SB19-161109		11/9/16	1050	MC	S	7					4			3	X	X	X	X							
7	SB20-161109		11/9/16	1117	MC	S	7					4			3	X	X	X	X							
8	SB22-161109		11/9/16	1233	MC	S	7					4			3	X	X	X	X							
9	SB21-161109	*	11/9/16	1324	MC	S	7					4			3	X	X	X	X							

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other _____

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:
INITIAL ASESSMENT 3/25/17
LABEL VERIFICATION OK

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NJ Data of Known Quality Protocol Reporting
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format _____
- [ ] Other _____

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice
* Received 3 Encores

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	1157 11/8/16	1 Chris Lau	2 Chris Lau	11/9/16 1905	2
3		3	4		4
5		5			

Custody Seal #: 336, 338 [x] Intact [ ] Not intact
Preserved where applicable [ ]
On Ice [x]
Cooler Temp: 3.7°, 3.1°C

JC31431X: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31431 **Client:** **Project:**

Date / Time Received: 11/9/2016 7:05:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.7); Cooler 2: (3.1);

Cooler Temps (Corrected) °C: Cooler 1: (1.6); Cooler 2: (1.0);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y or N
1. Temp criteria achieved:	☑ ☐
2. Cooler temp verification:	IR Gun
3. Cooler media:	Ice (Bag)
4. No. Coolers:	2

Quality Control _Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

JC31431X: Chain of Custody

Page 2 of 2

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e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31595

Sampling Dates: 11/10/16 - 11/11/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: **135**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31595

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31595-1	11/10/16	09:55	MC	11/11/16	SO	Soil	SB40-161110
JC31595-1A	11/10/16	09:55	MC	11/11/16	SO	Soil	SB40-161110
JC31595-2	11/10/16	12:07	MC	11/11/16	SO	Soil	SB23-161110
JC31595-2A	11/10/16	12:07	MC	11/11/16	SO	Soil	SB23-161110
JC31595-3	11/10/16	12:36	MC	11/11/16	SO	Soil	SB24-161110
JC31595-3A	11/10/16	12:36	MC	11/11/16	SO	Soil	SB24-161110
JC31595-4	11/11/16	10:10	MC	11/11/16	SO	Soil	SB02-161111
JC31595-4A	11/11/16	10:10	MC	11/11/16	SO	Soil	SB02-161111
JC31595-5	11/11/16	10:36	MC	11/11/16	SO	Soil	SB01-161111
JC31595-5A	11/11/16	10:36	MC	11/11/16	SO	Soil	SB01-161111
JC31595-6	11/11/16	11:53	MC	11/11/16	SO	Soil	SB05-161111
JC31595-6A	11/11/16	11:53	MC	11/11/16	SO	Soil	SB05-161111

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

2

Summary of Hits

Job Number: JC31595
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/10/16 thru 11/11/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC31595-1	**SB40-161110**					
Acetone		0.0128	0.0092	0.0046	mg/kg	SW846 8260C
Methylene chloride		0.00095 J	0.0046	0.00092	mg/kg	SW846 8260C
Acenaphthylene		0.0432	0.035	0.018	mg/kg	SW846 8270D
Anthracene		0.0447	0.035	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene		0.100	0.035	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene		0.104	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.223	0.035	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0868	0.035	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene		0.0669	0.035	0.016	mg/kg	SW846 8270D
Carbazole		0.0174 J	0.071	0.0051	mg/kg	SW846 8270D
Chrysene		0.162	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene		0.0271 J	0.035	0.016	mg/kg	SW846 8270D
Dibenzofuran		0.0173 J	0.071	0.014	mg/kg	SW846 8270D
Fluoranthene		0.139	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene		0.0998	0.035	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene		0.0369 J	0.071	0.0080	mg/kg	SW846 8270D
Naphthalene		0.0359	0.035	0.010	mg/kg	SW846 8270D
Phenanthrene		0.103	0.035	0.012	mg/kg	SW846 8270D
Pyrene		0.165	0.035	0.011	mg/kg	SW846 8270D
4,4'-DDE		0.0035	0.00071	0.00037	mg/kg	SW846 8081B
4,4'-DDT		0.0044	0.00071	0.00042	mg/kg	SW846 8081B
Aluminum		4500	56		mg/kg	SW846 6010C
Arsenic		3.6	2.2		mg/kg	SW846 6010C
Chromium		8.8	1.1		mg/kg	SW846 6010C
Copper		13.3	2.8		mg/kg	SW846 6010C
Iron		6060	56		mg/kg	SW846 6010C
Lead		17.2	2.2		mg/kg	SW846 6010C
Manganese		82.3	1.7		mg/kg	SW846 6010C
Nickel		5.3	4.4		mg/kg	SW846 6010C
Vanadium		16.0	5.6		mg/kg	SW846 6010C
Zinc		29.3	5.6		mg/kg	SW846 6010C
JC31595-1A	**SB40-161110**					
Corrosivity as pH		5.29 NC			su	SW846 9045D
Ignitability (Flashpoint)		> 200			Deg. F	SW846 1010A/ASTM D93
JC31595-2	**SB23-161110**					
Methylene chloride		0.00097 J	0.0042	0.00083	mg/kg	SW846 8260C
Anthracene		0.0350	0.033	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene		0.143	0.033	0.0095	mg/kg	SW846 8270D
Benzo(a)pyrene		0.182	0.033	0.015	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31595
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/10/16 thru 11/11/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Benzo(b)fluoranthene	0.257	0.033	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.152	0.033	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.0879	0.033	0.016	mg/kg	SW846 8270D
Carbazole	0.0287 J	0.067	0.0049	mg/kg	SW846 8270D
Chrysene	0.200	0.033	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0440	0.033	0.015	mg/kg	SW846 8270D
Di-n-butyl phthalate	0.0469 J	0.067	0.0055	mg/kg	SW846 8270D
Fluoranthene	0.294	0.033	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.165	0.033	0.016	mg/kg	SW846 8270D
Phenanthrene	0.187	0.033	0.011	mg/kg	SW846 8270D
Pyrene	0.328	0.033	0.011	mg/kg	SW846 8270D
Aldrin [a]	0.00089	0.00065	0.00031	mg/kg	SW846 8081B
alpha-Chlordane [a]	0.0099	0.00065	0.00031	mg/kg	SW846 8081B
gamma-Chlordane	0.0087	0.00065	0.00028	mg/kg	SW846 8081B
Dieldrin	0.0070	0.00065	0.00032	mg/kg	SW846 8081B
4,4'-DDT	0.0085	0.00065	0.00038	mg/kg	SW846 8081B
Heptachlor	0.0014	0.00065	0.00032	mg/kg	SW846 8081B
Heptachlor epoxide [a]	0.00070	0.00065	0.00035	mg/kg	SW846 8081B
Aluminum	6190	52		mg/kg	SW846 6010C
Arsenic	3.3	2.1		mg/kg	SW846 6010C
Barium	33.6	21		mg/kg	SW846 6010C
Beryllium	0.27	0.21		mg/kg	SW846 6010C
Calcium	3300	520		mg/kg	SW846 6010C
Chromium	10.8	1.0		mg/kg	SW846 6010C
Copper	9.9	2.6		mg/kg	SW846 6010C
Iron	8790	52		mg/kg	SW846 6010C
Lead	26.3	2.1		mg/kg	SW846 6010C
Magnesium	1310	520		mg/kg	SW846 6010C
Manganese	142	1.6		mg/kg	SW846 6010C
Mercury	0.061	0.034		mg/kg	SW846 7471B
Nickel	7.0	4.2		mg/kg	SW846 6010C
Vanadium	13.8	5.2		mg/kg	SW846 6010C
Zinc	35.7	5.2		mg/kg	SW846 6010C
JC31595-2A SB23-161110					
Corrosivity as pH	7.40 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31595-3 SB24-161110					
Acetone	0.0805	0.011	0.0057	mg/kg	SW846 8260C
Acenaphthylene	0.0253 J	0.033	0.017	mg/kg	SW846 8270D
Anthracene	0.0293 J	0.033	0.020	mg/kg	SW846 8270D
Benzo(a)anthracene	0.0760	0.033	0.0094	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31595
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/10/16 thru 11/11/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Benzo(a)pyrene	0.0702	0.033	0.015	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.228	0.033	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.0608	0.033	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.0619	0.033	0.016	mg/kg	SW846 8270D
Carbazole	0.0239 J	0.067	0.0048	mg/kg	SW846 8270D
Chrysene	0.186	0.033	0.010	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0199 J	0.033	0.015	mg/kg	SW846 8270D
Dibenzofuran	0.0166 J	0.067	0.014	mg/kg	SW846 8270D
Fluoranthene	0.140	0.033	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.0745	0.033	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0369 J	0.067	0.0075	mg/kg	SW846 8270D
Naphthalene	0.0450	0.033	0.0094	mg/kg	SW846 8270D
Phenanthrene	0.0879	0.033	0.011	mg/kg	SW846 8270D
Pyrene	0.146	0.033	0.011	mg/kg	SW846 8270D
4,4'-DDT	0.0013	0.00065	0.00039	mg/kg	SW846 8081B
Aluminum	11100	52		mg/kg	SW846 6010C
Arsenic	4.7	2.1		mg/kg	SW846 6010C
Barium	27.1	21		mg/kg	SW846 6010C
Beryllium	0.34	0.21		mg/kg	SW846 6010C
Chromium	14.1	1.0		mg/kg	SW846 6010C
Copper	17.3	2.6		mg/kg	SW846 6010C
Iron	13200	52		mg/kg	SW846 6010C
Lead	41.6	2.1		mg/kg	SW846 6010C
Magnesium	1280	520		mg/kg	SW846 6010C
Manganese	204	1.6		mg/kg	SW846 6010C
Mercury	0.065	0.033		mg/kg	SW846 7471B
Nickel	8.6	4.2		mg/kg	SW846 6010C
Vanadium	21.1	5.2		mg/kg	SW846 6010C
Zinc	37.9	5.2		mg/kg	SW846 6010C
JC31595-3A SB24-161110					
Corrosivity as pH	5.03 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31595-4 SB02-161111					
Acetone	0.0346	0.0092	0.0046	mg/kg	SW846 8260C
Acenaphthylene	0.0951	0.035	0.018	mg/kg	SW846 8270D
Anthracene	0.152	0.035	0.021	mg/kg	SW846 8270D
Benzo(a)anthracene	0.343	0.035	0.0099	mg/kg	SW846 8270D
Benzo(a)pyrene	0.334	0.035	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.562	0.035	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.267	0.035	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.195	0.035	0.016	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31595
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/10/16 thru 11/11/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Carbazole	0.0475 J	0.070	0.0051	mg/kg	SW846 8270D
Chrysene	0.417	0.035	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0772	0.035	0.015	mg/kg	SW846 8270D
Dibenzofuran	0.0223 J	0.070	0.014	mg/kg	SW846 8270D
Fluoranthene	0.487	0.035	0.016	mg/kg	SW846 8270D
Fluorene	0.0192 J	0.035	0.016	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.294	0.035	0.016	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0314 J	0.070	0.0079	mg/kg	SW846 8270D
Naphthalene	0.0332 J	0.035	0.0098	mg/kg	SW846 8270D
Phenanthrene	0.250	0.035	0.012	mg/kg	SW846 8270D
Pyrene	0.623	0.035	0.011	mg/kg	SW846 8270D
4,4'-DDT	0.0074	0.00066	0.00039	mg/kg	SW846 8081B
Aroclor 1260	0.0619	0.033	0.014	mg/kg	SW846 8082A
Aluminum	5510	53		mg/kg	SW846 6010C
Arsenic	2.9	2.1		mg/kg	SW846 6010C
Barium	26.0	21		mg/kg	SW846 6010C
Beryllium	0.23	0.21		mg/kg	SW846 6010C
Cadmium	0.77	0.53		mg/kg	SW846 6010C
Calcium	1650	530		mg/kg	SW846 6010C
Chromium	12.5	1.1		mg/kg	SW846 6010C
Copper	33.4	2.6		mg/kg	SW846 6010C
Iron	9900	53		mg/kg	SW846 6010C
Lead	46.3	2.1		mg/kg	SW846 6010C
Magnesium	1230	530		mg/kg	SW846 6010C
Manganese	155	1.6		mg/kg	SW846 6010C
Mercury	0.17	0.033		mg/kg	SW846 7471B
Nickel	10.9	4.2		mg/kg	SW846 6010C
Vanadium	13.3	5.3		mg/kg	SW846 6010C
Zinc	96.2	5.3		mg/kg	SW846 6010C
JC31595-4A SB02-161111					
Corrosivity as pH	7.07 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
Chlordane	0.0024 J	0.0050	0.0011	mg/l	SW846 8081B
JC31595-5 SB01-161111					
Acetone	0.0248	0.010	0.0050	mg/kg	SW846 8260C
Methylene chloride	0.0011 J	0.0050	0.0010	mg/kg	SW846 8260C
Benzo(a)anthracene	0.0602	0.034	0.0097	mg/kg	SW846 8270D
Benzo(a)pyrene	0.0625	0.034	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.103	0.034	0.015	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.0464	0.034	0.017	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.0380	0.034	0.016	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31595
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/10/16 thru 11/11/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Chrysene	0.0752	0.034	0.011	mg/kg	SW846 8270D
Fluoranthene	0.102	0.034	0.015	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.0522	0.034	0.016	mg/kg	SW846 8270D
Phenanthrene	0.0486	0.034	0.012	mg/kg	SW846 8270D
Pyrene	0.108	0.034	0.011	mg/kg	SW846 8270D
4,4'-DDT	0.0279	0.00065	0.00039	mg/kg	SW846 8081B
Aroclor 1260	0.200	0.034	0.014	mg/kg	SW846 8082A
Aluminum	5600	53		mg/kg	SW846 6010C
Arsenic	2.5	2.1		mg/kg	SW846 6010C
Barium	30.4	21		mg/kg	SW846 6010C
Beryllium	0.30	0.21		mg/kg	SW846 6010C
Calcium	581	530		mg/kg	SW846 6010C
Chromium	12.0	1.1		mg/kg	SW846 6010C
Copper	11.6	2.6		mg/kg	SW846 6010C
Iron	12000	53		mg/kg	SW846 6010C
Lead	35.1	2.1		mg/kg	SW846 6010C
Magnesium	1230	530		mg/kg	SW846 6010C
Manganese	203	1.6		mg/kg	SW846 6010C
Mercury	0.052	0.032		mg/kg	SW846 7471B
Nickel	12.2	4.2		mg/kg	SW846 6010C
Vanadium	15.9	5.3		mg/kg	SW846 6010C
Zinc	44.0	5.3		mg/kg	SW846 6010C
JC31595-5A SB01-161111					
Corrosivity as pH	6.29 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93
JC31595-6 SB05-161111					
Acetone	0.0275	0.011	0.0054	mg/kg	SW846 8260C
Acenaphthene	0.0269 J	0.036	0.012	mg/kg	SW846 8270D
Acenaphthylene	0.0871	0.036	0.018	mg/kg	SW846 8270D
Anthracene	0.148	0.036	0.022	mg/kg	SW846 8270D
Benzo(a)anthracene	0.211	0.036	0.010	mg/kg	SW846 8270D
Benzo(a)pyrene	0.206	0.036	0.016	mg/kg	SW846 8270D
Benzo(b)fluoranthene	0.354	0.036	0.016	mg/kg	SW846 8270D
Benzo(g,h,i)perylene	0.174	0.036	0.018	mg/kg	SW846 8270D
Benzo(k)fluoranthene	0.0950	0.036	0.017	mg/kg	SW846 8270D
1,1'-Biphenyl	0.0147 J	0.072	0.0049	mg/kg	SW846 8270D
Carbazole	0.0499 J	0.072	0.0052	mg/kg	SW846 8270D
Chrysene	0.288	0.036	0.011	mg/kg	SW846 8270D
Dibenzo(a,h)anthracene	0.0454	0.036	0.016	mg/kg	SW846 8270D
Dibenzofuran	0.0412 J	0.072	0.015	mg/kg	SW846 8270D
Fluoranthene	0.334	0.036	0.016	mg/kg	SW846 8270D

Summary of Hits

Job Number: JC31595
Account: Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Collected: 11/10/16 thru 11/11/16

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Fluorene	0.0273 J	0.036	0.017	mg/kg	SW846 8270D
Indeno(1,2,3-cd)pyrene	0.182	0.036	0.017	mg/kg	SW846 8270D
2-Methylnaphthalene	0.0656 J	0.072	0.0082	mg/kg	SW846 8270D
Naphthalene	0.0494	0.036	0.010	mg/kg	SW846 8270D
Phenanthrene	0.276	0.036	0.012	mg/kg	SW846 8270D
Pyrene	0.464	0.036	0.012	mg/kg	SW846 8270D
4,4'-DDE [a]	0.0159	0.00067	0.00035	mg/kg	SW846 8081B
4,4'-DDT [a]	0.0150	0.00067	0.00040	mg/kg	SW846 8081B
Aroclor 1248	0.0843	0.035	0.022	mg/kg	SW846 8082A
Aroclor 1254	0.302	0.035	0.017	mg/kg	SW846 8082A
Aroclor 1260	0.0800	0.035	0.015	mg/kg	SW846 8082A
Aluminum	6740	58		mg/kg	SW846 6010C
Arsenic	4.3	2.3		mg/kg	SW846 6010C
Barium	23.7	23		mg/kg	SW846 6010C
Beryllium	0.28	0.23		mg/kg	SW846 6010C
Calcium	627	580		mg/kg	SW846 6010C
Chromium	13.6	1.2		mg/kg	SW846 6010C
Copper	33.7	2.9		mg/kg	SW846 6010C
Iron	12700	58		mg/kg	SW846 6010C
Lead	30.8	2.3		mg/kg	SW846 6010C
Magnesium	1010	580		mg/kg	SW846 6010C
Manganese	142	1.7		mg/kg	SW846 6010C
Mercury	0.044	0.035		mg/kg	SW846 7471B
Nickel	9.2	4.6		mg/kg	SW846 6010C
Vanadium	14.7	5.8		mg/kg	SW846 6010C
Zinc	33.2	5.8		mg/kg	SW846 6010C
JC31595-6A SB05-161111					
Corrosivity as pH	6.15 NC			su	SW846 9045D
Ignitability (Flashpoint)	> 200			Deg. F	SW846 1010A/ASTM D93

(a) More than 40 % RPD for detected concentrations between the two GC columns.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167874.D	1	11/15/16	PS	11/11/16 21:00	n/a	VY7291
Run #2							

	Initial Weight
Run #1	5.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0128	0.0092	0.0046	mg/kg	
71-43-2	Benzene	ND	0.00046	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0046	0.00029	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0018	0.00014	mg/kg	
75-25-2	Bromoform	ND	0.0046	0.00025	mg/kg	
74-83-9	Bromomethane	ND	0.0046	0.00045	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0092	0.0016	mg/kg	
75-15-0	Carbon disulfide	ND	0.0018	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0018	0.00015	mg/kg	
108-90-7	Chlorobenzene	ND	0.0018	0.00015	mg/kg	
75-00-3	Chloroethane	ND	0.0046	0.00040	mg/kg	
67-66-3	Chloroform	ND	0.0018	0.00022	mg/kg	
74-87-3	Chloromethane	ND	0.0046	0.00019	mg/kg	
110-82-7	Cyclohexane	ND	0.0018	0.00050	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0018	0.00045	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0018	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00092	0.00022	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00092	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00092	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00092	0.00014	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0046	0.00050	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00092	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00092	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00092	0.00014	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00092	0.00040	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00092	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0018	0.00028	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0018	0.00018	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0018	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00092	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0046	0.00045	mg/kg	
591-78-6	2-Hexanone	ND	0.0046	0.0013	mg/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0018	0.00014	mg/kg	
79-20-9	Methyl Acetate	ND	0.0046	0.0019	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0018	0.00047	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00092	0.00024	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0046	0.00078	mg/kg	
75-09-2	Methylene chloride	0.00095	0.0046	0.00092	mg/kg	J
100-42-5	Styrene	ND	0.0018	0.00013	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.023	0.0028	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0018	0.00022	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0018	0.00026	mg/kg	
108-88-3	Toluene	ND	0.00092	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0046	0.00021	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0046	0.00017	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0018	0.00015	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0018	0.00030	mg/kg	
79-01-6	Trichloroethene	ND	0.00092	0.00018	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0046	0.00058	mg/kg	
75-01-4	Vinyl chloride	ND	0.0018	0.00019	mg/kg	
	m,p-Xylene	ND	0.00092	0.00020	mg/kg	
95-47-6	o-Xylene	ND	0.00092	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.00092	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-122%
17060-07-0	1,2-Dichloroethane-D4	105%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	109%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64404.D	1	11/15/16	CS	11/13/16	OP98515	E2P2824
Run #2							

	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.071	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.063	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.038	mg/kg	
95-48-7	2-Methylphenol	ND	0.071	0.023	mg/kg	
	3&4-Methylphenol	ND	0.071	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.094	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.071	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0432	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0076	mg/kg	
120-12-7	Anthracene	0.0447	0.035	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.071	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.100	0.035	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.104	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.223	0.035	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0868	0.035	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0669	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.071	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.071	0.0086	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.071	0.0048	mg/kg	
100-52-7	Benzaldehyde	ND	0.18	0.0088	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.071	0.0084	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0174	0.071	0.0051	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.071	0.014	mg/kg	
218-01-9	Chrysene	0.162	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.071	0.0076	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.071	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.071	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.071	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.071	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0271	0.035	0.016	mg/kg	J
132-64-9	Dibenzofuran	0.0173	0.071	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.071	0.0058	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.071	0.0088	mg/kg	
84-66-2	Diethyl phthalate	ND	0.071	0.0075	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.071	0.0063	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.071	0.0083	mg/kg	
206-44-0	Fluoranthene	0.139	0.035	0.016	mg/kg	
86-73-7	Fluorene	ND	0.035	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.071	0.0089	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0998	0.035	0.017	mg/kg	
78-59-1	Isophorone	ND	0.071	0.0076	mg/kg	
91-57-6	2-Methylnaphthalene	0.0369	0.071	0.0080	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0083	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0088	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0092	mg/kg	
91-20-3	Naphthalene	0.0359	0.035	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.071	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.071	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.103	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.165	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0090	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		30-106%
118-79-6	2,4,6-Tribromophenol	71%		24-140%
4165-60-0	Nitrobenzene-d5	71%		26-122%
321-60-8	2-Fluorobiphenyl	75%		36-112%
1718-51-0	Terphenyl-d14	87%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129700.D	1	11/18/16	RK	11/17/16	OP98616	G1G4144
Run #2							

	Initial Weight	Final Volume
Run #1	15.4 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00071	0.00034	mg/kg	
319-84-6	alpha-BHC	ND	0.00071	0.00038	mg/kg	
319-85-7	beta-BHC	ND	0.00071	0.00044	mg/kg	
319-86-8	delta-BHC	ND	0.00071	0.00032	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00071	0.00031	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00071	0.00034	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00071	0.00031	mg/kg	
60-57-1	Dieldrin	ND	0.00071	0.00035	mg/kg	
72-54-8	4,4'-DDD	ND	0.00071	0.00045	mg/kg	
72-55-9	4,4'-DDE	0.0035	0.00071	0.00037	mg/kg	
50-29-3	4,4'-DDT	0.0044	0.00071	0.00042	mg/kg	
72-20-8	Endrin	ND	0.00071	0.00033	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00071	0.00028	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00071	0.00042	mg/kg	
959-98-8	Endosulfan-I	ND	0.00071	0.00037	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00071	0.00037	mg/kg	
76-44-8	Heptachlor	ND	0.00071	0.00035	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00071	0.00038	mg/kg	
72-43-5	Methoxychlor	ND	0.0014	0.00035	mg/kg	
53494-70-5	Endrin ketone	ND	0.00071	0.00054	mg/kg	
8001-35-2	Toxaphene	ND	0.018	0.0073	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	75%		24-136%
877-09-8	Tetrachloro-m-xylene	75%		24-136%
2051-24-3	Decachlorobiphenyl	84%		10-153%
2051-24-3	Decachlorobiphenyl	87%		10-153%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G139162.D	1	11/15/16	KM	11/14/16	OP98518	G2G3868
Run #2							

	Initial Weight	Final Volume
Run #1	16.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.033	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.033	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.033	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.033	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.033	0.021	mg/kg	
11097-69-1	Aroclor 1254	ND	0.033	0.016	mg/kg	
11096-82-5	Aroclor 1260	ND	0.033	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.033	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.033	0.022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	82%		20-152%
877-09-8	Tetrachloro-m-xylene	92%		20-152%
2051-24-3	Decachlorobiphenyl	104%		12-157%
2051-24-3	Decachlorobiphenyl	129%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4500	56	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Arsenic	3.6	2.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Barium	< 22	22	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Beryllium	< 0.22	0.22	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Cadmium	< 0.56	0.56	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Calcium	< 560	560	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Chromium	8.8	1.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Cobalt	< 5.6	5.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Copper	13.3	2.8	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Iron	6060	56	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Lead	17.2	2.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Magnesium	< 560	560	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Manganese	82.3	1.7	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Mercury	< 0.035	0.035	mg/kg	1	11/15/16	11/15/16	MS	SW846 7471B [2]	SW846 7471B [4]
Nickel	5.3	4.4	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Silver	< 0.56	0.56	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Vanadium	16.0	5.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Zinc	29.3	5.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA40769
(2) Instrument QC Batch: MA40770
(3) Prep QC Batch: MP97124
(4) Prep QC Batch: MP97144

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.27	0.27	mg/kg	1	11/15/16 15:44	BM	SW846 9012B/LACHAT
Solids, Percent	91.9		%	1	11/14/16 14:30	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36602.D	5	11/15/16	EH	11/13/16	GP1419	V2V1431
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		76-120%
17060-07-0	1,2-Dichloroethane-D4	111%		64-135%
2037-26-5	Toluene-D8	101%		76-117%
460-00-4	4-Bromofluorobenzene	106%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F162720.D	1	11/19/16	CS	11/18/16	OP98529	EF6847
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	36%		14-88%
4165-62-2	Phenol-d5	24%		10-110%
118-79-6	2,4,6-Tribromophenol	83%		39-149%
4165-60-0	Nitrobenzene-d5	71%		32-128%
321-60-8	2-Fluorobiphenyl	66%		35-119%
1718-51-0	Terphenyl-d14	94%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104266.D	1	11/16/16	VDT	11/14/16	OP98531	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	115%		50-142%
19719-28-9	2,4-DCAA	85%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	91.9
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41384.D	1	11/17/16	RK	11/14/16	OP98530	G6G1185
Run #2 [a]	8G629.D	1	11/22/16	KD	11/21/16	OP98530	G8G27

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2	100 ml	10.0 ml

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%	81%	30-137%
877-09-8	Tetrachloro-m-xylene	102%	86%	30-137%
2051-24-3	Decachlorobiphenyl	127%	103%	10-137%
2051-24-3	Decachlorobiphenyl	101%	101%	10-137%

(a) Confirmation run.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.9
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40764
(3) Prep QC Batch: MP97122
(4) Prep QC Batch: MP97130

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB40-161110		
Lab Sample ID:	JC31595-1A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.9
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	5.29 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:08	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/21/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167875.D	1	11/15/16	PS	11/11/16 21:00	n/a	VY7291
Run #2							

	Initial Weight
Run #1	6.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.0083	0.0042	mg/kg	
71-43-2	Benzene	ND	0.00042	0.00010	mg/kg	
74-97-5	Bromochloromethane	ND	0.0042	0.00027	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0017	0.00013	mg/kg	
75-25-2	Bromoform	ND	0.0042	0.00022	mg/kg	
74-83-9	Bromomethane	ND	0.0042	0.00040	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0083	0.0015	mg/kg	
75-15-0	Carbon disulfide	ND	0.0017	0.00014	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0017	0.00014	mg/kg	
108-90-7	Chlorobenzene	ND	0.0017	0.00014	mg/kg	
75-00-3	Chloroethane	ND	0.0042	0.00036	mg/kg	
67-66-3	Chloroform	ND	0.0017	0.00020	mg/kg	
74-87-3	Chloromethane	ND	0.0042	0.00018	mg/kg	
110-82-7	Cyclohexane	ND	0.0017	0.00046	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0017	0.00040	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0017	0.00013	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00083	0.00020	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00083	0.00014	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00083	0.00011	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00083	0.00013	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0042	0.00045	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00083	0.00016	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00083	0.00014	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00083	0.00013	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00083	0.00037	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00083	0.00013	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0017	0.00026	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0017	0.00016	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0017	0.00018	mg/kg	
100-41-4	Ethylbenzene	ND	0.00083	0.00012	mg/kg	
76-13-1	Freon 113	ND	0.0042	0.00040	mg/kg	
591-78-6	2-Hexanone	ND	0.0042	0.0012	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0017	0.00013	mg/kg	
79-20-9	Methyl Acetate	ND	0.0042	0.0017	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0017	0.00042	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00083	0.00022	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0042	0.00071	mg/kg	
75-09-2	Methylene chloride	0.00097	0.0042	0.00083	mg/kg	J
100-42-5	Styrene	ND	0.0017	0.00012	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.021	0.0025	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0017	0.00020	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0017	0.00023	mg/kg	
108-88-3	Toluene	ND	0.00083	0.00010	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0042	0.00019	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0042	0.00015	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0017	0.00014	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0017	0.00027	mg/kg	
79-01-6	Trichloroethene	ND	0.00083	0.00016	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0042	0.00052	mg/kg	
75-01-4	Vinyl chloride	ND	0.0017	0.00017	mg/kg	
	m,p-Xylene	ND	0.00083	0.00018	mg/kg	
95-47-6	o-Xylene	ND	0.00083	0.00017	mg/kg	
1330-20-7	Xylene (total)	ND	0.00083	0.00017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-122%
17060-07-0	1,2-Dichloroethane-D4	102%		68-124%
2037-26-5	Toluene-D8	101%		77-125%
460-00-4	4-Bromofluorobenzene	110%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64415.D	1	11/15/16	CS	11/13/16	OP98515	E2P2824
Run #2							

	Initial Weight	Final Volume
Run #1	31.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.067	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.060	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.067	0.021	mg/kg	
	3&4-Methylphenol	ND	0.067	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.33	0.089	mg/kg	
87-86-5	Pentachlorophenol	ND	0.13	0.031	mg/kg	
108-95-2	Phenol	ND	0.067	0.017	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.033	0.012	mg/kg	
208-96-8	Acenaphthylene	ND	0.033	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0072	mg/kg	
120-12-7	Anthracene	0.0350	0.033	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.067	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.143	0.033	0.0095	mg/kg	
50-32-8	Benzo(a)pyrene	0.182	0.033	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.257	0.033	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.152	0.033	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0879	0.033	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.067	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.067	0.0082	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.067	0.0046	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0083	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.067	0.0080	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0287	0.067	0.0049	mg/kg	J

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.067	0.013	mg/kg	
218-01-9	Chrysene	0.200	0.033	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.067	0.0072	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.067	0.014	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.067	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.067	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.033	0.010	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.033	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.067	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.033	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0440	0.033	0.015	mg/kg	
132-64-9	Dibenzofuran	ND	0.067	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	0.0469	0.067	0.0055	mg/kg	J
117-84-0	Di-n-octyl phthalate	ND	0.067	0.0083	mg/kg	
84-66-2	Diethyl phthalate	ND	0.067	0.0071	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.067	0.0060	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.067	0.0078	mg/kg	
206-44-0	Fluoranthene	0.294	0.033	0.015	mg/kg	
86-73-7	Fluorene	ND	0.033	0.015	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.067	0.0085	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.033	0.013	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.33	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.165	0.033	0.016	mg/kg	
78-59-1	Isophorone	ND	0.067	0.0072	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.067	0.0076	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0079	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0084	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0087	mg/kg	
91-20-3	Naphthalene	ND	0.033	0.0094	mg/kg	
98-95-3	Nitrobenzene	ND	0.067	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.067	0.0097	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.187	0.033	0.011	mg/kg	
129-00-0	Pyrene	0.328	0.033	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0085	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	48%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%		30-106%
118-79-6	2,4,6-Tribromophenol	54%		24-140%
4165-60-0	Nitrobenzene-d5	62%		26-122%
321-60-8	2-Fluorobiphenyl	61%		36-112%
1718-51-0	Terphenyl-d14	66%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129913.D	1	11/23/16	KD	11/17/16	OP98616	G1G4148
Run #2							

	Initial Weight	Final Volume
Run #1	16.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin [a]	0.00089	0.00065	0.00031	mg/kg	
319-84-6	alpha-BHC	ND	0.00065	0.00035	mg/kg	
319-85-7	beta-BHC	ND	0.00065	0.00041	mg/kg	
319-86-8	delta-BHC	ND	0.00065	0.00029	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00065	0.00029	mg/kg	
5103-71-9	alpha-Chlordane [a]	0.0099	0.00065	0.00031	mg/kg	
5103-74-2	gamma-Chlordane	0.0087	0.00065	0.00028	mg/kg	
60-57-1	Dieldrin	0.0070	0.00065	0.00032	mg/kg	
72-54-8	4,4'-DDD	ND	0.00065	0.00041	mg/kg	
72-55-9	4,4'-DDE	ND	0.00065	0.00034	mg/kg	
50-29-3	4,4'-DDT	0.0085	0.00065	0.00038	mg/kg	
72-20-8	Endrin	ND	0.00065	0.00030	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00065	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00065	0.00038	mg/kg	
959-98-8	Endosulfan-I	ND	0.00065	0.00034	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00065	0.00034	mg/kg	
76-44-8	Heptachlor	0.0014	0.00065	0.00032	mg/kg	
1024-57-3	Heptachlor epoxide [a]	0.00070	0.00065	0.00035	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00032	mg/kg	
53494-70-5	Endrin ketone	ND	0.00065	0.00050	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0067	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%		24-136%
877-09-8	Tetrachloro-m-xylene	86%		24-136%
2051-24-3	Decachlorobiphenyl	89%		10-153%
2051-24-3	Decachlorobiphenyl	93%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G139163.D	1	11/16/16	KM	11/14/16	OP98518	G2G3868
Run #2							

	Initial Weight	Final Volume
Run #1	15.4 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.034	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.034	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.034	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.034	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.034	0.022	mg/kg	
11097-69-1	Aroclor 1254	ND	0.034	0.017	mg/kg	
11096-82-5	Aroclor 1260	ND	0.034	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.034	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.034	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		20-152%
877-09-8	Tetrachloro-m-xylene	95%		20-152%
2051-24-3	Decachlorobiphenyl	87%		12-157%
2051-24-3	Decachlorobiphenyl	110%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.1
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6190	52	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Arsenic	3.3	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Barium	33.6	21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Beryllium	0.27	0.21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Calcium	3300	520	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Chromium	10.8	1.0	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Copper	9.9	2.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Iron	8790	52	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Lead	26.3	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Magnesium	1310	520	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Manganese	142	1.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Mercury	0.061	0.034	mg/kg	1	11/15/16	11/15/16	MS	SW846 7471B [2]	SW846 7471B [4]
Nickel	7.0	4.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Vanadium	13.8	5.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]
Zinc	35.7	5.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA40769
(2) Instrument QC Batch: MA40770
(3) Prep QC Batch: MP97124
(4) Prep QC Batch: MP97144

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.1
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/15/16 15:45	BM	SW846 9012B/LACHAT
Solids, Percent	95.1		%	1	11/14/16 14:30	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36603.D	5	11/15/16	EH	11/13/16	GP1419	V2V1431
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		76-120%
17060-07-0	1,2-Dichloroethane-D4	109%		64-135%
2037-26-5	Toluene-D8	101%		76-117%
460-00-4	4-Bromofluorobenzene	106%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P32071.D	1	11/17/16	JJ	11/16/16	OP98529	E6P1485
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%		14-88%
4165-62-2	Phenol-d5	24%		10-110%
118-79-6	2,4,6-Tribromophenol	57%		39-149%
4165-60-0	Nitrobenzene-d5	67%		32-128%
321-60-8	2-Fluorobiphenyl	59%		35-119%
1718-51-0	Terphenyl-d14	88%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104267.D	1	11/16/16	VDT	11/14/16	OP98531	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	109%		50-142%
19719-28-9	2,4-DCAA	82%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.1
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41385.D	1	11/17/16	RK	11/14/16	OP98530	G6G1185
Run #2 [a]	8G632.D	1	11/22/16	KD	11/21/16	OP98530	G8G27

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2	100 ml	10.0 ml

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	113%	81%	30-137%
877-09-8	Tetrachloro-m-xylene	110%	84%	30-137%
2051-24-3	Decachlorobiphenyl	135%	102%	10-137%
2051-24-3	Decachlorobiphenyl	108%	103%	10-137%

(a) Confirmation run.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.1
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40764
(3) Prep QC Batch: MP97122
(4) Prep QC Batch: MP97130

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB23-161110		
Lab Sample ID:	JC31595-2A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.1
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.40 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:09	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/21/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167876.D	1	11/15/16	PS	11/11/16 21:00	n/a	VY7291
Run #2							

	Initial Weight
Run #1	4.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0805	0.011	0.0057	mg/kg	
71-43-2	Benzene	ND	0.00057	0.00014	mg/kg	
74-97-5	Bromochloromethane	ND	0.0057	0.00036	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0023	0.00017	mg/kg	
75-25-2	Bromoform	ND	0.0057	0.00030	mg/kg	
74-83-9	Bromomethane	ND	0.0057	0.00055	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0020	mg/kg	
75-15-0	Carbon disulfide	ND	0.0023	0.00019	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0023	0.00019	mg/kg	
108-90-7	Chlorobenzene	ND	0.0023	0.00018	mg/kg	
75-00-3	Chloroethane	ND	0.0057	0.00049	mg/kg	
67-66-3	Chloroform	ND	0.0023	0.00027	mg/kg	
74-87-3	Chloromethane	ND	0.0057	0.00024	mg/kg	
110-82-7	Cyclohexane	ND	0.0023	0.00062	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0023	0.00055	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0023	0.00017	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00028	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00019	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00016	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00017	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0057	0.00062	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00019	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00050	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00018	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0023	0.00035	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0023	0.00022	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0023	0.00025	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00017	mg/kg	
76-13-1	Freon 113	ND	0.0057	0.00055	mg/kg	
591-78-6	2-Hexanone	ND	0.0057	0.0016	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0023	0.00018	mg/kg	
79-20-9	Methyl Acetate	ND	0.0057	0.0023	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0023	0.00058	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00030	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0057	0.00097	mg/kg	
75-09-2	Methylene chloride	ND	0.0057	0.0011	mg/kg	
100-42-5	Styrene	ND	0.0023	0.00017	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.028	0.0035	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0023	0.00027	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0023	0.00032	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00014	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0057	0.00026	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0057	0.00021	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0023	0.00019	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0023	0.00037	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00022	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0057	0.00072	mg/kg	
75-01-4	Vinyl chloride	ND	0.0023	0.00023	mg/kg	
	m,p-Xylene	ND	0.0011	0.00025	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00023	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		70-122%
17060-07-0	1,2-Dichloroethane-D4	114%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	113%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64403.D	1	11/15/16	CS	11/13/16	OP98515	E2P2824
Run #2							

	Initial Weight	Final Volume
Run #1	32.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.067	0.016	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.020	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.028	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.059	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.036	mg/kg	
95-48-7	2-Methylphenol	ND	0.067	0.021	mg/kg	
	3&4-Methylphenol	ND	0.067	0.027	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.022	mg/kg	
100-02-7	4-Nitrophenol	ND	0.33	0.089	mg/kg	
87-86-5	Pentachlorophenol	ND	0.13	0.031	mg/kg	
108-95-2	Phenol	ND	0.067	0.017	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.022	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.025	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.033	0.011	mg/kg	
208-96-8	Acenaphthylene	0.0253	0.033	0.017	mg/kg	J
98-86-2	Acetophenone	ND	0.17	0.0071	mg/kg	
120-12-7	Anthracene	0.0293	0.033	0.020	mg/kg	J
1912-24-9	Atrazine	ND	0.067	0.014	mg/kg	
56-55-3	Benzo(a)anthracene	0.0760	0.033	0.0094	mg/kg	
50-32-8	Benzo(a)pyrene	0.0702	0.033	0.015	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.228	0.033	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0608	0.033	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0619	0.033	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.067	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.067	0.0081	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.067	0.0046	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0082	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.067	0.0079	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	0.0239	0.067	0.0048	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.067	0.013	mg/kg	
218-01-9	Chrysene	0.186	0.033	0.010	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.067	0.0071	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.067	0.014	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.067	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.067	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.033	0.010	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.033	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.067	0.028	mg/kg	
123-91-1	1,4-Dioxane	ND	0.033	0.022	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0199	0.033	0.015	mg/kg	J
132-64-9	Dibenzofuran	0.0166	0.067	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.067	0.0054	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.067	0.0083	mg/kg	
84-66-2	Diethyl phthalate	ND	0.067	0.0071	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.067	0.0059	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.067	0.0078	mg/kg	
206-44-0	Fluoranthene	0.140	0.033	0.015	mg/kg	
86-73-7	Fluorene	ND	0.033	0.015	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.067	0.0084	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.033	0.013	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.33	0.013	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.016	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0745	0.033	0.016	mg/kg	
78-59-1	Isophorone	ND	0.067	0.0071	mg/kg	
91-57-6	2-Methylnaphthalene	0.0369	0.067	0.0075	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0078	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0083	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0086	mg/kg	
91-20-3	Naphthalene	0.0450	0.033	0.0094	mg/kg	
98-95-3	Nitrobenzene	ND	0.067	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.067	0.0096	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.012	mg/kg	
85-01-8	Phenanthrene	0.0879	0.033	0.011	mg/kg	
129-00-0	Pyrene	0.146	0.033	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0084	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%		30-106%
118-79-6	2,4,6-Tribromophenol	66%		24-140%
4165-60-0	Nitrobenzene-d5	79%		26-122%
321-60-8	2-Fluorobiphenyl	75%		36-112%
1718-51-0	Terphenyl-d14	78%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129914.D	1	11/23/16	KD	11/17/16	OP98616	G1G4148
Run #2							

	Initial Weight	Final Volume
Run #1	16.8 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00065	0.00031	mg/kg	
319-84-6	alpha-BHC	ND	0.00065	0.00035	mg/kg	
319-85-7	beta-BHC	ND	0.00065	0.00041	mg/kg	
319-86-8	delta-BHC	ND	0.00065	0.00029	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00065	0.00029	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00065	0.00031	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00065	0.00029	mg/kg	
60-57-1	Dieldrin	ND	0.00065	0.00033	mg/kg	
72-54-8	4,4'-DDD	ND	0.00065	0.00042	mg/kg	
72-55-9	4,4'-DDE	ND	0.00065	0.00034	mg/kg	
50-29-3	4,4'-DDT	0.0013	0.00065	0.00039	mg/kg	
72-20-8	Endrin	ND	0.00065	0.00031	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00065	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00065	0.00039	mg/kg	
959-98-8	Endosulfan-I	ND	0.00065	0.00034	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00065	0.00034	mg/kg	
76-44-8	Heptachlor	ND	0.00065	0.00032	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00065	0.00035	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00032	mg/kg	
53494-70-5	Endrin ketone	ND	0.00065	0.00050	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0068	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	106%		24-136%
877-09-8	Tetrachloro-m-xylene	109%		24-136%
2051-24-3	Decachlorobiphenyl	101%		10-153%
2051-24-3	Decachlorobiphenyl	120%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G139164.D	1	11/16/16	KM	11/14/16	OP98518	G2G3868
Run #2							

	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.036	0.018	mg/kg	
11104-28-2	Aroclor 1221	ND	0.036	0.018	mg/kg	
11141-16-5	Aroclor 1232	ND	0.036	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.036	0.013	mg/kg	
12672-29-6	Aroclor 1248	ND	0.036	0.023	mg/kg	
11097-69-1	Aroclor 1254	ND	0.036	0.018	mg/kg	
11096-82-5	Aroclor 1260	ND	0.036	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.036	0.013	mg/kg	
37324-23-5	Aroclor 1262	ND	0.036	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	99%		20-152%
877-09-8	Tetrachloro-m-xylene	107%		20-152%
2051-24-3	Decachlorobiphenyl	111%		12-157%
2051-24-3	Decachlorobiphenyl	142%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.4
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	11100	52	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Arsenic	4.7	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Barium	27.1	21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Beryllium	0.34	0.21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cadmium	< 0.52	0.52	mg/kg	1	11/14/16	11/15/16	KS	SW846 6010C [3]	SW846 3050B [4]
Calcium	< 520	520	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Chromium	14.1	1.0	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cobalt	< 5.2	5.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Copper	17.3	2.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Iron	13200	52	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Lead	41.6	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Magnesium	1280	520	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Manganese	204	1.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Mercury	0.065	0.033	mg/kg	1	11/15/16	11/15/16	MS	SW846 7471B [2]	SW846 7471B [5]
Nickel	8.6	4.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Silver	< 0.52	0.52	mg/kg	1	11/14/16	11/15/16	KS	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Thallium	< 1.0	1.0	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Vanadium	21.1	5.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Zinc	37.9	5.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA40769
(2) Instrument QC Batch: MA40770
(3) Instrument QC Batch: MA40774
(4) Prep QC Batch: MP97124
(5) Prep QC Batch: MP97144

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.4
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	11/15/16 15:48	BM	SW846 9012B/LACHAT
Solids, Percent	91.4		%	1	11/14/16 14:30	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36604.D	5	11/15/16	EH	11/13/16	GP1419	V2V1431
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		76-120%
17060-07-0	1,2-Dichloroethane-D4	111%		64-135%
2037-26-5	Toluene-D8	102%		76-117%
460-00-4	4-Bromofluorobenzene	107%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P32072.D	1	11/17/16	JJ	11/16/16	OP98529	E6P1485
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		14-88%
4165-62-2	Phenol-d5	19%		10-110%
118-79-6	2,4,6-Tribromophenol	62%		39-149%
4165-60-0	Nitrobenzene-d5	61%		32-128%
321-60-8	2-Fluorobiphenyl	51%		35-119%
1718-51-0	Terphenyl-d14	88%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104268.D	1	11/16/16	VDT	11/14/16	OP98531	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	103%		50-142%
19719-28-9	2,4-DCAA	84%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	91.4
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41386.D	1	11/17/16	RK	11/14/16	OP98530	G6G1185
Run #2 [a]	8G633.D	1	11/22/16	KD	11/21/16	OP98530	G8G27

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2	100 ml	10.0 ml

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	99%	91%	30-137%
877-09-8	Tetrachloro-m-xylene	97%	95%	30-137%
2051-24-3	Decachlorobiphenyl	109%	112%	10-137%
2051-24-3	Decachlorobiphenyl	89%	112%	10-137%

(a) Confirmation run.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.4
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40764
(3) Prep QC Batch: MP97122
(4) Prep QC Batch: MP97130

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB24-161110		
Lab Sample ID:	JC31595-3A	**Date Sampled:**	11/10/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	91.4
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	5.03 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:10	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/21/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167877.D	1	11/15/16	PS	11/12/16 08:00	n/a	VY7291
Run #2							

	Initial Weight
Run #1	5.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0346	0.0092	0.0046	mg/kg	
71-43-2	Benzene	ND	0.00046	0.00011	mg/kg	
74-97-5	Bromochloromethane	ND	0.0046	0.00029	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0018	0.00014	mg/kg	
75-25-2	Bromoform	ND	0.0046	0.00024	mg/kg	
74-83-9	Bromomethane	ND	0.0046	0.00045	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.0092	0.0016	mg/kg	
75-15-0	Carbon disulfide	ND	0.0018	0.00016	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0018	0.00015	mg/kg	
108-90-7	Chlorobenzene	ND	0.0018	0.00015	mg/kg	
75-00-3	Chloroethane	ND	0.0046	0.00040	mg/kg	
67-66-3	Chloroform	ND	0.0018	0.00022	mg/kg	
74-87-3	Chloromethane	ND	0.0046	0.00019	mg/kg	
110-82-7	Cyclohexane	ND	0.0018	0.00050	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0018	0.00045	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0018	0.00014	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00092	0.00022	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.00092	0.00016	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.00092	0.00013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.00092	0.00014	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0046	0.00050	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.00092	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00092	0.00016	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.00092	0.00014	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.00092	0.00040	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.00092	0.00015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0018	0.00028	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0018	0.00018	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0018	0.00020	mg/kg	
100-41-4	Ethylbenzene	ND	0.00092	0.00014	mg/kg	
76-13-1	Freon 113	ND	0.0046	0.00045	mg/kg	
591-78-6	2-Hexanone	ND	0.0046	0.0013	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0018	0.00014	mg/kg	
79-20-9	Methyl Acetate	ND	0.0046	0.0019	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0018	0.00047	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00092	0.00024	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0046	0.00078	mg/kg	
75-09-2	Methylene chloride	ND	0.0046	0.00092	mg/kg	
100-42-5	Styrene	ND	0.0018	0.00013	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.023	0.0028	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0018	0.00022	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0018	0.00026	mg/kg	
108-88-3	Toluene	ND	0.00092	0.00012	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0046	0.00021	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0046	0.00017	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0018	0.00015	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0018	0.00030	mg/kg	
79-01-6	Trichloroethene	ND	0.00092	0.00017	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0046	0.00058	mg/kg	
75-01-4	Vinyl chloride	ND	0.0018	0.00019	mg/kg	
	m,p-Xylene	ND	0.00092	0.00020	mg/kg	
95-47-6	o-Xylene	ND	0.00092	0.00019	mg/kg	
1330-20-7	Xylene (total)	ND	0.00092	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		70-122%
17060-07-0	1,2-Dichloroethane-D4	106%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	113%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64416.D	1	11/15/16	CS	11/13/16	OP98515	E2P2824
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.070	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.030	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.062	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.070	0.022	mg/kg	
	3&4-Methylphenol	ND	0.070	0.029	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.35	0.093	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.033	mg/kg	
108-95-2	Phenol	ND	0.070	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.021	mg/kg	
83-32-9	Acenaphthene	ND	0.035	0.012	mg/kg	
208-96-8	Acenaphthylene	0.0951	0.035	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0075	mg/kg	
120-12-7	Anthracene	0.152	0.035	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.070	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.343	0.035	0.0099	mg/kg	
50-32-8	Benzo(a)pyrene	0.334	0.035	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.562	0.035	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.267	0.035	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.195	0.035	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.070	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.070	0.0085	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.070	0.0048	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0087	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.070	0.0083	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.013	mg/kg	
86-74-8	Carbazole	0.0475	0.070	0.0051	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.070	0.014	mg/kg	
218-01-9	Chrysene	0.417	0.035	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.070	0.0075	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.070	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.070	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.070	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.035	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.035	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.070	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.035	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0772	0.035	0.015	mg/kg	
132-64-9	Dibenzofuran	0.0223	0.070	0.014	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.070	0.0057	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.070	0.0087	mg/kg	
84-66-2	Diethyl phthalate	ND	0.070	0.0074	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.070	0.0062	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.070	0.0082	mg/kg	
206-44-0	Fluoranthene	0.487	0.035	0.016	mg/kg	
86-73-7	Fluorene	0.0192	0.035	0.016	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.070	0.0088	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.035	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.35	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.294	0.035	0.016	mg/kg	
78-59-1	Isophorone	ND	0.070	0.0075	mg/kg	
91-57-6	2-Methylnaphthalene	0.0314	0.070	0.0079	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.17	0.0082	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0087	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0090	mg/kg	
91-20-3	Naphthalene	0.0332	0.035	0.0098	mg/kg	J
98-95-3	Nitrobenzene	ND	0.070	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.070	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.250	0.035	0.012	mg/kg	
129-00-0	Pyrene	0.623	0.035	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0089	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		30-106%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	73%		30-106%
118-79-6	2,4,6-Tribromophenol	74%		24-140%
4165-60-0	Nitrobenzene-d5	85%		26-122%
321-60-8	2-Fluorobiphenyl	85%		36-112%
1718-51-0	Terphenyl-d14	96%		36-132%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129915.D	1	11/23/16	KD	11/17/16	OP98616	G1G4148
Run #2							

	Initial Weight	Final Volume
Run #1	16.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00066	0.00031	mg/kg	
319-84-6	alpha-BHC	ND	0.00066	0.00035	mg/kg	
319-85-7	beta-BHC	ND	0.00066	0.00041	mg/kg	
319-86-8	delta-BHC	ND	0.00066	0.00030	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00066	0.00029	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00066	0.00031	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00066	0.00029	mg/kg	
60-57-1	Dieldrin	ND	0.00066	0.00033	mg/kg	
72-54-8	4,4'-DDD	ND	0.00066	0.00042	mg/kg	
72-55-9	4,4'-DDE	ND	0.00066	0.00034	mg/kg	
50-29-3	4,4'-DDT	0.0074	0.00066	0.00039	mg/kg	
72-20-8	Endrin	ND	0.00066	0.00031	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00066	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00066	0.00039	mg/kg	
959-98-8	Endosulfan-I	ND	0.00066	0.00034	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00066	0.00034	mg/kg	
76-44-8	Heptachlor	ND	0.00066	0.00032	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00066	0.00035	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00033	mg/kg	
53494-70-5	Endrin ketone	ND	0.00066	0.00051	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0068	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	93%		24-136%
877-09-8	Tetrachloro-m-xylene	93%		24-136%
2051-24-3	Decachlorobiphenyl	101%		10-153%
2051-24-3	Decachlorobiphenyl	134%		10-153%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G139165.D	1	11/16/16	KM	11/14/16	OP98518	G2G3868
Run #2							

	Initial Weight	Final Volume
Run #1	16.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.033	0.016	mg/kg	
11104-28-2	Aroclor 1221	ND	0.033	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.033	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.033	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.033	0.021	mg/kg	
11097-69-1	Aroclor 1254	ND	0.033	0.017	mg/kg	
11096-82-5	Aroclor 1260	0.0619	0.033	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.033	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.033	0.022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	87%		20-152%
877-09-8	Tetrachloro-m-xylene	96%		20-152%
2051-24-3	Decachlorobiphenyl	91%		12-157%
2051-24-3	Decachlorobiphenyl	102%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	93.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5510	53	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Arsenic	2.9	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Barium	26.0	21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Beryllium	0.23	0.21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cadmium	0.77	0.53	mg/kg	1	11/14/16	11/15/16	KS	SW846 6010C [3]	SW846 3050B [4]
Calcium	1650	530	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Chromium	12.5	1.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Copper	33.4	2.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Iron	9900	53	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Lead	46.3	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Magnesium	1230	530	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Manganese	155	1.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Mercury	0.17	0.033	mg/kg	1	11/15/16	11/15/16	MS	SW846 7471B [2]	SW846 7471B [5]
Nickel	10.9	4.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Silver	< 0.53	0.53	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Vanadium	13.3	5.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Zinc	96.2	5.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA40769
(2) Instrument QC Batch: MA40770
(3) Instrument QC Batch: MA40774
(4) Prep QC Batch: MP97124
(5) Prep QC Batch: MP97144

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	93.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/15/16 15:49	BM	SW846 9012B/LACHAT
Solids, Percent	93.6		%	1	11/14/16 14:30	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36605.D	5	11/15/16	EH	11/13/16	GP1419	V2V1431
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		76-120%
17060-07-0	1,2-Dichloroethane-D4	110%		64-135%
2037-26-5	Toluene-D8	101%		76-117%
460-00-4	4-Bromofluorobenzene	107%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P32073.D	1	11/17/16	JJ	11/16/16	OP98529	E6P1485
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		14-88%
4165-62-2	Phenol-d5	23%		10-110%
118-79-6	2,4,6-Tribromophenol	58%		39-149%
4165-60-0	Nitrobenzene-d5	64%		32-128%
321-60-8	2-Fluorobiphenyl	57%		35-119%
1718-51-0	Terphenyl-d14	81%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104269.D	1	11/16/16	VDT	11/14/16	OP98531	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	115%		50-142%
19719-28-9	2,4-DCAA	87%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	93.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41387.D	1	11/17/16	RK	11/14/16	OP98530	G6G1185
Run #2 [a]	8G634.D	1	11/22/16	KD	11/21/16	OP98530	G8G27

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2	100 ml	10.0 ml

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	0.0024	D020	0.030	0.0050	0.0011	mg/l	J
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	106%	95%	30-137%
877-09-8	Tetrachloro-m-xylene	104%	99%	30-137%
2051-24-3	Decachlorobiphenyl	110%	91%	10-137%
2051-24-3	Decachlorobiphenyl	89%	92%	10-137%

(a) Confirmation run.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	93.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40764
(3) Prep QC Batch: MP97122
(4) Prep QC Batch: MP97130

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB02-161111		
Lab Sample ID:	JC31595-4A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	93.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	7.07 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:13	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/21/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167882.D	1	11/15/16	PS	11/12/16 08:00	n/a	VY7291
Run #2							

	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0248	0.010	0.0050	mg/kg	
71-43-2	Benzene	ND	0.00050	0.00012	mg/kg	
74-97-5	Bromochloromethane	ND	0.0050	0.00032	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0020	0.00015	mg/kg	
75-25-2	Bromoform	ND	0.0050	0.00027	mg/kg	
74-83-9	Bromomethane	ND	0.0050	0.00049	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.010	0.0018	mg/kg	
75-15-0	Carbon disulfide	ND	0.0020	0.00017	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0020	0.00017	mg/kg	
108-90-7	Chlorobenzene	ND	0.0020	0.00016	mg/kg	
75-00-3	Chloroethane	ND	0.0050	0.00043	mg/kg	
67-66-3	Chloroform	ND	0.0020	0.00024	mg/kg	
74-87-3	Chloromethane	ND	0.0050	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00055	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0020	0.00049	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0020	0.00015	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0010	0.00024	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0010	0.00017	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0010	0.00014	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0010	0.00015	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0050	0.00055	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0010	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00017	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0010	0.00015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0010	0.00044	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0010	0.00016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0020	0.00031	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0020	0.00020	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0020	0.00022	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00015	mg/kg	
76-13-1	Freon 113	ND	0.0050	0.00049	mg/kg	
591-78-6	2-Hexanone	ND	0.0050	0.0014	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0020	0.00015	mg/kg	
79-20-9	Methyl Acetate	ND	0.0050	0.0020	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0020	0.00051	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00027	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0050	0.00085	mg/kg	
75-09-2	Methylene chloride	0.0011	0.0050	0.0010	mg/kg	J
100-42-5	Styrene	ND	0.0020	0.00015	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.025	0.0031	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0020	0.00024	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0020	0.00028	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00013	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0050	0.00023	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0050	0.00018	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0020	0.00017	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0020	0.00032	mg/kg	
79-01-6	Trichloroethene	ND	0.0010	0.00019	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0050	0.00063	mg/kg	
75-01-4	Vinyl chloride	ND	0.0020	0.00020	mg/kg	
	m,p-Xylene	ND	0.0010	0.00022	mg/kg	
95-47-6	o-Xylene	ND	0.0010	0.00020	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00020	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-122%
17060-07-0	1,2-Dichloroethane-D4	105%		68-124%
2037-26-5	Toluene-D8	100%		77-125%
460-00-4	4-Bromofluorobenzene	111%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64402.D	1	11/15/16	CS	11/13/16	OP98515	E2P2824
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.069	0.017	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.17	0.021	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.17	0.029	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.17	0.061	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.17	0.13	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.17	0.037	mg/kg	
95-48-7	2-Methylphenol	ND	0.069	0.022	mg/kg	
	3&4-Methylphenol	ND	0.069	0.028	mg/kg	
88-75-5	2-Nitrophenol	ND	0.17	0.023	mg/kg	
100-02-7	4-Nitrophenol	ND	0.34	0.092	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.032	mg/kg	
108-95-2	Phenol	ND	0.069	0.018	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.17	0.023	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.17	0.026	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.17	0.020	mg/kg	
83-32-9	Acenaphthene	ND	0.034	0.012	mg/kg	
208-96-8	Acenaphthylene	ND	0.034	0.017	mg/kg	
98-86-2	Acetophenone	ND	0.17	0.0074	mg/kg	
120-12-7	Anthracene	ND	0.034	0.021	mg/kg	
1912-24-9	Atrazine	ND	0.069	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.0602	0.034	0.0097	mg/kg	
50-32-8	Benzo(a)pyrene	0.0625	0.034	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.103	0.034	0.015	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0464	0.034	0.017	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0380	0.034	0.016	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.069	0.013	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.069	0.0084	mg/kg	
92-52-4	1,1'-Biphenyl	ND	0.069	0.0047	mg/kg	
100-52-7	Benzaldehyde	ND	0.17	0.0085	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.069	0.0082	mg/kg	
106-47-8	4-Chloroaniline	ND	0.17	0.012	mg/kg	
86-74-8	Carbazole	ND	0.069	0.0050	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.069	0.014	mg/kg	
218-01-9	Chrysene	0.0752	0.034	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.069	0.0073	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.069	0.015	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.069	0.012	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.069	0.011	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.034	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.034	0.017	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.069	0.029	mg/kg	
123-91-1	1,4-Dioxane	ND	0.034	0.023	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	0.034	0.015	mg/kg	
132-64-9	Dibenzofuran	ND	0.069	0.014	mg/kg	
84-74-2	Di-n-butyl phthalate	ND	0.069	0.0056	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.069	0.0085	mg/kg	
84-66-2	Diethyl phthalate	ND	0.069	0.0073	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.069	0.0061	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.069	0.0080	mg/kg	
206-44-0	Fluoranthene	0.102	0.034	0.015	mg/kg	
86-73-7	Fluorene	ND	0.034	0.016	mg/kg	
118-74-1	Hexachlorobenzene	ND	0.069	0.0087	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.034	0.014	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.34	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.17	0.017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0522	0.034	0.016	mg/kg	
78-59-1	Isophorone	ND	0.069	0.0073	mg/kg	
91-57-6	2-Methylnaphthalene	ND	0.069	0.0078	mg/kg	
88-74-4	2-Nitroaniline	ND	0.17	0.0081	mg/kg	
99-09-2	3-Nitroaniline	ND	0.17	0.0086	mg/kg	
100-01-6	4-Nitroaniline	ND	0.17	0.0089	mg/kg	
91-20-3	Naphthalene	ND	0.034	0.0097	mg/kg	
98-95-3	Nitrobenzene	ND	0.069	0.013	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.069	0.0099	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.17	0.013	mg/kg	
85-01-8	Phenanthrene	0.0486	0.034	0.012	mg/kg	
129-00-0	Pyrene	0.108	0.034	0.011	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.17	0.0087	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	58%		30-106%
118-79-6	2,4,6-Tribromophenol	64%		24-140%
4165-60-0	Nitrobenzene-d5	65%		26-122%
321-60-8	2-Fluorobiphenyl	67%		36-112%
1718-51-0	Terphenyl-d14	75%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129916.D	1	11/23/16	KD	11/17/16	OP98616	G1G4148
Run #2							

	Initial Weight	Final Volume
Run #1	16.0 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00065	0.00031	mg/kg	
319-84-6	alpha-BHC	ND	0.00065	0.00035	mg/kg	
319-85-7	beta-BHC	ND	0.00065	0.00041	mg/kg	
319-86-8	delta-BHC	ND	0.00065	0.00030	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00065	0.00029	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00065	0.00031	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00065	0.00029	mg/kg	
60-57-1	Dieldrin	ND	0.00065	0.00033	mg/kg	
72-54-8	4,4'-DDD	ND	0.00065	0.00042	mg/kg	
72-55-9	4,4'-DDE	ND	0.00065	0.00034	mg/kg	
50-29-3	4,4'-DDT	0.0279	0.00065	0.00039	mg/kg	
72-20-8	Endrin	ND	0.00065	0.00031	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00065	0.00026	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00065	0.00039	mg/kg	
959-98-8	Endosulfan-I	ND	0.00065	0.00034	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00065	0.00034	mg/kg	
76-44-8	Heptachlor	ND	0.00065	0.00032	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00065	0.00035	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00033	mg/kg	
53494-70-5	Endrin ketone	ND	0.00065	0.00050	mg/kg	
8001-35-2	Toxaphene	ND	0.016	0.0068	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%		24-136%
877-09-8	Tetrachloro-m-xylene	102%		24-136%
2051-24-3	Decachlorobiphenyl	103%		10-153%
2051-24-3	Decachlorobiphenyl	109%		10-153%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G139166.D	1	11/16/16	KM	11/14/16	OP98518	G2G3868
Run #2							

	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.034	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.034	0.016	mg/kg	
11141-16-5	Aroclor 1232	ND	0.034	0.013	mg/kg	
53469-21-9	Aroclor 1242	ND	0.034	0.012	mg/kg	
12672-29-6	Aroclor 1248	ND	0.034	0.021	mg/kg	
11097-69-1	Aroclor 1254	ND	0.034	0.017	mg/kg	
11096-82-5	Aroclor 1260	0.200	0.034	0.014	mg/kg	
11100-14-4	Aroclor 1268	ND	0.034	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.034	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		20-152%
877-09-8	Tetrachloro-m-xylene	98%		20-152%
2051-24-3	Decachlorobiphenyl	91%		12-157%
2051-24-3	Decachlorobiphenyl	113%		12-157%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5600	53	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Arsenic	2.5	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Barium	30.4	21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Beryllium	0.30	0.21	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/14/16	11/15/16	KS	SW846 6010C [3]	SW846 3050B [4]
Calcium	581	530	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Chromium	12.0	1.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Copper	11.6	2.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Iron	12000	53	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Lead	35.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Magnesium	1230	530	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Manganese	203	1.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Mercury	0.052	0.032	mg/kg	1	11/15/16	11/15/16	MS	SW846 7471B [2]	SW846 7471B [5]
Nickel	12.2	4.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Silver	< 0.53	0.53	mg/kg	1	11/14/16	11/15/16	KS	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Vanadium	15.9	5.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Zinc	44.0	5.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA40769
(2) Instrument QC Batch: MA40770
(3) Instrument QC Batch: MA40774
(4) Prep QC Batch: MP97124
(5) Prep QC Batch: MP97144

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.25	0.25	mg/kg	1	11/15/16 15:50	BM	SW846 9012B/LACHAT
Solids, Percent	95.6		%	1	11/14/16 14:30	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36606.D	5	11/15/16	EH	11/13/16	GP1419	V2V1431
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		76-120%
17060-07-0	1,2-Dichloroethane-D4	110%		64-135%
2037-26-5	Toluene-D8	101%		76-117%
460-00-4	4-Bromofluorobenzene	107%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P32074.D	1	11/17/16	JJ	11/16/16	OP98529	E6P1485
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		14-88%
4165-62-2	Phenol-d5	21%		10-110%
118-79-6	2,4,6-Tribromophenol	63%		39-149%
4165-60-0	Nitrobenzene-d5	58%		32-128%
321-60-8	2-Fluorobiphenyl	54%		35-119%
1718-51-0	Terphenyl-d14	80%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104272.D	1	11/16/16	VDT	11/14/16	OP98531	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	118%		50-142%
19719-28-9	2,4-DCAA	86%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	95.6
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41388.D	1	11/17/16	RK	11/14/16	OP98530	G6G1185
Run #2 [a]	8G635.D	1	11/22/16	KD	11/21/16	OP98530	G8G27

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2	100 ml	10.0 ml

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	101%	98%	30-137%
877-09-8	Tetrachloro-m-xylene	99%	104%	30-137%
2051-24-3	Decachlorobiphenyl	109%	97%	10-137%
2051-24-3	Decachlorobiphenyl	88%	98%	10-137%

(a) Confirmation run.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.6
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40764
(3) Prep QC Batch: MP97122
(4) Prep QC Batch: MP97130

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB01-161111		
Lab Sample ID:	JC31595-5A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	95.6
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.29 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 10	10	mg/kg	1	11/15/16 16:14	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/21/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 100	100	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y167883.D	1	11/15/16	PS	11/12/16 08:00	n/a	VY7291
Run #2							

	Initial Weight
Run #1	5.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	0.0275	0.011	0.0054	mg/kg	
71-43-2	Benzene	ND	0.00054	0.00013	mg/kg	
74-97-5	Bromochloromethane	ND	0.0054	0.00035	mg/kg	
75-27-4	Bromodichloromethane	ND	0.0022	0.00016	mg/kg	
75-25-2	Bromoform	ND	0.0054	0.00029	mg/kg	
74-83-9	Bromomethane	ND	0.0054	0.00053	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.011	0.0019	mg/kg	
75-15-0	Carbon disulfide	ND	0.0022	0.00018	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.0022	0.00018	mg/kg	
108-90-7	Chlorobenzene	ND	0.0022	0.00018	mg/kg	
75-00-3	Chloroethane	ND	0.0054	0.00046	mg/kg	
67-66-3	Chloroform	ND	0.0022	0.00026	mg/kg	
74-87-3	Chloromethane	ND	0.0054	0.00023	mg/kg	
110-82-7	Cyclohexane	ND	0.0022	0.00059	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.0022	0.00052	mg/kg	
124-48-1	Dibromochloromethane	ND	0.0022	0.00016	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00026	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.0011	0.00019	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.0011	0.00015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.0011	0.00017	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.0054	0.00059	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.0011	0.00020	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00019	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.0011	0.00017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.0011	0.00047	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.0011	0.00017	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.0022	0.00033	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.0022	0.00021	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.0022	0.00024	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00016	mg/kg	
76-13-1	Freon 113	ND	0.0054	0.00052	mg/kg	
591-78-6	2-Hexanone	ND	0.0054	0.0015	mg/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 5035	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	0.0022	0.00017	mg/kg	
79-20-9	Methyl Acetate	ND	0.0054	0.0022	mg/kg	
108-87-2	Methylcyclohexane	ND	0.0022	0.00055	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00029	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.0054	0.00092	mg/kg	
75-09-2	Methylene chloride	ND	0.0054	0.0011	mg/kg	
100-42-5	Styrene	ND	0.0022	0.00016	mg/kg	
75-65-0	Tert Butyl Alcohol	ND	0.027	0.0033	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.0022	0.00026	mg/kg	
127-18-4	Tetrachloroethene	ND	0.0022	0.00030	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00014	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.0054	0.00024	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.0054	0.00020	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.0022	0.00018	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.0022	0.00035	mg/kg	
79-01-6	Trichloroethene	ND	0.0011	0.00021	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.0054	0.00068	mg/kg	
75-01-4	Vinyl chloride	ND	0.0022	0.00022	mg/kg	
	m,p-Xylene	ND	0.0011	0.00024	mg/kg	
95-47-6	o-Xylene	ND	0.0011	0.00022	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-122%
17060-07-0	1,2-Dichloroethane-D4	106%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	112%		72-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P64417.D	1	11/15/16	CS	11/13/16	OP98515	E2P2824
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	0.072	0.018	mg/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	0.18	0.022	mg/kg	
120-83-2	2,4-Dichlorophenol	ND	0.18	0.031	mg/kg	
105-67-9	2,4-Dimethylphenol	ND	0.18	0.064	mg/kg	
51-28-5	2,4-Dinitrophenol	ND	0.18	0.14	mg/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	0.18	0.039	mg/kg	
95-48-7	2-Methylphenol	ND	0.072	0.023	mg/kg	
	3&4-Methylphenol	ND	0.072	0.030	mg/kg	
88-75-5	2-Nitrophenol	ND	0.18	0.024	mg/kg	
100-02-7	4-Nitrophenol	ND	0.36	0.096	mg/kg	
87-86-5	Pentachlorophenol	ND	0.14	0.034	mg/kg	
108-95-2	Phenol	ND	0.072	0.019	mg/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	0.18	0.024	mg/kg	
95-95-4	2,4,5-Trichlorophenol	ND	0.18	0.027	mg/kg	
88-06-2	2,4,6-Trichlorophenol	ND	0.18	0.022	mg/kg	
83-32-9	Acenaphthene	0.0269	0.036	0.012	mg/kg	J
208-96-8	Acenaphthylene	0.0871	0.036	0.018	mg/kg	
98-86-2	Acetophenone	ND	0.18	0.0078	mg/kg	
120-12-7	Anthracene	0.148	0.036	0.022	mg/kg	
1912-24-9	Atrazine	ND	0.072	0.015	mg/kg	
56-55-3	Benzo(a)anthracene	0.211	0.036	0.010	mg/kg	
50-32-8	Benzo(a)pyrene	0.206	0.036	0.016	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.354	0.036	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.174	0.036	0.018	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0950	0.036	0.017	mg/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	0.072	0.014	mg/kg	
85-68-7	Butyl benzyl phthalate	ND	0.072	0.0088	mg/kg	
92-52-4	1,1'-Biphenyl	0.0147	0.072	0.0049	mg/kg	J
100-52-7	Benzaldehyde	ND	0.18	0.0090	mg/kg	
91-58-7	2-Chloronaphthalene	ND	0.072	0.0086	mg/kg	
106-47-8	4-Chloroaniline	ND	0.18	0.013	mg/kg	
86-74-8	Carbazole	0.0499	0.072	0.0052	mg/kg	J

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	0.072	0.014	mg/kg	
218-01-9	Chrysene	0.288	0.036	0.011	mg/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	0.072	0.0077	mg/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	0.072	0.016	mg/kg	
108-60-1	bis(2-Chloroisopropyl)ether	ND	0.072	0.013	mg/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	0.072	0.012	mg/kg	
121-14-2	2,4-Dinitrotoluene	ND	0.036	0.011	mg/kg	
606-20-2	2,6-Dinitrotoluene	ND	0.036	0.018	mg/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	0.072	0.030	mg/kg	
123-91-1	1,4-Dioxane	ND	0.036	0.024	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0454	0.036	0.016	mg/kg	
132-64-9	Dibenzofuran	0.0412	0.072	0.015	mg/kg	J
84-74-2	Di-n-butyl phthalate	ND	0.072	0.0059	mg/kg	
117-84-0	Di-n-octyl phthalate	ND	0.072	0.0090	mg/kg	
84-66-2	Diethyl phthalate	ND	0.072	0.0077	mg/kg	
131-11-3	Dimethyl phthalate	ND	0.072	0.0064	mg/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	0.072	0.0084	mg/kg	
206-44-0	Fluoranthene	0.334	0.036	0.016	mg/kg	
86-73-7	Fluorene	0.0273	0.036	0.017	mg/kg	J
118-74-1	Hexachlorobenzene	ND	0.072	0.0091	mg/kg	
87-68-3	Hexachlorobutadiene	ND	0.036	0.015	mg/kg	
77-47-4	Hexachlorocyclopentadiene	ND	0.36	0.014	mg/kg	
67-72-1	Hexachloroethane	ND	0.18	0.018	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.182	0.036	0.017	mg/kg	
78-59-1	Isophorone	ND	0.072	0.0077	mg/kg	
91-57-6	2-Methylnaphthalene	0.0656	0.072	0.0082	mg/kg	J
88-74-4	2-Nitroaniline	ND	0.18	0.0085	mg/kg	
99-09-2	3-Nitroaniline	ND	0.18	0.0090	mg/kg	
100-01-6	4-Nitroaniline	ND	0.18	0.0094	mg/kg	
91-20-3	Naphthalene	0.0494	0.036	0.010	mg/kg	
98-95-3	Nitrobenzene	ND	0.072	0.014	mg/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	0.072	0.010	mg/kg	
86-30-6	N-Nitrosodiphenylamine	ND	0.18	0.013	mg/kg	
85-01-8	Phenanthrene	0.276	0.036	0.012	mg/kg	
129-00-0	Pyrene	0.464	0.036	0.012	mg/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	0.18	0.0092	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%		30-106%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3546	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%		30-106%
118-79-6	2,4,6-Tribromophenol	67%		24-140%
4165-60-0	Nitrobenzene-d5	70%		26-122%
321-60-8	2-Fluorobiphenyl	74%		36-112%
1718-51-0	Terphenyl-d14	84%		36-132%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3546	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G129917.D	1	11/23/16	KD	11/17/16	OP98616	G1G4148
Run #2							

	Initial Weight	Final Volume
Run #1	16.6 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.00067	0.00032	mg/kg	
319-84-6	alpha-BHC	ND	0.00067	0.00036	mg/kg	
319-85-7	beta-BHC	ND	0.00067	0.00042	mg/kg	
319-86-8	delta-BHC	ND	0.00067	0.00030	mg/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.00067	0.00029	mg/kg	
5103-71-9	alpha-Chlordane	ND	0.00067	0.00032	mg/kg	
5103-74-2	gamma-Chlordane	ND	0.00067	0.00029	mg/kg	
60-57-1	Dieldrin	ND	0.00067	0.00033	mg/kg	
72-54-8	4,4'-DDD	ND	0.00067	0.00043	mg/kg	
72-55-9	4,4'-DDE [a]	0.0159	0.00067	0.00035	mg/kg	
50-29-3	4,4'-DDT [a]	0.0150	0.00067	0.00040	mg/kg	
72-20-8	Endrin	ND	0.00067	0.00031	mg/kg	
1031-07-8	Endosulfan sulfate	ND	0.00067	0.00027	mg/kg	
7421-93-4	Endrin aldehyde	ND	0.00067	0.00039	mg/kg	
959-98-8	Endosulfan-I	ND	0.00067	0.00035	mg/kg	
33213-65-9	Endosulfan-II	ND	0.00067	0.00035	mg/kg	
76-44-8	Heptachlor	ND	0.00067	0.00033	mg/kg	
1024-57-3	Heptachlor epoxide	ND	0.00067	0.00036	mg/kg	
72-43-5	Methoxychlor	ND	0.0013	0.00033	mg/kg	
53494-70-5	Endrin ketone	ND	0.00067	0.00051	mg/kg	
8001-35-2	Toxaphene	ND	0.017	0.0069	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	98%		24-136%
877-09-8	Tetrachloro-m-xylene	99%		24-136%
2051-24-3	Decachlorobiphenyl	105%		10-153%
2051-24-3	Decachlorobiphenyl	113%		10-153%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8082A SW846 3546	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G139167.D	1	11/16/16	KM	11/14/16	OP98518	G2G3868
Run #2							

	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.035	0.017	mg/kg	
11104-28-2	Aroclor 1221	ND	0.035	0.017	mg/kg	
11141-16-5	Aroclor 1232	ND	0.035	0.014	mg/kg	
53469-21-9	Aroclor 1242	ND	0.035	0.012	mg/kg	
12672-29-6	Aroclor 1248	0.0843	0.035	0.022	mg/kg	
11097-69-1	Aroclor 1254	0.302	0.035	0.017	mg/kg	
11096-82-5	Aroclor 1260	0.0800	0.035	0.015	mg/kg	
11100-14-4	Aroclor 1268	ND	0.035	0.012	mg/kg	
37324-23-5	Aroclor 1262	ND	0.035	0.024	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	83%		20-152%
877-09-8	Tetrachloro-m-xylene	90%		20-152%
2051-24-3	Decachlorobiphenyl	97%		12-157%
2051-24-3	Decachlorobiphenyl	106%		12-157%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	90.5
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6740	58	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Arsenic	4.3	2.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Barium	23.7	23	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Beryllium	0.28	0.23	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cadmium	< 0.58	0.58	mg/kg	1	11/14/16	11/15/16	KS	SW846 6010C [3]	SW846 3050B [4]
Calcium	627	580	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Chromium	13.6	1.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Cobalt	< 5.8	5.8	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Copper	33.7	2.9	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Iron	12700	58	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Lead	30.8	2.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Magnesium	1010	580	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Manganese	142	1.7	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Mercury	0.044	0.035	mg/kg	1	11/15/16	11/15/16	MS	SW846 7471B [2]	SW846 7471B [5]
Nickel	9.2	4.6	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Potassium	< 1200	1200	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Silver	< 0.58	0.58	mg/kg	1	11/14/16	11/15/16	KS	SW846 6010C [3]	SW846 3050B [4]
Sodium	< 1200	1200	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Thallium	< 1.2	1.2	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Vanadium	14.7	5.8	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]
Zinc	33.2	5.8	mg/kg	1	11/14/16	11/15/16	ND	SW846 6010C [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA40769
(2) Instrument QC Batch: MA40770
(3) Instrument QC Batch: MA40774
(4) Prep QC Batch: MP97124
(5) Prep QC Batch: MP97144

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	90.5
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	11/15/16 15:51	BM	SW846 9012B/LACHAT
Solids, Percent	90.5		%	1	11/14/16 12:10	MH	SM2540 G-97

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8260C SW846 1311	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2V36607.D	5	11/15/16	EH	11/13/16	GP1419	V2V1431
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
71-43-2	Benzene	ND	D018	0.50	0.0025	0.00070	mg/l	
78-93-3	2-Butanone (MEK)	ND	D035	200	0.10	0.0095	mg/l	
56-23-5	Carbon tetrachloride	ND	D019	0.50	0.0050	0.0027	mg/l	
108-90-7	Chlorobenzene	ND	D021	100	0.0050	0.00087	mg/l	
67-66-3	Chloroform	ND	D022	6.0	0.0050	0.0011	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.0050	0.0011	mg/l	
107-06-2	1,2-Dichloroethane	ND	D028	0.50	0.0050	0.0020	mg/l	
75-35-4	1,1-Dichloroethene	ND	D029	0.70	0.0050	0.0010	mg/l	
127-18-4	Tetrachloroethene	ND	D039	0.70	0.0050	0.0012	mg/l	
79-01-6	Trichloroethene	ND	D040	0.50	0.0050	0.0013	mg/l	
75-01-4	Vinyl chloride	ND	D043	0.20	0.0050	0.0016	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		76-120%
17060-07-0	1,2-Dichloroethane-D4	111%		64-135%
2037-26-5	Toluene-D8	102%		76-117%
460-00-4	4-Bromofluorobenzene	107%		72-122%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8270D SW846 3510C	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P32102.D	1	11/17/16	AC	11/16/16	OP98529	E6P1487
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	1.0 ml
Run #2		

ABN TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
95-48-7	2-Methylphenol	ND	D023	200	0.020	0.0089	mg/l	
	3&4-Methylphenol	ND	D024	200	0.020	0.0088	mg/l	
87-86-5	Pentachlorophenol	ND	D037	100	0.10	0.014	mg/l	
95-95-4	2,4,5-Trichlorophenol	ND	D041	400	0.050	0.013	mg/l	
88-06-2	2,4,6-Trichlorophenol	ND	D042	2.0	0.050	0.0092	mg/l	
106-46-7	1,4-Dichlorobenzene	ND	D027	7.5	0.020	0.0017	mg/l	
121-14-2	2,4-Dinitrotoluene	ND	D030	0.13	0.020	0.0055	mg/l	
118-74-1	Hexachlorobenzene	ND	D032	0.13	0.020	0.0033	mg/l	
87-68-3	Hexachlorobutadiene	ND	D033	0.50	0.010	0.0049	mg/l	
67-72-1	Hexachloroethane	ND	D034	3.0	0.050	0.0039	mg/l	
98-95-3	Nitrobenzene	ND	D036	2.0	0.020	0.0064	mg/l	
110-86-1	Pyridine	ND	D038	5.0	0.020	0.0039	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	38%		14-88%
4165-62-2	Phenol-d5	27%		10-110%
118-79-6	2,4,6-Tribromophenol	62%		39-149%
4165-60-0	Nitrobenzene-d5	58%		32-128%
321-60-8	2-Fluorobiphenyl	63%		35-119%
1718-51-0	Terphenyl-d14	89%		10-126%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8151 SW846 8151/3510C	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G104273.D	1	11/16/16	VDT	11/14/16	OP98531	G3G3644
Run #2							

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2		

Herbicide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
94-75-7	2,4-D	ND	D016	10	0.0050	0.0039	mg/l	
93-72-1	2,4,5-TP (Silvex)	ND	D017	1.0	0.0015	0.00047	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
19719-28-9	2,4-DCAA	104%		50-142%
19719-28-9	2,4-DCAA	92%		50-142%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
Method:	SW846 8081B SW846 3510C	**Percent Solids:**	90.5
Project:	LIRR Expansion, Long Island, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G41389.D	1	11/17/16	RK	11/14/16	OP98530	G6G1185
Run #2 [a]	8G636.D	1	11/22/16	KD	11/21/16	OP98530	G8G27

	Initial Volume	Final Volume
Run #1	100 ml	10.0 ml
Run #2	100 ml	10.0 ml

Pesticide TCLP Leachate **TCLP Leachate method SW846 1311**

CAS No.	Compound	Result	HW#	MCL	RL	MDL	Units	Q
58-89-9	gamma-BHC (Lindane)	ND	D013	0.40	0.00010	0.000028	mg/l	
12789-03-6	Chlordane	ND	D020	0.030	0.0050	0.0011	mg/l	
72-20-8	Endrin	ND	D012	0.020	0.00010	0.000050	mg/l	
76-44-8	Heptachlor	ND	D031	0.0080	0.00010	0.000038	mg/l	
1024-57-3	Heptachlor epoxide	ND	D031	0.0080	0.00010	0.000065	mg/l	
72-43-5	Methoxychlor	ND	D014	10	0.00020	0.000057	mg/l	
8001-35-2	Toxaphene	ND	D015	0.50	0.0025	0.0018	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	103%	104%	30-137%
877-09-8	Tetrachloro-m-xylene	101%	110%	30-137%
2051-24-3	Decachlorobiphenyl	108%	94%	10-137%
2051-24-3	Decachlorobiphenyl	88%	95%	10-137%

(a) Confirmation run.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
MCL = Maximum Contamination Level (40 CFR 261 6/96) B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	90.5
Project:	LIRR Expansion, Long Island, NY		

Metals Analysis, TCLP Leachate SW846 1311

Analyte	Result	HW#	MCL	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	< 0.50	D004	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Barium	< 1.0	D005	100	1.0	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Cadmium	< 0.025	D006	1.0	0.025	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Chromium	< 0.050	D007	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Lead	< 0.50	D008	5.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Mercury	< 0.00020	D009	0.20	0.00020	mg/l	1	11/14/16	11/14/16	JPM	SW846 7470A [1]	SW846 7470A [4]
Selenium	< 0.50	D010	1.0	0.50	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]
Silver	< 0.050	D011	5.0	0.050	mg/l	5	11/13/16	11/14/16	KS	SW846 6010C [2]	SW846 3010A [3]

(1) Instrument QC Batch: MA40758
(2) Instrument QC Batch: MA40764
(3) Prep QC Batch: MP97122
(4) Prep QC Batch: MP97130

RL = Reporting Limit
MCL = Maximum Contamination Level (40 CFR 261 6/96)

Report of Analysis

Client Sample ID:	SB05-161111		
Lab Sample ID:	JC31595-6A	**Date Sampled:**	11/11/16
Matrix:	SO - Soil	**Date Received:**	11/11/16
		Percent Solids:	90.5
Project:	LIRR Expansion, Long Island, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH	6.15 NC		su	1	11/16/16 12:03	ST	SW846 9045D
Cyanide Reactivity	< 11	11	mg/kg	1	11/15/16 16:15	BM	SW846 CHAP7/9012 B
Ignitability (Flashpoint)	> 200		Deg. F	1	11/21/16 16:00	PO	SW846 1010A/ASTM D93
Sulfide Reactivity	< 110	110	mg/kg	1	11/15/16 15:12	MP	SW846 CHAP7/9034

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Parameter Certification Exceptions

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Cyanide Reactivity		**SW846 CHAP7/9012 B**	SO	Accutest is not certified for this parameter.[a]
Sulfide Reactivity		**SW846 CHAP7/9034**	SO	Accutest is not certified for this parameter.[a]

(a) Reactivity analyzed following SW846 Chapter 7 is no longer recognized by regulatory agencies. Use of results should be verified through the program to which the data is being submitted.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

SGS ACCUTEST SUL

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking #:
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job #: JC31595

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 20 Columbia Tpk.
City / State / Zip: Florham Park NJ 0932
Project Contact: Brian Crespi bcrespi@matrixnew.com
E-mail:
Phone #: 212 324 4251
Sampler(s) Name(s): M. Cellard
Phone #:

Project Information

Project Name: LIRR Expansion
Street:
City / State: Long Island NY
Project # 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (If different from Report to)

Company Name:
Street Address:
City / State / Zip:
Attention:

Requested Analysis (see TEST CODE sheet): TCLP/TAL (FULL), TCLP (FULL), RCRA, DIOXIN

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCLP/TAL (FULL)	TCLP (FULL)	RCRA	DIOXIN	LAB USE ONLY
1	SB40-161110	0	11/10/16	0955	MC	S	7					4			3	X	X	X	X	D15
2	SB23-161110	0	11/10/16	1207	MC	S	7					4			3	X	X	X	X	H3T3
3	SB24-161110	0	11/10/16	1236	MC	S	7					4			3	X	X	X	X	P52
4	SB02-161111	0	11/11/16	1010	MC	S	7					4			3	X	X	X	X	14D4
5	SB01-161111	0	11/11/16	1036	MC	S	7					4			3	X	X	X	X	40110
6	SB05-161111	0	11/11/16	1153	MC	S	7					4			3	X	X	X	X	
																				SUB

INITIAL ASESSMENT 2AJK
LABEL VERIFICATION JK

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other _____

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format _____
- [ ] Other _____
- [ ] *NJ Data of Known Quality Protocol Reporting*

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice.
0 3 encores received 11/11/16 JK

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler	Date Time	Received By	Relinquished By	Date Time	Received By
1 M. Cellard	1246 11/11/16	1 Chris Kan	2 Chris Kan	11/11/16 16:20	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 708 [x] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [x] Cooler Temp. 3.1°C IR

JC31595: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31595 **Client:** **Project:**

Date / Time Received: 11/11/2016 4:20:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.1);

Cooler Temps (Corrected) °C: Cooler 1: (2.3);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

JC31595: Chain of Custody
Page 2 of 2

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31595

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31595-1 Collected: 10-NOV-16 09:55 By: MC Received: 11-NOV-16 By: AS SB40-161110						
JC31595-1	SM2540 G-97	14-NOV-16 14:30	MH			SOL104
JC31595-1	SW846 8270D	15-NOV-16 01:38	CS	13-NOV-16	SA	AB8270TCL20
JC31595-1	SW846 6010C	15-NOV-16 04:22	ND	14-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31595-1	SW846 7471B	15-NOV-16 11:05	MS	15-NOV-16	MS	HG
JC31595-1	SW846 8260C	15-NOV-16 13:25	PS			V8260TCL20
JC31595-1	SW846 9012B/LACHAT	15-NOV-16 15:44	BM	15-NOV-16	TG	CN
JC31595-1	SW846 8082A	15-NOV-16 23:44	KM	14-NOV-16	FN	P8082PCB11AO
JC31595-1	SW846 8081B	18-NOV-16 10:38	RK	17-NOV-16	SZ	P8081PESTTCL
JC31595-2 Collected: 10-NOV-16 12:07 By: MC Received: 11-NOV-16 By: AS SB23-161110						
JC31595-2	SM2540 G-97	14-NOV-16 14:30	MH			SOL104
JC31595-2	SW846 6010C	15-NOV-16 04:28	ND	14-NOV-16	DM	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31595-2	SW846 8270D	15-NOV-16 05:43	CS	13-NOV-16	SA	AB8270TCL20
JC31595-2	SW846 7471B	15-NOV-16 11:07	MS	15-NOV-16	MS	HG
JC31595-2	SW846 8260C	15-NOV-16 13:53	PS			V8260TCL20
JC31595-2	SW846 9012B/LACHAT	15-NOV-16 15:45	BM	15-NOV-16	TG	CN
JC31595-2	SW846 8082A	16-NOV-16	KM	14-NOV-16	FN	P8082PCB11AO
JC31595-2	SW846 8081B	23-NOV-16 18:50	KD	17-NOV-16	SZ	P8081PESTTCL
JC31595-3 Collected: 10-NOV-16 12:36 By: MC Received: 11-NOV-16 By: AS SB24-161110						
JC31595-3	SM2540 G-97	14-NOV-16 14:30	MH			SOL104
JC31595-3	SW846 8270D	15-NOV-16 01:16	CS	13-NOV-16	SA	AB8270TCL20
JC31595-3	SW846 6010C	15-NOV-16 04:46	ND	14-NOV-16	DM	AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31595-3	SW846 7471B	15-NOV-16 11:08	MS	15-NOV-16	MS	HG
JC31595-3	SW846 8260C	15-NOV-16 14:22	PS			V8260TCL20
JC31595-3	SW846 9012B/LACHAT	15-NOV-16 15:48	BM	15-NOV-16	TG	CN
JC31595-3	SW846 6010C	15-NOV-16 16:05	KS	14-NOV-16	DM	AG,CD

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31595

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31595-3	SW846 8082A	16-NOV-16 00:17	KM	14-NOV-16	FN	P8082PCB11AO
JC31595-3	SW846 8081B	23-NOV-16 19:07	KD	17-NOV-16	SZ	P8081PESTTCL
JC31595-4	Collected: 11-NOV-16 10:10 By: MC		Received: 11-NOV-16 By: AS			
SB02-161111						
JC31595-4	SM2540 G-97	14-NOV-16 14:30	MH			SOL104
JC31595-4	SW846 6010C	15-NOV-16 04:52	ND	14-NOV-16	DM	AG,AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31595-4	SW846 8270D	15-NOV-16 06:05	CS	13-NOV-16	SA	AB8270TCL20
JC31595-4	SW846 7471B	15-NOV-16 11:09	MS	15-NOV-16	MS	HG
JC31595-4	SW846 8260C	15-NOV-16 14:50	PS			V8260TCL20
JC31595-4	SW846 9012B/LACHAT	15-NOV-16 15:49	BM	15-NOV-16	TG	CN
JC31595-4	SW846 6010C	15-NOV-16 16:11	KS	14-NOV-16	DM	CD
JC31595-4	SW846 8082A	16-NOV-16 00:34	KM	14-NOV-16	FN	P8082PCB11AO
JC31595-4	SW846 8081B	23-NOV-16 19:24	KD	17-NOV-16	SZ	P8081PESTTCL
JC31595-5	Collected: 11-NOV-16 10:36 By: MC		Received: 11-NOV-16 By: AS			
SB01-161111						
JC31595-5	SM2540 G-97	14-NOV-16 14:30	MH			SOL104
JC31595-5	SW846 8270D	15-NOV-16 00:53	CS	13-NOV-16	SA	AB8270TCL20
JC31595-5	SW846 6010C	15-NOV-16 04:58	ND	14-NOV-16	DM	AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JC31595-5	SW846 7471B	15-NOV-16 11:11	MS	15-NOV-16	MS	HG
JC31595-5	SW846 9012B/LACHAT	15-NOV-16 15:50	BM	15-NOV-16	TG	CN
JC31595-5	SW846 6010C	15-NOV-16 16:17	KS	14-NOV-16	DM	AG,CD
JC31595-5	SW846 8260C	15-NOV-16 17:13	PS			V8260TCL20
JC31595-5	SW846 8082A	16-NOV-16 00:51	KM	14-NOV-16	FN	P8082PCB11AO
JC31595-5	SW846 8081B	23-NOV-16 19:40	KD	17-NOV-16	SZ	P8081PESTTCL
JC31595-6	Collected: 11-NOV-16 11:53 By: MC		Received: 11-NOV-16 By: AS			
SB05-161111						
JC31595-6	SM2540 G-97	14-NOV-16 12:10	MH			SOL104
JC31595-6	SW846 6010C	15-NOV-16 05:04	ND	14-NOV-16	DM	AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31595

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31595-6	SW846 8270D	15-NOV-16 06:28	CS	13-NOV-16	SA	AB8270TCL20
JC31595-6	SW846 7471B	15-NOV-16 11:12	MS	15-NOV-16	MS	HG
JC31595-6	SW846 9012B/LACHAT	15-NOV-16 15:51	BM	15-NOV-16	TG	CN
JC31595-6	SW846 6010C	15-NOV-16 16:23	KS	14-NOV-16	DM	AG,CD
JC31595-6	SW846 8260C	15-NOV-16 17:42	PS			V8260TCL20
JC31595-6	SW846 8082A	16-NOV-16 01:08	KM	14-NOV-16	FN	P8082PCB11AO
JC31595-6	SW846 8081B	23-NOV-16 19:57	KD	17-NOV-16	SZ	P8081PESTTCL
JC31595-1A	Collected: 10-NOV-16 09:55 By: MC		Received: 11-NOV-16 By: AS			
SB40-161110						
JC31595-1A	SW846 7470A	14-NOV-16 15:28	JPM	14-NOV-16	JPM	EHG
JC31595-1A	SW846 6010C	14-NOV-16 16:10	KS	13-NOV-16	AA	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31595-1A	SW846 8260C	15-NOV-16 02:39	EH	13-NOV-16	MH	V8260TCLP
JC31595-1A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31595-1A	SW846 CHAP7/9012 B	15-NOV-16 16:08	BM	14-NOV-16	CD	CREAC
JC31595-1A	SW846 8151	16-NOV-16 00:21	VDT	14-NOV-16	NF	H8151TCLP
JC31595-1A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31595-1A	SW846 8081B	17-NOV-16 19:44	RK	14-NOV-16	GM	P8081TCLP
JC31595-1A	SW846 8270D	19-NOV-16 04:34	CS	18-NOV-16	SS	AB8270TCLP
JC31595-1A	SW846 1010A/ASTM D93	22-NOV-16 16:00	PO			IGN
JC31595-1A	SW846 8081B	22-NOV-16 19:55	KD	21-NOV-16	RF	P8081TCLP
JC31595-2A	Collected: 10-NOV-16 12:07 By: MC		Received: 11-NOV-16 By: AS			
SB23-161110						
JC31595-2A	SW846 7470A	14-NOV-16 15:29	JPM	14-NOV-16	JPM	EHG
JC31595-2A	SW846 6010C	14-NOV-16 16:32	KS	13-NOV-16	AA	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31595-2A	SW846 8260C	15-NOV-16 03:06	EH	13-NOV-16	MH	V8260TCLP
JC31595-2A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31595-2A	SW846 CHAP7/9012 B	15-NOV-16 16:09	BM	14-NOV-16	CD	CREAC
JC31595-2A	SW846 8151	16-NOV-16 00:52	VDT	14-NOV-16	NF	H8151TCLP
JC31595-2A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31595-2A	SW846 8270D	17-NOV-16 03:03	JJ	16-NOV-16	NG	AB8270TCLP
JC31595-2A	SW846 8081B	17-NOV-16 20:00	RK	14-NOV-16	GM	P8081TCLP
JC31595-2A	SW846 1010A/ASTM D93	22-NOV-16 16:00	PO			IGN
JC31595-2A	SW846 8081B	22-NOV-16 20:41	KD	21-NOV-16	RF	P8081TCLP

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31595

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31595-3A	Collected: 10-NOV-16 12:36 By: MC		Received: 11-NOV-16 By: AS			
SB24-161110						
JC31595-3A	SW846 7470A	14-NOV-16 15:31	JPM	14-NOV-16	JPM	EHG
JC31595-3A	SW846 6010C	14-NOV-16 16:36	KS	13-NOV-16	AA	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31595-3A	SW846 8260C	15-NOV-16 03:33	EH	13-NOV-16	MH	V8260TCLP
JC31595-3A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31595-3A	SW846 CHAP7/9012 B	15-NOV-16 16:10	BM	14-NOV-16	CD	CREAC
JC31595-3A	SW846 8151	16-NOV-16 01:23	VDT	14-NOV-16	NF	H8151TCLP
JC31595-3A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31595-3A	SW846 8270D	17-NOV-16 03:27	JJ	16-NOV-16	NG	AB8270TCLP
JC31595-3A	SW846 8081B	17-NOV-16 20:17	RK	14-NOV-16	GM	P8081TCLP
JC31595-3A	SW846 1010A/ASTM D93	22-NOV-16 16:00	PO			IGN
JC31595-3A	SW846 8081B	22-NOV-16 20:56	KD	21-NOV-16	RF	P8081TCLP
JC31595-4A	Collected: 11-NOV-16 10:10 By: MC		Received: 11-NOV-16 By: AS			
SB02-161111						
JC31595-4A	SW846 7470A	14-NOV-16 15:32	JPM	14-NOV-16	JPM	EHG
JC31595-4A	SW846 6010C	14-NOV-16 16:41	KS	13-NOV-16	AA	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31595-4A	SW846 8260C	15-NOV-16 04:00	EH	13-NOV-16	MH	V8260TCLP
JC31595-4A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31595-4A	SW846 CHAP7/9012 B	15-NOV-16 16:13	BM	14-NOV-16	CD	CREAC
JC31595-4A	SW846 8151	16-NOV-16 01:53	VDT	14-NOV-16	NF	H8151TCLP
JC31595-4A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31595-4A	SW846 8270D	17-NOV-16 03:51	JJ	16-NOV-16	NG	AB8270TCLP
JC31595-4A	SW846 8081B	17-NOV-16 20:33	RK	14-NOV-16	GM	P8081TCLP
JC31595-4A	SW846 1010A/ASTM D93	22-NOV-16 16:00	PO			IGN
JC31595-4A	SW846 8081B	22-NOV-16 21:11	KD	21-NOV-16	RF	P8081TCLP
JC31595-5A	Collected: 11-NOV-16 10:36 By: MC		Received: 11-NOV-16 By: AS			
SB01-161111						
JC31595-5A	SW846 7470A	14-NOV-16 15:33	JPM	14-NOV-16	JPM	EHG
JC31595-5A	SW846 6010C	14-NOV-16 16:45	KS	13-NOV-16	AA	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31595-5A	SW846 8260C	15-NOV-16 04:27	EH	13-NOV-16	MH	V8260TCLP
JC31595-5A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31595-5A	SW846 CHAP7/9012 B	15-NOV-16 16:14	BM	14-NOV-16	CD	CREAC
JC31595-5A	SW846 8151	16-NOV-16 03:25	VDT	14-NOV-16	NF	H8151TCLP

Internal Sample Tracking Chronicle

Matrix New World Engineering, Inc.

Job No: JC31595

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC31595-5A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31595-5A	SW846 8270D	17-NOV-16 04:15	JJ	16-NOV-16	NG	AB8270TCLP
JC31595-5A	SW846 8081B	17-NOV-16 20:50	RK	14-NOV-16	GM	P8081TCLP
JC31595-5A	SW846 1010A/ASTM D93	22-NOV-16 16:00	PO			IGN
JC31595-5A	SW846 8081B	22-NOV-16 21:26	KD	21-NOV-16	RF	P8081TCLP
JC31595-6A	Collected: 11-NOV-16 11:53 By: MC		Received: 11-NOV-16 By: AS			
SB05-161111						
JC31595-6A	SW846 7470A	14-NOV-16 15:34	JPM	14-NOV-16	JPM	EHG
JC31595-6A	SW846 6010C	14-NOV-16 16:49	KS	13-NOV-16	AA	EAG,EAS,EBA,ECD,ECR,EPB,ESE
JC31595-6A	SW846 8260C	15-NOV-16 04:54	EH	13-NOV-16	MH	V8260TCLP
JC31595-6A	SW846 CHAP7/9034	15-NOV-16 15:12	MP	14-NOV-16	CD	SREAC
JC31595-6A	SW846 CHAP7/9012 B	15-NOV-16 16:15	BM	14-NOV-16	CD	CREAC
JC31595-6A	SW846 8151	16-NOV-16 03:56	VDT	14-NOV-16	NF	H8151TCLP
JC31595-6A	SW846 9045D	16-NOV-16 12:03	ST			CORR
JC31595-6A	SW846 8270D	17-NOV-16 11:33	AC	16-NOV-16	NG	AB8270TCLP
JC31595-6A	SW846 8081B	17-NOV-16 21:07	RK	14-NOV-16	GM	P8081TCLP
JC31595-6A	SW846 1010A/ASTM D93	22-NOV-16 16:00	PO			IGN
JC31595-6A	SW846 8081B	22-NOV-16 21:41	KD	21-NOV-16	RF	P8081TCLP

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-1.1	Secured Storage	Jennifer Voitovitch	11/11/16 21:53	Retrieve from Storage
JC31595-1.1	Jennifer Voitovitch	Secured Staging Area	11/11/16 21:53	Return to Storage
JC31595-1.1	Secured Staging Area	Chris Brunson	11/11/16 22:15	Retrieve from Storage
JC31595-1.1	Chris Brunson	Secured Storage	11/11/16 23:06	Return to Storage
JC31595-1.1	Secured Storage	Sauvelson Auguste	11/13/16 06:44	Retrieve from Storage
JC31595-1.1	Sauvelson Auguste	Secured Storage	11/13/16 15:26	Return to Storage
JC31595-1.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31595-1.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31595-1.1	Secured Storage	Alfredo Crespo	11/14/16 07:58	Retrieve from Storage
JC31595-1.1	Alfredo Crespo	Secured Staging Area	11/14/16 07:59	Return to Storage
JC31595-1.1	Secured Staging Area	Steven Zarchy	11/14/16 08:16	Retrieve from Storage
JC31595-1.1	Steven Zarchy	Secured Storage	11/14/16 08:54	Return to Storage
JC31595-1.1	Secured Storage	Dwayne Johnson	11/14/16 12:35	Retrieve from Storage
JC31595-1.1	Dwayne Johnson	Secured Staging Area	11/14/16 12:35	Return to Storage
JC31595-1.1	Secured Staging Area	Minhaj Hashmi	11/14/16 13:30	Retrieve from Storage
JC31595-1.1	Minhaj Hashmi	Secured Storage	11/14/16 15:42	Return to Storage
JC31595-1.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31595-1.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31595-1.1	Secured Storage	Alfredo Crespo	11/16/16 07:36	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-1.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:36	Return to Storage
JC31595-1.1	Secured Staging Area	Sarvadaman Tripathi	11/16/16 08:12	Retrieve from Storage
JC31595-1.1	Lisa Brassell	Secured Storage	11/17/16 06:58	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-1.1	Secured Storage	Steven Zarchy	11/17/16 06:59	Retrieve from Storage
JC31595-1.1	Steven Zarchy	Finley Nyaata	11/17/16 08:31	Custody Transfer
JC31595-1.1	Finley Nyaata	Secured Storage	11/17/16 09:30	Return to Storage
JC31595-1.1	Secured Storage	Alfredo Crespo	11/18/16 07:56	Retrieve from Storage
JC31595-1.1	Alfredo Crespo	Secured Staging Area	11/18/16 07:56	Return to Storage
JC31595-1.1	Secured Staging Area	Amir Takla	11/19/16 06:10	Retrieve from Storage
JC31595-1.1	Amir Takla	Secured Storage	11/19/16 13:56	Return to Storage
JC31595-1.1	Secured Storage	Sahara Feliciano	11/20/16 08:00	Retrieve from Storage
JC31595-1.1	Sahara Feliciano	Secured Staging Area	11/20/16 08:00	Return to Storage
JC31595-1.1	Secured Staging Area	Kruti Patel	11/20/16 11:00	Retrieve from Storage
JC31595-1.1	Kruti Patel	Secured Staging Area	11/20/16 13:18	Return to Storage
JC31595-1.1	Secured Storage	Dwayne Johnson	11/21/16 09:25	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-1.1	Dwayne Johnson	Secured Staging Area	11/21/16 09:25	Return to Storage
JC31595-1.1	Secured Staging Area	Paul Ojugo	11/21/16 09:35	Retrieve from Storage
JC31595-1.1	Paul Ojugo	Secured Storage	11/21/16 17:11	Return to Storage
JC31595-1.1.1	Chris Brunson	TCLP	11/11/16 23:05	Leachate from JC31595-1.1
JC31595-1.1.1	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-1.1
JC31595-1.1.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-1.1.1	Secured Storage	Ariel Alcala	11/13/16 08:44	Retrieve from Storage
JC31595-1.1.1	Ariel Alcala	Secured Storage	11/13/16 08:57	Return to Storage
JC31595-1.1.2	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-1.1
JC31595-1.1.2	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-1.1.2	Secured Storage	Nicholas Goydish	11/14/16 10:43	Retrieve from Storage
JC31595-1.1.2	Nicholas Goydish	Secured Storage	11/14/16 15:02	Return to Storage
JC31595-1.1.2	Secured Storage	Allan Chung-yew	11/14/16 15:14	Retrieve from Storage
JC31595-1.1.2	Allan Chung-yew	Secured Storage	11/14/16 23:35	Return to Storage
JC31595-1.1.2	Secured Storage	Nicholas Ficarra	11/15/16 23:40	Retrieve from Storage
JC31595-1.1.2	Nicholas Ficarra	Secured Storage	11/15/16 23:57	Return to Storage
JC31595-1.1.2	Secured Storage	Vikas Parikh	11/16/16 04:51	Retrieve from Storage
JC31595-1.1.2	Vikas Parikh	Secured Storage	11/16/16 11:41	Return to Storage
JC31595-1.1.2	Secured Storage	Vikas Parikh	11/18/16 04:50	Retrieve from Storage
JC31595-1.1.2	Vikas Parikh	Secured Storage	11/18/16 11:52	Return to Storage
JC31595-1.1.2	Secured Storage	Nicholas Goydish	11/21/16 12:35	Retrieve from Storage
JC31595-1.1.2	Nicholas Goydish	Ryan Fantasia	11/21/16 14:39	Custody Transfer
JC31595-1.1.2	Ryan Fantasia	Secured Storage	11/21/16 20:50	Return to Storage
JC31595-1.1.3	Sauvelson Auguste	Organics Prep	11/13/16 06:46	Extract from JC31595-1.1
JC31595-1.1.3	Organics Prep	Sauvelson Auguste	11/13/16 15:27	Extract from JC31595-1.1
JC31595-1.1.3	Sauvelson Auguste	Extract Storage	11/13/16 15:27	Return to Storage
JC31595-1.1.3	Extract Storage	Christopher Sowa	11/14/16 23:41	Retrieve from Storage
JC31595-1.1.3	Christopher Sowa	GCMS2P	11/14/16 23:42	Load on Instrument
JC31595-1.1.3	GCMS2P	Kristi Schollenberger	11/27/16 13:17	Unload from Instrument
JC31595-1.1.3	Kristi Schollenberger	Extract Freezer	11/27/16 13:17	Return to Storage
JC31595-1.1.4	Ariel Alcala	Metals Digestion	11/13/16 08:56	Digestate from JC31595-1.1.1
JC31595-1.1.4	Metals Digestion	Ariel Alcala	11/13/16 08:56	Digestate from JC31595-1.1.1
JC31595-1.1.4	Ariel Alcala	Metals Digestate Storage	11/13/16 08:56	Return to Storage
JC31595-1.1.5	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-1.1
JC31595-1.1.5	Organics Prep	Finley Nyaata	11/14/16 17:29	Extract from JC31595-1.1
JC31595-1.1.5	Finley Nyaata	Extract Storage	11/14/16 17:29	Return to Storage
JC31595-1.1.6	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-1.1
JC31595-1.1.6	Organics Prep	Finley Nyaata	11/14/16 17:23	Extract from JC31595-1.1
JC31595-1.1.6	Finley Nyaata	Extract Storage	11/14/16 17:23	Return to Storage
JC31595-1.1.6	Extract Storage	Kevin Moyle	11/15/16 15:38	Retrieve from Storage
JC31595-1.1.6	Kevin Moyle	GC2G	11/15/16 15:38	Load on Instrument
JC31595-1.1.6	GC2G	Kevin Moyle	11/16/16 12:12	Unload from Instrument
JC31595-1.1.6	Kevin Moyle	Extract Freezer	11/16/16 12:12	Return to Storage
JC31595-1.1.7	Nicholas Goydish	Organics Prep	11/14/16 10:44	Extract from JC31595-1.1.2

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-1.1.7	Organics Prep	Greg Mayer	11/14/16 17:03	Extract from JC31595-1.1.2
JC31595-1.1.7	Greg Mayer	Extract Storage	11/14/16 17:03	Return to Storage
JC31595-1.1.7	Extract Storage	Christine Phillips	11/17/16 16:54	Retrieve from Storage
JC31595-1.1.7	Christine Phillips	GC6G	11/17/16 16:54	Load on Instrument
JC31595-1.1.8	Allan Chung-yew	Organics Prep	11/14/16 15:17	Extract from JC31595-1.1.2
JC31595-1.1.8	Organics Prep	Nicholas Ficarra	11/15/16 00:05	Extract from JC31595-1.1.2
JC31595-1.1.8	Nicholas Ficarra	Extract Storage	11/15/16 00:05	Return to Storage
JC31595-1.1.8	Extract Storage	Vincent Drago	11/15/16 16:08	Retrieve from Storage
JC31595-1.1.8	Vincent Drago	GC3G	11/15/16 16:08	Load on Instrument
JC31595-1.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31595-1.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31595-1.1.9	Allan Chung-yew	Organics Prep	11/14/16 15:23	Extract from JC31595-1.1.2
JC31595-1.1.9	Organics Prep	Allan Chung-yew	11/14/16 21:42	Extract from JC31595-1.1.2
JC31595-1.1.9	Allan Chung-yew	Extract Storage	11/14/16 21:42	Return to Storage
JC31595-1.1.9	Extract Storage	Arielle Cocozza	11/15/16 09:27	Retrieve from Storage
JC31595-1.1.9	Arielle Cocozza	GCMSZ	11/15/16 09:27	Load on Instrument
JC31595-1.1.9	GCMSZ	Arielle Cocozza	11/15/16 10:53	Unload from Instrument
JC31595-1.1.9	Arielle Cocozza	Extract Freezer	11/15/16 10:53	Return to Storage
JC31595-1.1.10	Nicholas Ficarra	Organics Prep	11/15/16 23:52	Extract from JC31595-1.1.2
JC31595-1.1.10	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-1.1.2
JC31595-1.1.10	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-1.1.10	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-1.1.10	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-1.1.10	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-1.1.10	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-1.1.11	Vikas Parikh	Organics Prep	11/16/16 04:59	Extract from JC31595-1.1.2
JC31595-1.1.11	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-1.1.2
JC31595-1.1.11	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-1.1.11	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-1.1.11	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-1.1.11	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-1.1.11	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-1.1.12	Steven Zarchy	Organics Prep	11/17/16 06:59	Extract from JC31595-1.1
JC31595-1.1.12	Organics Prep	Bruce Scholz	11/17/16 17:12	Extract from JC31595-1.1
JC31595-1.1.12	Bruce Scholz	Extract Storage	11/17/16 17:12	Return to Storage
JC31595-1.1.12	Extract Storage	Rebecca Krug	11/18/16 07:39	Retrieve from Storage
JC31595-1.1.12	Rebecca Krug	GC1G	11/18/16 07:39	Load on Instrument
JC31595-1.1.13	Vikas Parikh	Organics Prep	11/18/16 04:59	Extract from JC31595-1.1.2

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-1.1.14	Nicholas Goydish	Organics Prep	11/21/16 12:36	Extract from JC31595-1.1.2
JC31595-1.1.14	Organics Prep	Ryan Fantasia	11/21/16 23:04	Extract from JC31595-1.1.2
JC31595-1.1.14	Ryan Fantasia	Extract Storage	11/21/16 23:04	Return to Storage
JC31595-1.1.14	Extract Storage	Kristen Drake	11/22/16 16:25	Retrieve from Storage
JC31595-1.1.14	Kristen Drake	GC8G	11/22/16 16:25	Load on Instrument
JC31595-1.2	Secured Storage	Robert Lofrano	11/14/16 15:37	Retrieve from Storage
JC31595-1.2	Robert Lofrano		11/14/16 15:37	Subcontract
JC31595-1.3	Secured Storage	Luis Villanueva	11/12/16 09:38	Retrieve from Storage
JC31595-1.3	Luis Villanueva	Secured Staging Area	11/12/16 09:38	Return to Storage
JC31595-1.3	Secured Staging Area	Minhaj Hashmi	11/12/16 10:42	Retrieve from Storage
JC31595-1.3	Minhaj Hashmi	Secured Storage	11/12/16 16:01	Return to Storage
JC31595-1.3	Secured Storage	Sahara Feliciano	11/13/16 08:36	Retrieve from Storage
JC31595-1.3	Sahara Feliciano	Secured Staging Area	11/13/16 08:36	Return to Storage
JC31595-1.3	Secured Staging Area	Minhaj Hashmi	11/13/16 08:41	Retrieve from Storage
JC31595-1.3	Minhaj Hashmi	Secured Storage	11/13/16 13:29	Return to Storage
JC31595-1.3.1	Minhaj Hashmi	TCLP	11/12/16 16:01	Leachate from JC31595-1.3
JC31595-1.3.1	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-1.3
JC31595-1.3.1	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-1.3.1	Secured Storage	Eddie Huang	11/14/16 16:46	Retrieve from Storage
JC31595-1.3.1	Eddie Huang	GCMS2V	11/14/16 16:46	Load on Instrument
JC31595-1.3.1	Eddie Huang	Secured Storage	11/15/16 09:24	Return to Storage
JC31595-1.3.1	GCMS2V	Eddie Huang	11/15/16 09:24	Unload from Instrument
JC31595-1.3.2	Minhaj Hashmi	TCLP	11/13/16 13:29	Leachate from JC31595-1.3
JC31595-1.3.2	TCLP	Gage Donahue	11/14/16 12:02	Leachate from JC31595-1.3
JC31595-1.3.2	Gage Donahue	Secured Storage	11/14/16 12:02	Return to Storage
JC31595-1.3.3	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-1.3
JC31595-1.3.3	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-1.4	Secured Storage	Alfredo Crespo	11/14/16 09:11	Retrieve from Storage
JC31595-1.4	Alfredo Crespo	Secured Staging Area	11/14/16 09:11	Return to Storage
JC31595-1.4	Secured Staging Area	Diana Mathes	11/14/16 09:13	Retrieve from Storage
JC31595-1.4	Diana Mathes	Secured Storage	11/14/16 11:15	Return to Storage
JC31595-1.4	Secured Storage	Martin Serwatka	11/15/16 07:37	Retrieve from Storage
JC31595-1.4	Martin Serwatka	Secured Storage	11/15/16 09:29	Return to Storage
JC31595-1.4.1	Diana Mathes	Metals Digestion	11/14/16 10:56	Digestate from JC31595-1.4
JC31595-1.4.1	Metals Digestion	Diana Mathes	11/14/16 10:57	Digestate from JC31595-1.4
JC31595-1.4.1	Diana Mathes	Metals Digestate Storage	11/14/16 10:57	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-1.6	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-1.6	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-1.7	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-1.7	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-1.7	Secured Storage	Prashant Shukla	11/15/16 12:43	Retrieve from Storage
JC31595-1.7	Prashant Shukla	GCMSY	11/15/16 12:43	Load on Instrument
JC31595-1.7	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-1.7	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-1.8	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-1.8	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-1.8	Secured Storage	Prashant Shukla	11/15/16 14:32	Retrieve from Storage
JC31595-1.8	Prashant Shukla	GCMSY	11/15/16 14:32	Load on Instrument
JC31595-1.8	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-1.8	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-2.1	Secured Storage	Jennifer Voitovitch	11/11/16 21:53	Retrieve from Storage
JC31595-2.1	Jennifer Voitovitch	Secured Staging Area	11/11/16 21:53	Return to Storage
JC31595-2.1	Secured Staging Area	Chris Brunson	11/11/16 22:15	Retrieve from Storage
JC31595-2.1	Chris Brunson	Secured Storage	11/11/16 23:06	Return to Storage
JC31595-2.1	Secured Storage	Sauvelson Auguste	11/13/16 06:44	Retrieve from Storage
JC31595-2.1	Sauvelson Auguste	Secured Storage	11/13/16 15:26	Return to Storage
JC31595-2.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31595-2.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31595-2.1	Secured Storage	Alfredo Crespo	11/14/16 07:58	Retrieve from Storage
JC31595-2.1	Alfredo Crespo	Secured Staging Area	11/14/16 07:59	Return to Storage
JC31595-2.1	Secured Staging Area	Steven Zarchy	11/14/16 08:16	Retrieve from Storage
JC31595-2.1	Steven Zarchy	Secured Storage	11/14/16 08:54	Return to Storage
JC31595-2.1	Secured Storage	Dwayne Johnson	11/14/16 12:35	Retrieve from Storage
JC31595-2.1	Dwayne Johnson	Secured Staging Area	11/14/16 12:35	Return to Storage
JC31595-2.1	Secured Staging Area	Minhaj Hashmi	11/14/16 13:30	Retrieve from Storage
JC31595-2.1	Minhaj Hashmi	Secured Storage	11/14/16 15:42	Return to Storage
JC31595-2.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31595-2.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31595-2.1	Secured Storage	Alfredo Crespo	11/16/16 07:36	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-2.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:36	Return to Storage
JC31595-2.1	Secured Staging Area	Sarvadaman Tripathi	11/16/16 08:12	Retrieve from Storage
JC31595-2.1	Lisa Brassell	Secured Storage	11/17/16 06:44	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-2.1	Secured Storage	Steven Zarchy	11/17/16 06:51	Retrieve from Storage
JC31595-2.1	Steven Zarchy	Finley Nyaata	11/17/16 08:31	Custody Transfer

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-2.1	Finley Nyaata	Secured Storage	11/17/16 09:30	Return to Storage
JC31595-2.1	Secured Storage	Alfredo Crespo	11/18/16 07:56	Retrieve from Storage
JC31595-2.1	Alfredo Crespo	Secured Staging Area	11/18/16 07:56	Return to Storage
JC31595-2.1	Secured Staging Area	Amir Takla	11/19/16 06:10	Retrieve from Storage
JC31595-2.1	Amir Takla	Secured Storage	11/19/16 13:56	Return to Storage
JC31595-2.1	Secured Storage	Sahara Feliciano	11/20/16 08:00	Retrieve from Storage
JC31595-2.1	Sahara Feliciano	Secured Staging Area	11/20/16 08:00	Return to Storage
JC31595-2.1	Secured Staging Area	Kruti Patel	11/20/16 11:00	Retrieve from Storage
JC31595-2.1	Kruti Patel	Secured Staging Area	11/20/16 13:18	Return to Storage
JC31595-2.1	Secured Storage	Dwayne Johnson	11/21/16 09:25	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-2.1	Dwayne Johnson	Secured Staging Area	11/21/16 09:25	Return to Storage
JC31595-2.1	Secured Staging Area	Paul Ojugo	11/21/16 09:35	Retrieve from Storage
JC31595-2.1	Paul Ojugo	Secured Storage	11/21/16 17:11	Return to Storage
JC31595-2.1.1	Chris Brunson	TCLP	11/11/16 23:05	Leachate from JC31595-2.1
JC31595-2.1.1	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-2.1
JC31595-2.1.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-2.1.1	Secured Storage	Ariel Alcala	11/13/16 08:44	Retrieve from Storage
JC31595-2.1.1	Ariel Alcala	Secured Storage	11/13/16 08:57	Return to Storage
JC31595-2.1.2	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-2.1
JC31595-2.1.2	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-2.1.2	Secured Storage	Nicholas Goydish	11/14/16 10:43	Retrieve from Storage
JC31595-2.1.2	Nicholas Goydish	Secured Storage	11/14/16 15:02	Return to Storage
JC31595-2.1.2	Secured Storage	Allan Chung-yew	11/14/16 15:14	Retrieve from Storage
JC31595-2.1.2	Allan Chung-yew	Secured Storage	11/14/16 23:35	Return to Storage
JC31595-2.1.2	Secured Storage	Nicholas Ficarra	11/15/16 23:40	Retrieve from Storage
JC31595-2.1.2	Nicholas Ficarra	Secured Storage	11/15/16 23:57	Return to Storage
JC31595-2.1.2	Secured Storage	Vikas Parikh	11/16/16 04:51	Retrieve from Storage
JC31595-2.1.2	Vikas Parikh	Secured Storage	11/16/16 11:41	Return to Storage
JC31595-2.1.2	Secured Storage	Nicholas Goydish	11/21/16 12:35	Retrieve from Storage
JC31595-2.1.2	Nicholas Goydish	Ryan Fantasia	11/21/16 14:39	Custody Transfer
JC31595-2.1.2	Ryan Fantasia	Secured Storage	11/21/16 20:50	Return to Storage
JC31595-2.1.3	Sauvelson Auguste	Organics Prep	11/13/16 06:46	Extract from JC31595-2.1
JC31595-2.1.3	Organics Prep	Sauvelson Auguste	11/13/16 15:27	Extract from JC31595-2.1
JC31595-2.1.3	Sauvelson Auguste	Extract Storage	11/13/16 15:27	Return to Storage
JC31595-2.1.3	Extract Storage	Christopher Sowa	11/14/16 23:41	Retrieve from Storage
JC31595-2.1.3	Christopher Sowa	GCMS2P	11/14/16 23:42	Load on Instrument
JC31595-2.1.3	GCMS2P	Kristi Schollenberger	11/27/16 13:17	Unload from Instrument
JC31595-2.1.3	Kristi Schollenberger	Extract Freezer	11/27/16 13:17	Return to Storage
JC31595-2.1.4	Ariel Alcala	Metals Digestion	11/13/16 08:56	Digestate from JC31595-2.1.1

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-2.1.4	Metals Digestion	Ariel Alcala	11/13/16 08:56	Digestate from JC31595-2.1.1
JC31595-2.1.4	Ariel Alcala	Metals Digestate Storage	11/13/16 08:56	Return to Storage
JC31595-2.1.5	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-2.1
JC31595-2.1.5	Organics Prep	Finley Nyaata	11/14/16 17:29	Extract from JC31595-2.1
JC31595-2.1.5	Finley Nyaata	Extract Storage	11/14/16 17:29	Return to Storage
JC31595-2.1.6	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-2.1
JC31595-2.1.6	Organics Prep	Finley Nyaata	11/14/16 17:23	Extract from JC31595-2.1
JC31595-2.1.6	Finley Nyaata	Extract Storage	11/14/16 17:23	Return to Storage
JC31595-2.1.6	Extract Storage	Kevin Moyle	11/15/16 15:38	Retrieve from Storage
JC31595-2.1.6	Kevin Moyle	GC2G	11/15/16 15:38	Load on Instrument
JC31595-2.1.6	GC2G	Kevin Moyle	11/16/16 12:12	Unload from Instrument
JC31595-2.1.6	Kevin Moyle	Extract Freezer	11/16/16 12:12	Return to Storage
JC31595-2.1.7	Nicholas Goydish	Organics Prep	11/14/16 10:44	Extract from JC31595-2.1.2
JC31595-2.1.7	Organics Prep	Greg Mayer	11/14/16 17:03	Extract from JC31595-2.1.2
JC31595-2.1.7	Greg Mayer	Extract Storage	11/14/16 17:03	Return to Storage
JC31595-2.1.7	Extract Storage	Christine Phillips	11/17/16 16:54	Retrieve from Storage
JC31595-2.1.7	Christine Phillips	GC6G	11/17/16 16:54	Load on Instrument
JC31595-2.1.8	Allan Chung-yew	Organics Prep	11/14/16 15:17	Extract from JC31595-2.1.2
JC31595-2.1.8	Organics Prep	Nicholas Ficarra	11/15/16 00:05	Extract from JC31595-2.1.2
JC31595-2.1.8	Nicholas Ficarra	Extract Storage	11/15/16 00:05	Return to Storage
JC31595-2.1.8	Extract Storage	Vincent Drago	11/15/16 16:08	Retrieve from Storage
JC31595-2.1.8	Vincent Drago	GC3G	11/15/16 16:08	Load on Instrument
JC31595-2.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31595-2.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31595-2.1.9	Allan Chung-yew	Organics Prep	11/14/16 15:23	Extract from JC31595-2.1.2
JC31595-2.1.9	Organics Prep	Allan Chung-yew	11/14/16 21:42	Extract from JC31595-2.1.2
JC31595-2.1.9	Allan Chung-yew	Extract Storage	11/14/16 21:42	Return to Storage
JC31595-2.1.9	Extract Storage	Arielle Cocozza	11/15/16 09:27	Retrieve from Storage
JC31595-2.1.9	Arielle Cocozza	GCMSZ	11/15/16 09:27	Load on Instrument
JC31595-2.1.9	GCMSZ	Arielle Cocozza	11/15/16 10:53	Unload from Instrument
JC31595-2.1.9	Arielle Cocozza	Extract Freezer	11/15/16 10:53	Return to Storage
JC31595-2.1.10	Nicholas Ficarra	Organics Prep	11/15/16 23:52	Extract from JC31595-2.1.2
JC31595-2.1.10	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-2.1.2
JC31595-2.1.10	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-2.1.10	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-2.1.10	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-2.1.10	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-2.1.10	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-2.1.11	Vikas Parikh	Organics Prep	11/16/16 04:59	Extract from JC31595-2.1.2
JC31595-2.1.11	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-2.1.2
JC31595-2.1.11	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-2.1.11	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-2.1.11	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-2.1.11	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-2.1.11	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-2.1.12	Steven Zarchy	Organics Prep	11/17/16 06:54	Extract from JC31595-2.1
JC31595-2.1.12	Organics Prep	Bruce Scholz	11/17/16 17:12	Extract from JC31595-2.1
JC31595-2.1.12	Bruce Scholz	Extract Storage	11/17/16 17:12	Return to Storage
JC31595-2.1.12	Extract Storage	Kristen Drake	11/23/16 17:04	Retrieve from Storage
JC31595-2.1.12	Kristen Drake	GC1G	11/23/16 17:04	Load on Instrument
JC31595-2.1.13	Nicholas Goydish	Organics Prep	11/21/16 12:36	Extract from JC31595-2.1.2
JC31595-2.1.13	Organics Prep	Ryan Fantasia	11/21/16 23:04	Extract from JC31595-2.1.2
JC31595-2.1.13	Ryan Fantasia	Extract Storage	11/21/16 23:04	Return to Storage
JC31595-2.1.13	Extract Storage	Kristen Drake	11/22/16 16:25	Retrieve from Storage
JC31595-2.1.13	Kristen Drake	GC8G	11/22/16 16:25	Load on Instrument
JC31595-2.2	Secured Storage	Robert Lofrano	11/14/16 15:37	Retrieve from Storage
JC31595-2.2	Robert Lofrano		11/14/16 15:37	Subcontract
JC31595-2.3	Secured Storage	Luis Villanueva	11/12/16 09:38	Retrieve from Storage
JC31595-2.3	Luis Villanueva	Secured Staging Area	11/12/16 09:38	Return to Storage
JC31595-2.3	Secured Staging Area	Minhaj Hashmi	11/12/16 10:42	Retrieve from Storage
JC31595-2.3	Minhaj Hashmi	Secured Storage	11/12/16 16:01	Return to Storage
JC31595-2.3	Secured Storage	Sahara Feliciano	11/13/16 08:36	Retrieve from Storage
JC31595-2.3	Sahara Feliciano	Secured Staging Area	11/13/16 08:36	Return to Storage
JC31595-2.3	Secured Staging Area	Minhaj Hashmi	11/13/16 08:41	Retrieve from Storage
JC31595-2.3	Minhaj Hashmi	Secured Storage	11/13/16 13:29	Return to Storage
JC31595-2.3.1	Minhaj Hashmi	TCLP	11/12/16 16:01	Leachate from JC31595-2.3
JC31595-2.3.1	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-2.3
JC31595-2.3.1	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-2.3.2	Minhaj Hashmi	TCLP	11/13/16 13:29	Leachate from JC31595-2.3
JC31595-2.3.2	TCLP	Gage Donahue	11/14/16 12:02	Leachate from JC31595-2.3
JC31595-2.3.2	Gage Donahue	Secured Storage	11/14/16 12:02	Return to Storage
JC31595-2.3.3	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-2.3
JC31595-2.3.3	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-2.3.3	Secured Storage	Eddie Huang	11/14/16 16:46	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-2.3.3	Eddie Huang	GCMS2V	11/14/16 16:46	Load on Instrument
JC31595-2.3.3	Eddie Huang	Secured Storage	11/15/16 09:24	Return to Storage
JC31595-2.3.3	GCMS2V	Eddie Huang	11/15/16 09:24	Unload from Instrument
JC31595-2.4	Secured Storage	Alfredo Crespo	11/14/16 09:11	Retrieve from Storage
JC31595-2.4	Alfredo Crespo	Secured Staging Area	11/14/16 09:11	Return to Storage
JC31595-2.4	Secured Staging Area	Diana Mathes	11/14/16 09:13	Retrieve from Storage
JC31595-2.4	Diana Mathes	Secured Storage	11/14/16 11:15	Return to Storage
JC31595-2.4	Secured Storage	Martin Serwatka	11/15/16 07:37	Retrieve from Storage
JC31595-2.4	Martin Serwatka	Secured Storage	11/15/16 09:29	Return to Storage
JC31595-2.4.1	Diana Mathes	Metals Digestion	11/14/16 10:56	Digestate from JC31595-2.4
JC31595-2.4.1	Metals Digestion	Diana Mathes	11/14/16 10:57	Digestate from JC31595-2.4
JC31595-2.4.1	Diana Mathes	Metals Digestate Storage	11/14/16 10:57	Return to Storage
JC31595-2.6	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-2.6	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-2.7	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-2.7	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-2.7	Secured Storage	Prashant Shukla	11/15/16 12:43	Retrieve from Storage
JC31595-2.7	Prashant Shukla	GCMSY	11/15/16 12:43	Load on Instrument
JC31595-2.7	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-2.7	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-2.8	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-2.8	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-2.8	Secured Storage	Prashant Shukla	11/15/16 14:32	Retrieve from Storage
JC31595-2.8	Prashant Shukla	GCMSY	11/15/16 14:32	Load on Instrument
JC31595-2.8	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-2.8	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-3.1	Secured Storage	Jennifer Voitovitch	11/11/16 21:53	Retrieve from Storage
JC31595-3.1	Jennifer Voitovitch	Secured Staging Area	11/11/16 21:53	Return to Storage
JC31595-3.1	Secured Staging Area	Chris Brunson	11/11/16 22:15	Retrieve from Storage
JC31595-3.1	Chris Brunson	Secured Storage	11/11/16 23:06	Return to Storage
JC31595-3.1	Secured Storage	Sauvelson Auguste	11/13/16 06:44	Retrieve from Storage
JC31595-3.1	Sauvelson Auguste	Secured Storage	11/13/16 15:26	Return to Storage
JC31595-3.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31595-3.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31595-3.1	Secured Storage	Alfredo Crespo	11/14/16 07:58	Retrieve from Storage
JC31595-3.1	Alfredo Crespo	Secured Staging Area	11/14/16 07:59	Return to Storage
JC31595-3.1	Secured Staging Area	Steven Zarchy	11/14/16 08:16	Retrieve from Storage
JC31595-3.1	Steven Zarchy	Secured Storage	11/14/16 08:54	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-3.1	Secured Storage	Dwayne Johnson	11/14/16 12:35	Retrieve from Storage
JC31595-3.1	Dwayne Johnson	Secured Staging Area	11/14/16 12:35	Return to Storage
JC31595-3.1	Secured Staging Area	Minhaj Hashmi	11/14/16 13:30	Retrieve from Storage
JC31595-3.1	Minhaj Hashmi	Secured Storage	11/14/16 15:42	Return to Storage
JC31595-3.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31595-3.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31595-3.1	Secured Storage	Alfredo Crespo	11/16/16 07:36	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-3.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:36	Return to Storage
JC31595-3.1	Secured Staging Area	Sarvadaman Tripathi	11/16/16 08:12	Retrieve from Storage
JC31595-3.1	Lisa Brassell	Secured Storage	11/17/16 06:44	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-3.1	Secured Storage	Steven Zarchy	11/17/16 06:51	Retrieve from Storage
JC31595-3.1	Steven Zarchy	Finley Nyaata	11/17/16 08:31	Custody Transfer
JC31595-3.1	Finley Nyaata	Secured Storage	11/17/16 09:30	Return to Storage
JC31595-3.1	Secured Storage	Alfredo Crespo	11/18/16 07:56	Retrieve from Storage
JC31595-3.1	Alfredo Crespo	Secured Staging Area	11/18/16 07:56	Return to Storage
JC31595-3.1	Secured Staging Area	Amir Takla	11/19/16 06:10	Retrieve from Storage
JC31595-3.1	Amir Takla	Secured Storage	11/19/16 13:56	Return to Storage
JC31595-3.1	Secured Storage	Sahara Feliciano	11/20/16 08:00	Retrieve from Storage
JC31595-3.1	Sahara Feliciano	Secured Staging Area	11/20/16 08:00	Return to Storage
JC31595-3.1	Secured Staging Area	Kruti Patel	11/20/16 11:00	Retrieve from Storage
JC31595-3.1	Kruti Patel	Secured Staging Area	11/20/16 13:18	Return to Storage
JC31595-3.1	Secured Storage	Dwayne Johnson	11/21/16 09:25	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-3.1	Dwayne Johnson	Secured Staging Area	11/21/16 09:25	Return to Storage
JC31595-3.1	Secured Staging Area	Paul Ojugo	11/21/16 09:35	Retrieve from Storage
JC31595-3.1	Paul Ojugo	Secured Storage	11/21/16 17:11	Return to Storage
JC31595-3.1.1	Chris Brunson	TCLP	11/11/16 23:05	Leachate from JC31595-3.1
JC31595-3.1.1	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-3.1
JC31595-3.1.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-3.1.1	Secured Storage	Ariel Alcala	11/13/16 08:44	Retrieve from Storage
JC31595-3.1.1	Ariel Alcala	Secured Storage	11/13/16 08:57	Return to Storage
JC31595-3.1.2	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-3.1
JC31595-3.1.2	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-3.1.2	Secured Storage	Nicholas Goydish	11/14/16 10:43	Retrieve from Storage
JC31595-3.1.2	Nicholas Goydish	Secured Storage	11/14/16 15:02	Return to Storage
JC31595-3.1.2	Secured Storage	Allan Chung-yew	11/14/16 15:14	Retrieve from Storage
JC31595-3.1.2	Allan Chung-yew	Secured Storage	11/14/16 23:35	Return to Storage
JC31595-3.1.2	Secured Storage	Nicholas Ficarra	11/15/16 23:40	Retrieve from Storage
JC31595-3.1.2	Nicholas Ficarra	Secured Storage	11/15/16 23:57	Return to Storage
JC31595-3.1.2	Secured Storage	Vikas Parikh	11/16/16 04:51	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-3.1.2	Vikas Parikh	Secured Storage	11/16/16 11:41	Return to Storage
JC31595-3.1.2	Secured Storage	Nicholas Goydish	11/21/16 12:35	Retrieve from Storage
JC31595-3.1.2	Nicholas Goydish	Ryan Fantasia	11/21/16 14:39	Custody Transfer
JC31595-3.1.2	Ryan Fantasia	Secured Storage	11/21/16 20:50	Return to Storage
JC31595-3.1.3	Sauvelson Auguste	Organics Prep	11/13/16 06:46	Extract from JC31595-3.1
JC31595-3.1.3	Organics Prep	Sauvelson Auguste	11/13/16 15:27	Extract from JC31595-3.1
JC31595-3.1.3	Sauvelson Auguste	Extract Storage	11/13/16 15:27	Return to Storage
JC31595-3.1.3	Extract Storage	Christopher Sowa	11/14/16 23:41	Retrieve from Storage
JC31595-3.1.3	Christopher Sowa	GCMS2P	11/14/16 23:42	Load on Instrument
JC31595-3.1.3	GCMS2P	Kristi Schollenberger	11/27/16 13:17	Unload from Instrument
JC31595-3.1.3	Kristi Schollenberger	Extract Freezer	11/27/16 13:17	Return to Storage
JC31595-3.1.4	Ariel Alcala	Metals Digestion	11/13/16 08:56	Digestate from JC31595-3.1.1
JC31595-3.1.4	Metals Digestion	Ariel Alcala	11/13/16 08:56	Digestate from JC31595-3.1.1
JC31595-3.1.4	Ariel Alcala	Metals Digestate Storage	11/13/16 08:56	Return to Storage
JC31595-3.1.5	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-3.1
JC31595-3.1.5	Organics Prep	Finley Nyaata	11/14/16 17:29	Extract from JC31595-3.1
JC31595-3.1.5	Finley Nyaata	Extract Storage	11/14/16 17:29	Return to Storage
JC31595-3.1.6	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-3.1
JC31595-3.1.6	Organics Prep	Finley Nyaata	11/14/16 17:23	Extract from JC31595-3.1
JC31595-3.1.6	Finley Nyaata	Extract Storage	11/14/16 17:23	Return to Storage
JC31595-3.1.6	Extract Storage	Kevin Moyle	11/15/16 15:38	Retrieve from Storage
JC31595-3.1.6	Kevin Moyle	GC2G	11/15/16 15:38	Load on Instrument
JC31595-3.1.6	GC2G	Kevin Moyle	11/16/16 12:12	Unload from Instrument
JC31595-3.1.6	Kevin Moyle	Extract Freezer	11/16/16 12:12	Return to Storage
JC31595-3.1.7	Nicholas Goydish	Organics Prep	11/14/16 10:44	Extract from JC31595-3.1.2
JC31595-3.1.7	Organics Prep	Greg Mayer	11/14/16 17:03	Extract from JC31595-3.1.2
JC31595-3.1.7	Greg Mayer	Extract Storage	11/14/16 17:03	Return to Storage
JC31595-3.1.7	Extract Storage	Christine Phillips	11/17/16 16:54	Retrieve from Storage
JC31595-3.1.7	Christine Phillips	GC6G	11/17/16 16:54	Load on Instrument
JC31595-3.1.8	Allan Chung-yew	Organics Prep	11/14/16 15:17	Extract from JC31595-3.1.2
JC31595-3.1.8	Organics Prep	Nicholas Ficarra	11/15/16 00:05	Extract from JC31595-3.1.2
JC31595-3.1.8	Nicholas Ficarra	Extract Storage	11/15/16 00:05	Return to Storage
JC31595-3.1.8	Extract Storage	Vincent Drago	11/15/16 16:08	Retrieve from Storage
JC31595-3.1.8	Vincent Drago	GC3G	11/15/16 16:08	Load on Instrument
JC31595-3.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31595-3.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31595-3.1.9	Allan Chung-yew	Organics Prep	11/14/16 15:23	Extract from JC31595-3.1.2

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-3.1.9	Organics Prep	Allan Chung-yew	11/14/16 21:42	Extract from JC31595-3.1.2
JC31595-3.1.9	Allan Chung-yew	Extract Storage	11/14/16 21:42	Return to Storage
JC31595-3.1.9	Extract Storage	Arielle Cocozza	11/15/16 09:27	Retrieve from Storage
JC31595-3.1.9	Arielle Cocozza	GCMSZ	11/15/16 09:27	Load on Instrument
JC31595-3.1.9	GCMSZ	Arielle Cocozza	11/15/16 10:53	Unload from Instrument
JC31595-3.1.9	Arielle Cocozza	Extract Freezer	11/15/16 10:53	Return to Storage
JC31595-3.1.10	Nicholas Ficarra	Organics Prep	11/15/16 23:52	Extract from JC31595-3.1.2
JC31595-3.1.10	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-3.1.2
JC31595-3.1.10	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-3.1.10	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-3.1.10	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-3.1.10	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-3.1.10	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-3.1.11	Vikas Parikh	Organics Prep	11/16/16 04:59	Extract from JC31595-3.1.2
JC31595-3.1.11	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-3.1.2
JC31595-3.1.11	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-3.1.11	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-3.1.11	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-3.1.11	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-3.1.11	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-3.1.12	Steven Zarchy	Organics Prep	11/17/16 06:54	Extract from JC31595-3.1
JC31595-3.1.12	Organics Prep	Bruce Scholz	11/17/16 17:12	Extract from JC31595-3.1
JC31595-3.1.12	Bruce Scholz	Extract Storage	11/17/16 17:12	Return to Storage
JC31595-3.1.12	Extract Storage	Kristen Drake	11/23/16 17:04	Retrieve from Storage
JC31595-3.1.12	Kristen Drake	GC1G	11/23/16 17:04	Load on Instrument
JC31595-3.1.13	Nicholas Goydish	Organics Prep	11/21/16 12:36	Extract from JC31595-3.1.2
JC31595-3.1.13	Organics Prep	Ryan Fantasia	11/21/16 23:04	Extract from JC31595-3.1.2
JC31595-3.1.13	Ryan Fantasia	Extract Storage	11/21/16 23:04	Return to Storage
JC31595-3.1.13	Extract Storage	Kristen Drake	11/22/16 16:25	Retrieve from Storage
JC31595-3.1.13	Kristen Drake	GC8G	11/22/16 16:25	Load on Instrument
JC31595-3.2	Secured Storage	Robert Lofrano	11/14/16 15:37	Retrieve from Storage
JC31595-3.2	Robert Lofrano		11/14/16 15:37	Subcontract
JC31595-3.3	Secured Storage	Luis Villanueva	11/12/16 09:38	Retrieve from Storage
JC31595-3.3	Luis Villanueva	Secured Staging Area	11/12/16 09:38	Return to Storage
JC31595-3.3	Secured Staging Area	Minhaj Hashmi	11/12/16 10:42	Retrieve from Storage
JC31595-3.3	Minhaj Hashmi	Secured Storage	11/12/16 16:01	Return to Storage
JC31595-3.3	Secured Storage	Sahara Feliciano	11/13/16 08:36	Retrieve from Storage
JC31595-3.3	Sahara Feliciano	Secured Staging Area	11/13/16 08:36	Return to Storage

SGS Accutest Internal Chain of Custody

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-3.3	Secured Staging Area	Minhaj Hashmi	11/13/16 08:41	Retrieve from Storage
JC31595-3.3	Minhaj Hashmi	Secured Storage	11/13/16 13:29	Return to Storage
JC31595-3.3.1	Minhaj Hashmi	TCLP	11/12/16 16:01	Leachate from JC31595-3.3
JC31595-3.3.1	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-3.3
JC31595-3.3.1	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-3.3.1	Secured Storage	Eddie Huang	11/14/16 16:46	Retrieve from Storage
JC31595-3.3.1	Eddie Huang	GCMS2V	11/14/16 16:46	Load on Instrument
JC31595-3.3.1	GCMS2V	Eddie Huang	11/15/16 09:24	Unload from Instrument
JC31595-3.3.1	Eddie Huang	Secured Storage	11/15/16 09:24	Return to Storage
JC31595-3.3.2	Minhaj Hashmi	TCLP	11/13/16 13:29	Leachate from JC31595-3.3
JC31595-3.3.2	TCLP	Gage Donahue	11/14/16 12:02	Leachate from JC31595-3.3
JC31595-3.3.2	Gage Donahue	Secured Storage	11/14/16 12:02	Return to Storage
JC31595-3.3.3	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-3.3
JC31595-3.3.3	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-3.4	Secured Storage	Alfredo Crespo	11/14/16 09:11	Retrieve from Storage
JC31595-3.4	Alfredo Crespo	Secured Staging Area	11/14/16 09:11	Return to Storage
JC31595-3.4	Secured Staging Area	Diana Mathes	11/14/16 09:13	Retrieve from Storage
JC31595-3.4	Diana Mathes	Secured Storage	11/14/16 11:15	Return to Storage
JC31595-3.4	Secured Storage	Martin Serwatka	11/15/16 07:37	Retrieve from Storage
JC31595-3.4	Martin Serwatka	Secured Storage	11/15/16 09:29	Return to Storage
JC31595-3.4.1	Diana Mathes	Metals Digestion	11/14/16 10:56	Digestate from JC31595-3.4
JC31595-3.4.1	Metals Digestion	Diana Mathes	11/14/16 10:57	Digestate from JC31595-3.4
JC31595-3.4.1	Diana Mathes	Metals Digestate Storage	11/14/16 10:57	Return to Storage
JC31595-3.6	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-3.6	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-3.7	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-3.7	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-3.7	Secured Storage	Prashant Shukla	11/15/16 12:43	Retrieve from Storage
JC31595-3.7	Prashant Shukla	GCMSY	11/15/16 12:43	Load on Instrument
JC31595-3.7	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-3.7	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-3.8	Secured Storage	Joshua Reitan	11/11/16 21:07	Retrieve from Storage
JC31595-3.8	Joshua Reitan	Secured Storage	11/11/16 21:07	Return to Storage
JC31595-4.1	Secured Storage	Jennifer Voitovitch	11/11/16 21:53	Retrieve from Storage
JC31595-4.1	Jennifer Voitovitch	Secured Staging Area	11/11/16 21:53	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-4.1	Secured Staging Area	Chris Brunson	11/11/16 22:15	Retrieve from Storage
JC31595-4.1	Chris Brunson	Secured Storage	11/11/16 23:06	Return to Storage
JC31595-4.1	Secured Storage	Sauvelson Auguste	11/13/16 06:44	Retrieve from Storage
JC31595-4.1	Sauvelson Auguste	Secured Storage	11/13/16 15:26	Return to Storage
JC31595-4.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31595-4.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31595-4.1	Secured Storage	Alfredo Crespo	11/14/16 07:58	Retrieve from Storage
JC31595-4.1	Alfredo Crespo	Secured Staging Area	11/14/16 07:59	Return to Storage
JC31595-4.1	Secured Staging Area	Steven Zarchy	11/14/16 08:16	Retrieve from Storage
JC31595-4.1	Steven Zarchy	Secured Storage	11/14/16 08:54	Return to Storage
JC31595-4.1	Secured Storage	Dwayne Johnson	11/14/16 12:35	Retrieve from Storage
JC31595-4.1	Dwayne Johnson	Secured Staging Area	11/14/16 12:35	Return to Storage
JC31595-4.1	Secured Staging Area	Minhaj Hashmi	11/14/16 13:30	Retrieve from Storage
JC31595-4.1	Minhaj Hashmi	Secured Storage	11/14/16 15:42	Return to Storage
JC31595-4.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31595-4.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31595-4.1	Secured Storage	Alfredo Crespo	11/16/16 07:36	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-4.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:36	Return to Storage
JC31595-4.1	Secured Staging Area	Sarvadaman Tripathi	11/16/16 08:12	Retrieve from Storage
JC31595-4.1	Lisa Brassell	Secured Storage	11/17/16 06:44	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-4.1	Secured Storage	Steven Zarchy	11/17/16 06:51	Retrieve from Storage
JC31595-4.1	Steven Zarchy	Finley Nyaata	11/17/16 08:31	Custody Transfer
JC31595-4.1	Finley Nyaata	Secured Storage	11/17/16 09:30	Return to Storage
JC31595-4.1	Secured Storage	Alfredo Crespo	11/18/16 07:56	Retrieve from Storage
JC31595-4.1	Alfredo Crespo	Secured Staging Area	11/18/16 07:56	Return to Storage
JC31595-4.1	Secured Staging Area	Amir Takla	11/19/16 06:10	Retrieve from Storage
JC31595-4.1	Amir Takla	Secured Storage	11/19/16 13:56	Return to Storage
JC31595-4.1	Secured Storage	Sahara Feliciano	11/20/16 08:00	Retrieve from Storage
JC31595-4.1	Sahara Feliciano	Secured Staging Area	11/20/16 08:00	Return to Storage
JC31595-4.1	Secured Staging Area	Kruti Patel	11/20/16 11:00	Retrieve from Storage
JC31595-4.1	Kruti Patel	Secured Staging Area	11/20/16 13:18	Return to Storage
JC31595-4.1	Secured Storage	Dwayne Johnson	11/21/16 09:25	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-4.1	Dwayne Johnson	Secured Staging Area	11/21/16 09:25	Return to Storage
JC31595-4.1	Secured Staging Area	Paul Ojugo	11/21/16 09:35	Retrieve from Storage
JC31595-4.1	Paul Ojugo	Secured Storage	11/21/16 17:11	Return to Storage
JC31595-4.1.1	Chris Brunson	TCLP	11/11/16 23:05	Leachate from JC31595-4.1
JC31595-4.1.1	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-4.1
JC31595-4.1.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-4.1.1	Secured Storage	Ariel Alcala	11/13/16 08:44	Retrieve from Storage
JC31595-4.1.1	Ariel Alcala	Secured Storage	11/13/16 08:57	Return to Storage

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Job Number: JC31595
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Project: LIRR Expansion, Long Island, NY
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-4.1.2	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-4.1
JC31595-4.1.2	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-4.1.2	Secured Storage	Nicholas Goydish	11/14/16 10:43	Retrieve from Storage
JC31595-4.1.2	Nicholas Goydish	Secured Storage	11/14/16 15:02	Return to Storage
JC31595-4.1.2	Secured Storage	Allan Chung-yew	11/14/16 15:14	Retrieve from Storage
JC31595-4.1.2	Allan Chung-yew	Secured Storage	11/14/16 23:35	Return to Storage
JC31595-4.1.2	Secured Storage	Nicholas Ficarra	11/15/16 23:40	Retrieve from Storage
JC31595-4.1.2	Nicholas Ficarra	Secured Storage	11/15/16 23:57	Return to Storage
JC31595-4.1.2	Secured Storage	Vikas Parikh	11/16/16 04:51	Retrieve from Storage
JC31595-4.1.2	Vikas Parikh	Secured Storage	11/16/16 11:41	Return to Storage
JC31595-4.1.2	Secured Storage	Nicholas Goydish	11/21/16 12:35	Retrieve from Storage
JC31595-4.1.2	Nicholas Goydish	Ryan Fantasia	11/21/16 14:39	Custody Transfer
JC31595-4.1.2	Ryan Fantasia	Secured Storage	11/21/16 20:50	Return to Storage
JC31595-4.1.3	Sauvelson Auguste	Organics Prep	11/13/16 06:46	Extract from JC31595-4.1
JC31595-4.1.3	Organics Prep	Sauvelson Auguste	11/13/16 15:27	Extract from JC31595-4.1
JC31595-4.1.3	Sauvelson Auguste	Extract Storage	11/13/16 15:27	Return to Storage
JC31595-4.1.3	Extract Storage	Christopher Sowa	11/14/16 23:41	Retrieve from Storage
JC31595-4.1.3	Christopher Sowa	GCMS2P	11/14/16 23:42	Load on Instrument
JC31595-4.1.3	GCMS2P	Kristi Schollenberger	11/27/16 13:17	Unload from Instrument
JC31595-4.1.3	Kristi Schollenberger	Extract Freezer	11/27/16 13:17	Return to Storage
JC31595-4.1.4	Ariel Alcala	Metals Digestion	11/13/16 08:56	Digestate from JC31595-4.1.1
JC31595-4.1.4	Metals Digestion	Ariel Alcala	11/13/16 08:56	Digestate from JC31595-4.1.1
JC31595-4.1.4	Ariel Alcala	Metals Digestate Storage	11/13/16 08:56	Return to Storage
JC31595-4.1.5	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-4.1
JC31595-4.1.5	Organics Prep	Finley Nyaata	11/14/16 17:29	Extract from JC31595-4.1
JC31595-4.1.5	Finley Nyaata	Extract Storage	11/14/16 17:29	Return to Storage
JC31595-4.1.6	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-4.1
JC31595-4.1.6	Organics Prep	Finley Nyaata	11/14/16 17:23	Extract from JC31595-4.1
JC31595-4.1.6	Finley Nyaata	Extract Storage	11/14/16 17:23	Return to Storage
JC31595-4.1.6	Extract Storage	Kevin Moyle	11/15/16 15:38	Retrieve from Storage
JC31595-4.1.6	Kevin Moyle	GC2G	11/15/16 15:38	Load on Instrument
JC31595-4.1.6	GC2G	Kevin Moyle	11/16/16 12:12	Unload from Instrument
JC31595-4.1.6	Kevin Moyle	Extract Freezer	11/16/16 12:12	Return to Storage
JC31595-4.1.7	Nicholas Goydish	Organics Prep	11/14/16 10:44	Extract from JC31595-4.1.2
JC31595-4.1.7	Organics Prep	Greg Mayer	11/14/16 17:03	Extract from JC31595-4.1.2
JC31595-4.1.7	Greg Mayer	Extract Storage	11/14/16 17:03	Return to Storage
JC31595-4.1.7	Extract Storage	Christine Phillips	11/17/16 16:54	Retrieve from Storage
JC31595-4.1.7	Christine Phillips	GC6G	11/17/16 16:54	Load on Instrument

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-4.1.8	Allan Chung-yew	Organics Prep	11/14/16 15:17	Extract from JC31595-4.1.2
JC31595-4.1.8	Organics Prep	Nicholas Ficarra	11/15/16 00:05	Extract from JC31595-4.1.2
JC31595-4.1.8	Nicholas Ficarra	Extract Storage	11/15/16 00:05	Return to Storage
JC31595-4.1.8	Extract Storage	Vincent Drago	11/15/16 16:08	Retrieve from Storage
JC31595-4.1.8	Vincent Drago	GC3G	11/15/16 16:08	Load on Instrument
JC31595-4.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31595-4.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31595-4.1.9	Allan Chung-yew	Organics Prep	11/14/16 15:23	Extract from JC31595-4.1.2
JC31595-4.1.9	Organics Prep	Allan Chung-yew	11/14/16 21:42	Extract from JC31595-4.1.2
JC31595-4.1.9	Allan Chung-yew	Extract Storage	11/14/16 21:42	Return to Storage
JC31595-4.1.9	Extract Storage	Arielle Cocozza	11/15/16 09:27	Retrieve from Storage
JC31595-4.1.9	Arielle Cocozza	GCMSZ	11/15/16 09:27	Load on Instrument
JC31595-4.1.9	GCMSZ	Arielle Cocozza	11/15/16 10:53	Unload from Instrument
JC31595-4.1.9	Arielle Cocozza	Extract Freezer	11/15/16 10:53	Return to Storage
JC31595-4.1.10	Nicholas Ficarra	Organics Prep	11/15/16 23:52	Extract from JC31595-4.1.2
JC31595-4.1.10	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-4.1.2
JC31595-4.1.10	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-4.1.10	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-4.1.10	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-4.1.10	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-4.1.10	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-4.1.11	Vikas Parikh	Organics Prep	11/16/16 04:59	Extract from JC31595-4.1.2
JC31595-4.1.11	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-4.1.2
JC31595-4.1.11	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-4.1.11	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-4.1.11	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-4.1.11	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-4.1.11	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-4.1.12	Steven Zarchy	Organics Prep	11/17/16 06:54	Extract from JC31595-4.1
JC31595-4.1.12	Organics Prep	Bruce Scholz	11/17/16 17:12	Extract from JC31595-4.1
JC31595-4.1.12	Bruce Scholz	Extract Storage	11/17/16 17:12	Return to Storage
JC31595-4.1.12	Extract Storage	Kristen Drake	11/23/16 17:04	Retrieve from Storage
JC31595-4.1.12	Kristen Drake	GC1G	11/23/16 17:04	Load on Instrument
JC31595-4.1.13	Nicholas Goydish	Organics Prep	11/21/16 12:36	Extract from JC31595-4.1.2
JC31595-4.1.13	Organics Prep	Ryan Fantasia	11/21/16 23:04	Extract from JC31595-4.1.2
JC31595-4.1.13	Ryan Fantasia	Extract Storage	11/21/16 23:04	Return to Storage
JC31595-4.1.13	Extract Storage	Kristen Drake	11/22/16 16:25	Retrieve from Storage
JC31595-4.1.13	Kristen Drake	GC8G	11/22/16 16:25	Load on Instrument

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Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-4.2	Secured Storage	Robert Lofrano	11/14/16 15:37	Retrieve from Storage
JC31595-4.2	Robert Lofrano		11/14/16 15:37	Subcontract
JC31595-4.3	Secured Storage	Luis Villanueva	11/12/16 09:38	Retrieve from Storage
JC31595-4.3	Luis Villanueva	Secured Staging Area	11/12/16 09:38	Return to Storage
JC31595-4.3	Secured Staging Area	Minhaj Hashmi	11/12/16 10:42	Retrieve from Storage
JC31595-4.3	Minhaj Hashmi	Secured Storage	11/12/16 16:01	Return to Storage
JC31595-4.3	Secured Storage	Sahara Feliciano	11/13/16 08:36	Retrieve from Storage
JC31595-4.3	Sahara Feliciano	Secured Staging Area	11/13/16 08:36	Return to Storage
JC31595-4.3	Secured Staging Area	Minhaj Hashmi	11/13/16 08:41	Retrieve from Storage
JC31595-4.3	Minhaj Hashmi	Secured Storage	11/13/16 13:29	Return to Storage
JC31595-4.3.1	Minhaj Hashmi	TCLP	11/12/16 16:01	Leachate from JC31595-4.3
JC31595-4.3.1	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-4.3
JC31595-4.3.1	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-4.3.1	Secured Storage	Eddie Huang	11/14/16 16:46	Retrieve from Storage
JC31595-4.3.1	Eddie Huang	GCMS2V	11/14/16 16:46	Load on Instrument
JC31595-4.3.1	Eddie Huang	Secured Storage	11/15/16 09:24	Return to Storage
JC31595-4.3.1	GCMS2V	Eddie Huang	11/15/16 09:24	Unload from Instrument
JC31595-4.3.2	Minhaj Hashmi	TCLP	11/13/16 13:29	Leachate from JC31595-4.3
JC31595-4.3.2	TCLP	Gage Donahue	11/14/16 12:02	Leachate from JC31595-4.3
JC31595-4.3.2	Gage Donahue	Secured Storage	11/14/16 12:02	Return to Storage
JC31595-4.3.3	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-4.3
JC31595-4.3.3	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-4.4	Secured Storage	Alfredo Crespo	11/14/16 09:11	Retrieve from Storage
JC31595-4.4	Alfredo Crespo	Secured Staging Area	11/14/16 09:11	Return to Storage
JC31595-4.4	Secured Staging Area	Diana Mathes	11/14/16 09:13	Retrieve from Storage
JC31595-4.4	Diana Mathes	Secured Storage	11/14/16 11:15	Return to Storage
JC31595-4.4	Secured Storage	Martin Serwatka	11/15/16 07:37	Retrieve from Storage
JC31595-4.4	Martin Serwatka	Secured Storage	11/15/16 09:29	Return to Storage
JC31595-4.4.1	Diana Mathes	Metals Digestion	11/14/16 10:56	Digestate from JC31595-4.4
JC31595-4.4.1	Metals Digestion	Diana Mathes	11/14/16 10:57	Digestate from JC31595-4.4
JC31595-4.4.1	Diana Mathes	Metals Digestate Storage	11/14/16 10:57	Return to Storage
JC31595-4.6	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-4.6	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage
JC31595-4.7	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-4.7	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-4.7	Secured Storage	Prashant Shukla	11/15/16 12:43	Retrieve from Storage
JC31595-4.7	Prashant Shukla	GCMSY	11/15/16 12:43	Load on Instrument
JC31595-4.7	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-4.7	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-4.8	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-4.8	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage
JC31595-5.1	Secured Storage	Jennifer Voitovitch	11/11/16 21:53	Retrieve from Storage
JC31595-5.1	Jennifer Voitovitch	Secured Staging Area	11/11/16 21:53	Return to Storage
JC31595-5.1	Secured Staging Area	Chris Brunson	11/11/16 22:15	Retrieve from Storage
JC31595-5.1	Chris Brunson	Secured Storage	11/11/16 23:06	Return to Storage
JC31595-5.1	Secured Storage	Sauvelson Auguste	11/13/16 06:44	Retrieve from Storage
JC31595-5.1	Sauvelson Auguste	Secured Storage	11/13/16 15:26	Return to Storage
JC31595-5.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31595-5.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31595-5.1	Secured Storage	Alfredo Crespo	11/14/16 07:58	Retrieve from Storage
JC31595-5.1	Alfredo Crespo	Secured Staging Area	11/14/16 07:59	Return to Storage
JC31595-5.1	Secured Staging Area	Steven Zarchy	11/14/16 08:16	Retrieve from Storage
JC31595-5.1	Steven Zarchy	Secured Storage	11/14/16 08:54	Return to Storage
JC31595-5.1	Secured Storage	Dwayne Johnson	11/14/16 12:35	Retrieve from Storage
JC31595-5.1	Dwayne Johnson	Secured Staging Area	11/14/16 12:35	Return to Storage
JC31595-5.1	Secured Staging Area	Minhaj Hashmi	11/14/16 13:30	Retrieve from Storage
JC31595-5.1	Minhaj Hashmi	Secured Storage	11/14/16 15:42	Return to Storage
JC31595-5.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31595-5.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31595-5.1	Secured Storage	Alfredo Crespo	11/16/16 07:36	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-5.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:36	Return to Storage
JC31595-5.1	Secured Staging Area	Sarvadaman Tripathi	11/16/16 08:12	Retrieve from Storage
JC31595-5.1	Lisa Brassell	Secured Storage	11/17/16 06:44	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-5.1	Secured Storage	Steven Zarchy	11/17/16 06:51	Retrieve from Storage
JC31595-5.1	Steven Zarchy	Finley Nyaata	11/17/16 08:31	Custody Transfer
JC31595-5.1	Finley Nyaata	Secured Storage	11/17/16 09:30	Return to Storage
JC31595-5.1	Secured Storage	Alfredo Crespo	11/18/16 07:56	Retrieve from Storage
JC31595-5.1	Alfredo Crespo	Secured Staging Area	11/18/16 07:56	Return to Storage
JC31595-5.1	Secured Staging Area	Amir Takla	11/19/16 06:10	Retrieve from Storage
JC31595-5.1	Amir Takla	Secured Storage	11/19/16 13:56	Return to Storage
JC31595-5.1	Secured Storage	Sahara Feliciano	11/20/16 08:00	Retrieve from Storage
JC31595-5.1	Sahara Feliciano	Secured Staging Area	11/20/16 08:00	Return to Storage
JC31595-5.1	Secured Staging Area	Kruti Patel	11/20/16 11:00	Retrieve from Storage
JC31595-5.1	Kruti Patel	Secured Staging Area	11/20/16 13:18	Return to Storage
JC31595-5.1	Secured Storage	Dwayne Johnson	11/21/16 09:25	Retrieve from Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-5.1	Dwayne Johnson	Secured Staging Area	11/21/16 09:25	Return to Storage
JC31595-5.1	Secured Staging Area	Paul Ojugo	11/21/16 09:35	Retrieve from Storage
JC31595-5.1	Paul Ojugo	Secured Storage	11/21/16 17:11	Return to Storage
JC31595-5.1.1	Chris Brunson	TCLP	11/11/16 23:05	Leachate from JC31595-5.1
JC31595-5.1.1	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-5.1
JC31595-5.1.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-5.1.1	Secured Storage	Ariel Alcala	11/13/16 08:44	Retrieve from Storage
JC31595-5.1.1	Ariel Alcala	Secured Storage	11/13/16 08:57	Return to Storage
JC31595-5.1.2	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-5.1
JC31595-5.1.2	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-5.1.2	Secured Storage	Nicholas Goydish	11/14/16 10:43	Retrieve from Storage
JC31595-5.1.2	Nicholas Goydish	Secured Storage	11/14/16 15:02	Return to Storage
JC31595-5.1.2	Secured Storage	Allan Chung-yew	11/14/16 15:14	Retrieve from Storage
JC31595-5.1.2	Allan Chung-yew	Secured Storage	11/14/16 23:35	Return to Storage
JC31595-5.1.2	Secured Storage	Nicholas Ficarra	11/15/16 23:40	Retrieve from Storage
JC31595-5.1.2	Nicholas Ficarra	Secured Storage	11/15/16 23:57	Return to Storage
JC31595-5.1.2	Secured Storage	Vikas Parikh	11/16/16 04:51	Retrieve from Storage
JC31595-5.1.2	Vikas Parikh	Secured Storage	11/16/16 11:41	Return to Storage
JC31595-5.1.2	Secured Storage	Nicholas Goydish	11/21/16 12:35	Retrieve from Storage
JC31595-5.1.2	Nicholas Goydish	Ryan Fantasia	11/21/16 14:39	Custody Transfer
JC31595-5.1.2	Ryan Fantasia	Secured Storage	11/21/16 20:50	Return to Storage
JC31595-5.1.3	Sauvelson Auguste	Organics Prep	11/13/16 06:46	Extract from JC31595-5.1
JC31595-5.1.3	Organics Prep	Sauvelson Auguste	11/13/16 15:27	Extract from JC31595-5.1
JC31595-5.1.3	Sauvelson Auguste	Extract Storage	11/13/16 15:27	Return to Storage
JC31595-5.1.3	Extract Storage	Christopher Sowa	11/14/16 23:41	Retrieve from Storage
JC31595-5.1.3	Christopher Sowa	GCMS2P	11/14/16 23:42	Load on Instrument
JC31595-5.1.3	GCMS2P	Kristi Schollenberger	11/27/16 13:17	Unload from Instrument
JC31595-5.1.3	Kristi Schollenberger	Extract Freezer	11/27/16 13:17	Return to Storage
JC31595-5.1.4	Ariel Alcala	Metals Digestion	11/13/16 08:56	Digestate from JC31595-5.1.1
JC31595-5.1.4	Metals Digestion	Ariel Alcala	11/13/16 08:56	Digestate from JC31595-5.1.1
JC31595-5.1.4	Ariel Alcala	Metals Digestate Storage	11/13/16 08:56	Return to Storage
JC31595-5.1.5	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-5.1
JC31595-5.1.5	Organics Prep	Finley Nyaata	11/14/16 17:29	Extract from JC31595-5.1
JC31595-5.1.5	Finley Nyaata	Extract Storage	11/14/16 17:29	Return to Storage
JC31595-5.1.6	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-5.1
JC31595-5.1.6	Organics Prep	Finley Nyaata	11/14/16 17:23	Extract from JC31595-5.1
JC31595-5.1.6	Finley Nyaata	Extract Storage	11/14/16 17:23	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-5.1.6	Extract Storage	Kevin Moyle	11/15/16 15:38	Retrieve from Storage
JC31595-5.1.6	Kevin Moyle	GC2G	11/15/16 15:38	Load on Instrument
JC31595-5.1.6	GC2G	Kevin Moyle	11/16/16 12:12	Unload from Instrument
JC31595-5.1.6	Kevin Moyle	Extract Freezer	11/16/16 12:12	Return to Storage
JC31595-5.1.7	Nicholas Goydish	Organics Prep	11/14/16 10:44	Extract from JC31595-5.1.2
JC31595-5.1.7	Organics Prep	Greg Mayer	11/14/16 17:03	Extract from JC31595-5.1.2
JC31595-5.1.7	Greg Mayer	Extract Storage	11/14/16 17:03	Return to Storage
JC31595-5.1.7	Extract Storage	Christine Phillips	11/17/16 16:54	Retrieve from Storage
JC31595-5.1.7	Christine Phillips	GC6G	11/17/16 16:54	Load on Instrument
JC31595-5.1.8	Allan Chung-yew	Organics Prep	11/14/16 15:17	Extract from JC31595-5.1.2
JC31595-5.1.8	Organics Prep	Nicholas Ficarra	11/15/16 00:05	Extract from JC31595-5.1.2
JC31595-5.1.8	Nicholas Ficarra	Extract Storage	11/15/16 00:05	Return to Storage
JC31595-5.1.8	Extract Storage	Vincent Drago	11/15/16 16:08	Retrieve from Storage
JC31595-5.1.8	Vincent Drago	GC3G	11/15/16 16:08	Load on Instrument
JC31595-5.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31595-5.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31595-5.1.9	Allan Chung-yew	Organics Prep	11/14/16 15:23	Extract from JC31595-5.1.2
JC31595-5.1.9	Organics Prep	Allan Chung-yew	11/14/16 21:42	Extract from JC31595-5.1.2
JC31595-5.1.9	Allan Chung-yew	Extract Storage	11/14/16 21:42	Return to Storage
JC31595-5.1.9	Extract Storage	Arielle Cocozza	11/15/16 09:27	Retrieve from Storage
JC31595-5.1.9	Arielle Cocozza	GCMSZ	11/15/16 09:27	Load on Instrument
JC31595-5.1.9	GCMSZ	Arielle Cocozza	11/15/16 10:53	Unload from Instrument
JC31595-5.1.9	Arielle Cocozza	Extract Freezer	11/15/16 10:53	Return to Storage
JC31595-5.1.10	Nicholas Ficarra	Organics Prep	11/15/16 23:52	Extract from JC31595-5.1.2
JC31595-5.1.10	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-5.1.2
JC31595-5.1.10	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-5.1.10	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-5.1.10	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-5.1.10	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-5.1.10	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-5.1.11	Vikas Parikh	Organics Prep	11/16/16 04:59	Extract from JC31595-5.1.2
JC31595-5.1.11	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-5.1.2
JC31595-5.1.11	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-5.1.11	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-5.1.11	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-5.1.11	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-5.1.11	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-5.1.12	Steven Zarchy	Organics Prep	11/17/16 06:54	Extract from JC31595-5.1

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-5.1.12	Organics Prep	Bruce Scholz	11/17/16 17:12	Extract from JC31595-5.1
JC31595-5.1.12	Bruce Scholz	Extract Storage	11/17/16 17:12	Return to Storage
JC31595-5.1.12	Extract Storage	Kristen Drake	11/23/16 17:04	Retrieve from Storage
JC31595-5.1.12	Kristen Drake	GC1G	11/23/16 17:04	Load on Instrument
JC31595-5.1.13	Nicholas Goydish	Organics Prep	11/21/16 12:36	Extract from JC31595-5.1.2
JC31595-5.1.13	Organics Prep	Ryan Fantasia	11/21/16 23:04	Extract from JC31595-5.1.2
JC31595-5.1.13	Ryan Fantasia	Extract Storage	11/21/16 23:04	Return to Storage
JC31595-5.1.13	Extract Storage	Kristen Drake	11/22/16 16:25	Retrieve from Storage
JC31595-5.1.13	Kristen Drake	GC8G	11/22/16 16:25	Load on Instrument
JC31595-5.2	Secured Storage	Robert Lofrano	11/14/16 15:37	Retrieve from Storage
JC31595-5.2	Robert Lofrano		11/14/16 15:37	Subcontract
JC31595-5.3	Secured Storage	Luis Villanueva	11/12/16 09:38	Retrieve from Storage
JC31595-5.3	Luis Villanueva	Secured Staging Area	11/12/16 09:38	Return to Storage
JC31595-5.3	Secured Staging Area	Minhaj Hashmi	11/12/16 10:42	Retrieve from Storage
JC31595-5.3	Minhaj Hashmi	Secured Storage	11/12/16 16:01	Return to Storage
JC31595-5.3	Secured Storage	Sahara Feliciano	11/13/16 08:36	Retrieve from Storage
JC31595-5.3	Sahara Feliciano	Secured Staging Area	11/13/16 08:36	Return to Storage
JC31595-5.3	Secured Staging Area	Minhaj Hashmi	11/13/16 08:41	Retrieve from Storage
JC31595-5.3	Minhaj Hashmi	Secured Storage	11/13/16 13:29	Return to Storage
JC31595-5.3.1	Minhaj Hashmi	TCLP	11/12/16 16:01	Leachate from JC31595-5.3
JC31595-5.3.1	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-5.3
JC31595-5.3.1	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-5.3.2	Minhaj Hashmi	TCLP	11/13/16 13:29	Leachate from JC31595-5.3
JC31595-5.3.2	TCLP	Gage Donahue	11/14/16 12:02	Leachate from JC31595-5.3
JC31595-5.3.2	Gage Donahue	Secured Storage	11/14/16 12:02	Return to Storage
JC31595-5.3.3	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-5.3
JC31595-5.3.3	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-5.3.3	Secured Storage	Eddie Huang	11/14/16 16:46	Retrieve from Storage
JC31595-5.3.3	Eddie Huang	GCMS2V	11/14/16 16:46	Load on Instrument
JC31595-5.3.3	Eddie Huang	Secured Storage	11/15/16 09:24	Return to Storage
JC31595-5.3.3	GCMS2V	Eddie Huang	11/15/16 09:24	Unload from Instrument
JC31595-5.4	Secured Storage	Alfredo Crespo	11/14/16 09:11	Retrieve from Storage
JC31595-5.4	Alfredo Crespo	Secured Staging Area	11/14/16 09:11	Return to Storage
JC31595-5.4	Secured Staging Area	Diana Mathes	11/14/16 09:13	Retrieve from Storage
JC31595-5.4	Diana Mathes	Secured Storage	11/14/16 11:15	Return to Storage
JC31595-5.4	Secured Storage	Martin Serwatka	11/15/16 07:37	Retrieve from Storage
JC31595-5.4	Martin Serwatka	Secured Storage	11/15/16 09:29	Return to Storage

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Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-5.4.1	Diana Mathes	Metals Digestion	11/14/16 10:56	Digestate from JC31595-5.4
JC31595-5.4.1	Metals Digestion	Diana Mathes	11/14/16 10:57	Digestate from JC31595-5.4
JC31595-5.4.1	Diana Mathes	Metals Digestate Storage	11/14/16 10:57	Return to Storage
JC31595-5.6	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-5.6	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage
JC31595-5.7	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-5.7	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage
JC31595-5.7	Secured Storage	Prashant Shukla	11/15/16 14:57	Retrieve from Storage
JC31595-5.7	Prashant Shukla	GCMSY	11/15/16 14:57	Load on Instrument
JC31595-5.7	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-5.7	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-5.8	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-5.8	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage
JC31595-6.1	Secured Storage	Jennifer Voitovitch	11/11/16 21:53	Retrieve from Storage
JC31595-6.1	Jennifer Voitovitch	Secured Staging Area	11/11/16 21:53	Return to Storage
JC31595-6.1	Secured Staging Area	Chris Brunson	11/11/16 22:15	Retrieve from Storage
JC31595-6.1	Chris Brunson	Secured Storage	11/11/16 23:06	Return to Storage
JC31595-6.1	Secured Storage	Sauvelson Auguste	11/13/16 06:44	Retrieve from Storage
JC31595-6.1	Sauvelson Auguste	Secured Storage	11/13/16 15:26	Return to Storage
JC31595-6.1	Secured Storage	Courtney Dringus	11/14/16 06:55	Retrieve from Storage
JC31595-6.1	Courtney Dringus	Secured Storage	11/14/16 07:51	Return to Storage
JC31595-6.1	Secured Storage	Alfredo Crespo	11/14/16 07:58	Retrieve from Storage
JC31595-6.1	Alfredo Crespo	Secured Staging Area	11/14/16 07:59	Return to Storage
JC31595-6.1	Secured Staging Area	Steven Zarchy	11/14/16 08:16	Retrieve from Storage
JC31595-6.1	Steven Zarchy	Secured Storage	11/14/16 08:54	Return to Storage
JC31595-6.1	Secured Storage	Alfredo Crespo	11/14/16 09:11	Retrieve from Storage
JC31595-6.1	Alfredo Crespo	Secured Staging Area	11/14/16 09:11	Return to Storage
JC31595-6.1	Secured Staging Area	Diana Mathes	11/14/16 09:13	Retrieve from Storage
JC31595-6.1	Diana Mathes	Secured Storage	11/14/16 11:15	Return to Storage
JC31595-6.1	Secured Storage	Todd Shoemaker	11/15/16 10:12	Retrieve from Storage
JC31595-6.1	Todd Shoemaker	Secured Staging Area	11/15/16 10:12	Return to Storage
JC31595-6.1	Secured Storage	Alfredo Crespo	11/16/16 07:36	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-6.1	Alfredo Crespo	Secured Staging Area	11/16/16 07:36	Return to Storage
JC31595-6.1	Secured Staging Area	Sarvadaman Tripathi	11/16/16 08:12	Retrieve from Storage
JC31595-6.1	Lisa Brassell	Secured Storage	11/17/16 06:44	Return to Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-6.1	Secured Storage	Steven Zarchy	11/17/16 06:51	Retrieve from Storage
JC31595-6.1	Steven Zarchy	Finley Nyaata	11/17/16 08:31	Custody Transfer

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-6.1	Finley Nyaata	Secured Storage	11/17/16 09:30	Return to Storage
JC31595-6.1	Secured Storage	Alfredo Crespo	11/18/16 07:56	Retrieve from Storage
JC31595-6.1	Alfredo Crespo	Secured Staging Area	11/18/16 07:56	Return to Storage
JC31595-6.1	Secured Staging Area	Amir Takla	11/19/16 06:10	Retrieve from Storage
JC31595-6.1	Amir Takla	Secured Storage	11/19/16 13:56	Return to Storage
JC31595-6.1	Secured Storage	Sahara Feliciano	11/20/16 08:00	Retrieve from Storage
JC31595-6.1	Sahara Feliciano	Secured Staging Area	11/20/16 08:00	Return to Storage
JC31595-6.1	Secured Staging Area	Kruti Patel	11/20/16 11:00	Retrieve from Storage
JC31595-6.1	Kruti Patel	Secured Staging Area	11/20/16 13:18	Return to Storage
JC31595-6.1	Secured Storage	Dwayne Johnson	11/21/16 09:25	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JC31595-6.1	Dwayne Johnson	Secured Staging Area	11/21/16 09:25	Return to Storage
JC31595-6.1	Secured Staging Area	Paul Ojugo	11/21/16 09:35	Retrieve from Storage
JC31595-6.1	Paul Ojugo	Secured Storage	11/21/16 17:11	Return to Storage
JC31595-6.1.1	Chris Brunson	TCLP	11/11/16 23:05	Leachate from JC31595-6.1
JC31595-6.1.1	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-6.1
JC31595-6.1.1	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-6.1.2	TCLP	Minhaj Hashmi	11/12/16 07:55	Leachate from JC31595-6.1
JC31595-6.1.2	Minhaj Hashmi	Secured Storage	11/12/16 08:17	Return to Storage
JC31595-6.1.2	Secured Storage	Nicholas Goydish	11/14/16 10:43	Retrieve from Storage
JC31595-6.1.2	Nicholas Goydish	Secured Storage	11/14/16 15:02	Return to Storage
JC31595-6.1.2	Secured Storage	Allan Chung-yew	11/14/16 15:14	Retrieve from Storage
JC31595-6.1.2	Allan Chung-yew	Secured Storage	11/14/16 23:35	Return to Storage
JC31595-6.1.2	Secured Storage	Nicholas Ficarra	11/15/16 23:40	Retrieve from Storage
JC31595-6.1.2	Nicholas Ficarra	Secured Storage	11/15/16 23:57	Return to Storage
JC31595-6.1.2	Secured Storage	Vikas Parikh	11/16/16 04:51	Retrieve from Storage
JC31595-6.1.2	Vikas Parikh	Secured Storage	11/16/16 11:41	Return to Storage
JC31595-6.1.2	Secured Storage	Nicholas Goydish	11/21/16 12:35	Retrieve from Storage
JC31595-6.1.2	Nicholas Goydish	Ryan Fantasia	11/21/16 14:39	Custody Transfer
JC31595-6.1.2	Ryan Fantasia	Secured Storage	11/21/16 20:50	Return to Storage
JC31595-6.1.3	Sauvelson Auguste	Organics Prep	11/13/16 06:46	Extract from JC31595-6.1
JC31595-6.1.3	Organics Prep	Sauvelson Auguste	11/13/16 15:27	Extract from JC31595-6.1
JC31595-6.1.3	Sauvelson Auguste	Extract Storage	11/13/16 15:27	Return to Storage
JC31595-6.1.3	Extract Storage	Christopher Sowa	11/14/16 23:41	Retrieve from Storage
JC31595-6.1.3	Christopher Sowa	GCMS2P	11/14/16 23:42	Load on Instrument
JC31595-6.1.3	GCMS2P	Kristi Schollenberger	11/27/16 13:17	Unload from Instrument
JC31595-6.1.3	Kristi Schollenberger	Extract Freezer	11/27/16 13:17	Return to Storage
JC31595-6.1.4	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-6.1
JC31595-6.1.4	Organics Prep	Finley Nyaata	11/14/16 17:29	Extract from JC31595-6.1
JC31595-6.1.4	Finley Nyaata	Extract Storage	11/14/16 17:29	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-6.1.5	Steven Zarchy	Organics Prep	11/14/16 08:16	Extract from JC31595-6.1
JC31595-6.1.5	Organics Prep	Finley Nyaata	11/14/16 17:23	Extract from JC31595-6.1
JC31595-6.1.5	Finley Nyaata	Extract Storage	11/14/16 17:23	Return to Storage
JC31595-6.1.5	Extract Storage	Kevin Moyle	11/15/16 15:38	Retrieve from Storage
JC31595-6.1.5	Kevin Moyle	GC2G	11/15/16 15:38	Load on Instrument
JC31595-6.1.5	GC2G	Kevin Moyle	11/16/16 12:12	Unload from Instrument
JC31595-6.1.5	Kevin Moyle	Extract Freezer	11/16/16 12:12	Return to Storage
JC31595-6.1.6	Nicholas Goydish	Organics Prep	11/14/16 10:44	Extract from JC31595-6.1.2
JC31595-6.1.6	Organics Prep	Greg Mayer	11/14/16 17:03	Extract from JC31595-6.1.2
JC31595-6.1.6	Greg Mayer	Extract Storage	11/14/16 17:03	Return to Storage
JC31595-6.1.6	Extract Storage	Christine Phillips	11/17/16 16:54	Retrieve from Storage
JC31595-6.1.6	Christine Phillips	GC6G	11/17/16 16:54	Load on Instrument
JC31595-6.1.7	Diana Mathes	Metals Digestion	11/14/16 10:56	Digestate from JC31595-6.1
JC31595-6.1.7	Metals Digestion	Diana Mathes	11/14/16 10:57	Digestate from JC31595-6.1
JC31595-6.1.7	Diana Mathes	Metals Digestate Storage	11/14/16 10:57	Return to Storage
JC31595-6.1.8	Allan Chung-yew	Organics Prep	11/14/16 15:17	Extract from JC31595-6.1.2
JC31595-6.1.8	Organics Prep	Nicholas Ficarra	11/15/16 00:05	Extract from JC31595-6.1.2
JC31595-6.1.8	Nicholas Ficarra	Extract Storage	11/15/16 00:05	Return to Storage
JC31595-6.1.8	Extract Storage	Vincent Drago	11/15/16 16:08	Retrieve from Storage
JC31595-6.1.8	Vincent Drago	GC3G	11/15/16 16:08	Load on Instrument
JC31595-6.1.8	GC3G	Vincent Drago	11/16/16 10:12	Unload from Instrument
JC31595-6.1.8	Vincent Drago	Extract Freezer	11/16/16 10:12	Return to Storage
JC31595-6.1.9	Allan Chung-yew	Organics Prep	11/14/16 15:23	Extract from JC31595-6.1.2
JC31595-6.1.9	Organics Prep	Allan Chung-yew	11/14/16 21:42	Extract from JC31595-6.1.2
JC31595-6.1.9	Allan Chung-yew	Extract Storage	11/14/16 21:42	Return to Storage
JC31595-6.1.9	Extract Storage	Arielle Cocozza	11/15/16 09:27	Retrieve from Storage
JC31595-6.1.9	Arielle Cocozza	GCMSZ	11/15/16 09:27	Load on Instrument
JC31595-6.1.9	GCMSZ	Arielle Cocozza	11/15/16 10:53	Unload from Instrument
JC31595-6.1.9	Arielle Cocozza	Extract Freezer	11/15/16 10:53	Return to Storage
JC31595-6.1.10	Nicholas Ficarra	Organics Prep	11/15/16 23:52	Extract from JC31595-6.1.2
JC31595-6.1.10	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-6.1.2
JC31595-6.1.10	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-6.1.10	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-6.1.10	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-6.1.10	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-6.1.10	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-6.1.11	Vikas Parikh	Organics Prep	11/16/16 04:59	Extract from JC31595-6.1.2

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-6.1.11	Organics Prep	Nicholas Goydish	11/16/16 13:46	Extract from JC31595-6.1.2
JC31595-6.1.11	Nicholas Goydish	Extract Storage	11/16/16 13:46	Return to Storage
JC31595-6.1.11	Extract Storage	Arielle Cocozza	11/16/16 15:46	Retrieve from Storage
JC31595-6.1.11	Arielle Cocozza	GCMS6P	11/16/16 15:46	Load on Instrument
JC31595-6.1.11	GCMS6P	Arielle Cocozza	11/17/16 11:57	Unload from Instrument
JC31595-6.1.11	Arielle Cocozza	Extract Freezer	11/17/16 11:57	Return to Storage
JC31595-6.1.12	Steven Zarchy	Organics Prep	11/17/16 06:54	Extract from JC31595-6.1
JC31595-6.1.12	Organics Prep	Bruce Scholz	11/17/16 17:12	Extract from JC31595-6.1
JC31595-6.1.12	Bruce Scholz	Extract Storage	11/17/16 17:12	Return to Storage
JC31595-6.1.12	Extract Storage	Kristen Drake	11/23/16 17:04	Retrieve from Storage
JC31595-6.1.12	Kristen Drake	GC1G	11/23/16 17:04	Load on Instrument
JC31595-6.1.13	Nicholas Goydish	Organics Prep	11/21/16 12:36	Extract from JC31595-6.1.2
JC31595-6.1.13	Organics Prep	Ryan Fantasia	11/21/16 23:04	Extract from JC31595-6.1.2
JC31595-6.1.13	Ryan Fantasia	Extract Storage	11/21/16 23:04	Return to Storage
JC31595-6.1.13	Extract Storage	Kristen Drake	11/22/16 16:25	Retrieve from Storage
JC31595-6.1.13	Kristen Drake	GC8G	11/22/16 16:25	Load on Instrument
JC31595-6.2	Secured Storage	Robert Lofrano	11/14/16 15:37	Retrieve from Storage
JC31595-6.2	Robert Lofrano		11/14/16 15:37	Subcontract
JC31595-6.3	Secured Storage	Luis Villanueva	11/12/16 09:38	Retrieve from Storage
JC31595-6.3	Luis Villanueva	Secured Staging Area	11/12/16 09:38	Return to Storage
JC31595-6.3	Secured Staging Area	Minhaj Hashmi	11/12/16 10:42	Retrieve from Storage
JC31595-6.3	Minhaj Hashmi	Secured Storage	11/12/16 16:01	Return to Storage
JC31595-6.3	Secured Storage	Sahara Feliciano	11/13/16 08:36	Retrieve from Storage
JC31595-6.3	Sahara Feliciano	Secured Staging Area	11/13/16 08:36	Return to Storage
JC31595-6.3	Secured Staging Area	Minhaj Hashmi	11/13/16 08:41	Retrieve from Storage
JC31595-6.3	Minhaj Hashmi	Secured Storage	11/13/16 13:29	Return to Storage
JC31595-6.3.1	Minhaj Hashmi	TCLP	11/12/16 16:01	Leachate from JC31595-6.3
JC31595-6.3.1	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-6.3
JC31595-6.3.1	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-6.3.1	Secured Storage	Eddie Huang	11/14/16 16:46	Retrieve from Storage
JC31595-6.3.1	Eddie Huang	GCMS2V	11/14/16 16:46	Load on Instrument
JC31595-6.3.1	GCMS2V	Eddie Huang	11/15/16 09:24	Unload from Instrument
JC31595-6.3.1	Eddie Huang	Secured Storage	11/15/16 09:24	Return to Storage
JC31595-6.3.2	Minhaj Hashmi	TCLP	11/13/16 13:29	Leachate from JC31595-6.3
JC31595-6.3.2	TCLP	Gage Donahue	11/14/16 12:02	Leachate from JC31595-6.3
JC31595-6.3.2	Gage Donahue	Secured Storage	11/14/16 12:02	Return to Storage
JC31595-6.3.3	TCLP	Minhaj Hashmi	11/14/16 08:21	Leachate from JC31595-6.3

SGS Accutest Internal Chain of Custody

Job Number: JC31595
Account: MTXFPNJ Matrix New World Engineering, Inc.
Project: LIRR Expansion, Long Island, NY
Received: 11/11/16

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC31595-6.3.3	Minhaj Hashmi	Secured Storage	11/14/16 09:38	Return to Storage
JC31595-6.4	Secured Storage	Todd Shoemaker	11/14/16 10:30	Retrieve from Storage
JC31595-6.4	Todd Shoemaker	Secured Staging Area	11/14/16 10:30	Return to Storage
JC31595-6.4	Secured Staging Area	Minhaj Hashmi	11/14/16 11:01	Retrieve from Storage
JC31595-6.4	Minhaj Hashmi	Secured Storage	11/14/16 15:42	Return to Storage
JC31595-6.4	Secured Storage	Martin Serwatka	11/15/16 07:37	Retrieve from Storage
JC31595-6.4	Martin Serwatka	Secured Storage	11/15/16 09:29	Return to Storage
JC31595-6.6	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-6.6	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage
JC31595-6.7	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-6.7	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage
JC31595-6.7	Secured Storage	Prashant Shukla	11/15/16 14:57	Retrieve from Storage
JC31595-6.7	Prashant Shukla	GCMSY	11/15/16 14:57	Load on Instrument
JC31595-6.7	GCMSY	Prashant Shukla	11/16/16 08:45	Unload from Instrument
JC31595-6.7	Prashant Shukla		11/16/16 08:45	Depleted
JC31595-6.8	Secured Storage	Georga Torres	11/12/16 08:28	Retrieve from Storage
JC31595-6.8	Georga Torres	Secured Storage	11/12/16 08:29	Return to Storage

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e-Hardcopy 2.0
Automated Report

Technical Report for

Matrix New World Engineering, Inc.

LIRR Expansion, Long Island, NY

16-144

SGS Accutest Job Number: JC31595X

Sampling Dates: 11/10/16 - 11/11/16

Report to:

Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932
bcrespi@matrixneworld.com; mclelland@matrixneworld.com;
mhorowitz@matrixneworld.com
ATTN: Brian Crespi

Total number of pages in report: 235

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Nancy Cole
Laboratory Director

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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SGS Accutest

Sample Summary

Matrix New World Engineering, Inc.

Job No: JC31595X

LIRR Expansion, Long Island, NY
Project No: 16-144

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC31595-1X	11/10/16	09:55	MC	11/11/16	SO	Soil	SB40-161110
JC31595-2X	11/10/16	12:07	MC	11/11/16	SO	Soil	SB23-161110
JC31595-3X	11/10/16	12:36	MC	11/11/16	SO	Soil	SB24-161110
JC31595-4X	11/11/16	10:10	MC	11/11/16	SO	Soil	SB02-161111
JC31595-5X	11/11/16	10:36	MC	11/11/16	SO	Soil	SB01-161111
JC31595-6X	11/11/16	11:53	MC	11/11/16	SO	Soil	SB05-161111

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Subcontract Lab Data

Report of Analysis

2

FINAL LAB REPORT

JC31595X

A9435

12-Dec-2016

Prepared by

SGS NORTH AMERICA

Prepared for

Accutest

Tammy McCloskey

Fresh Ponds Crp Village Bldg B 2235 Route 130
Dayton, NJ 08810
Phone: 732.329.0200
Email: Tammy.McCloskey@sgs.com

This report is approved by

Digitally signed by Amy Boehm
Date: 2016.12.14 13:36:56
-05'00'

Amy Boehm

Senior Project Manager

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Results reported relate only to the items tested.

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PROJECT INFORMATION SUMMARY *(When applicable, see QC Annotations for details)*

Client Project	JC31595X
SGS Project #	A9435
Analytical Protocol(s)	8290ATCDD only
No. Samples Submitted	6
Additional QC Sample(s)	0
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
Date Received	15-Nov-16
Condition Received	Good
Temperature upon Receipt (ºC)	1.5
Extraction within Holding Time	Yes
Analysis within Holding Time	Yes

QC ANNOTATIONS:

1. Please see Appendices attached for data qualifier/attribute and lab identifier descriptions which may be contained in the project.

APPENDIX A: GENERAL DATA QUALIFIERS / DATA ATTRIBUTES

B	The analyte was found in the method blank, at a concentration that was at least 10% of the concentration in the sample.
C	Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group are shown with the number of the lowest IUPAC co-eluter.
E	The reported concentration exceeds the calibration range (upper point of the calibration curve) and is an estimated value.
EMPC	Represents an Estimated Maximum Possible Concentration. EMPCs arise in cases where the signal/noise ratio is not sufficient for peak identification (the determined ion-abundance ratio is outside the allowed theoretical range), or where there is a co-eluting interference.
H/h	If the standard recovery is below the method or SOP specified value “H” is assigned. If the obtained value is less than half the specified value “h” is assigned.
J	Indicates that an analyte has a concentration below the reporting limit (lowest point of the calibration curve) and is an estimated value.
ND	Indicates a non-detect.
NR or R	Indicates a value that is not reportable.
PR	Due to interference, the associated congener is poorly resolved.
QI	Indicates the presence of a quantitative interference.
SI	Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
U	The analyte was not detected. The estimated detection limit (EDL) may be reported for this analyte.
V	The labeled standard recovery was found to be outside of the method control limits.

APPENDIX B: DRBC/TMDL SPECIFIC DATA QUALIFIERS / DATA ATTRIBUTES

J	The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL).
U	The analyte was not detected in the sample at the estimated detection limit (EDL).
E	The reported concentration is an estimate. The value exceeds the upper calibration range (upper point of the calibration curve).
D	Dilution Data. Result was obtained from the analysis of a dilution.
B	Analyte found in the sample and associated method blank.
C	Co-eluting congener
Cxx	Co-elutes with the indicated congener, data is reported under the lowest IUPAC congener. 'Xx' denotes the IUPAC number with the lowest numerical designated congener.
NR	Analyte is not reportable because of problems in sample preparation or analysis.
V	Labeled standard recovery is not within method control limits.
X	Results from re-injection/repeat/second-column analysis.
EMPC	Estimated maximum possible concentration. Indicates that a peak is identified but did not meet the method specified ion-abundance ratio.

APPENDIX C: LAB IDENTIFIERS

AR	Indicates use of the archived portion of the sample extract.
CU	Indicates a sample that required additional clean-up prior to MS injection/processing.
D	Indicates a dilution of the sample extract. The number that follows the "D" indicates the dilution factor.
DE	Indicates a dilution performed with the addition of ES (extraction standard) solution.
DUP	Designation for a duplicate sample.
MS	Designation for a matrix spike.
MSD	Designation for a matrix spike duplicate.
RJ	Indicates a reinjection of the sample extract.
S	Indicates a sample split. The number that follows the "S" indicates the split factor.

2

SGS CERTIFICATIONS

Arkansas	88-0682
California (ELAP)	ELAP Cert #2914
CLIA	34D1013708
Connecticut	PH-0258
USDA Soil Permit	P330-14-00135
DoD	2726.01
Florida (Primary NELAP)	E87634
ISO 17025/IEC	2726.01
Louisiana	4115
Maine	#2016028
Massachusetts	M-NC919
Minnesota (Primary NELAP For Method 23)	Lab #037-999-459 Cert #981125
New Jersey	NC100
New York	11685
North Carolina DWR	481
North Dakota	R-197
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	Lab #99029 Cert #99029002
Texas	T104704260-16-9
US Coast Guard	16714/159.317/SGS
Virginia	Lab #460214 Cert #8722
Washington	C913
West Virginia	293

Rev. 12-Sep-2016

Sample ID: SB40-161110 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	15-Nov-2016
Project ID:	JC31595X	Weight/Volume:	9.63 g	Lab Sample ID	A9435_14534_DF_001	Date Extracted:	22-Nov-2016
Date Collected:	10-Nov-2016	% Solid:	94.0 %	QC Batch No:	14534	Date Analyzed:	07-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	18:35:20

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.297			ES 2378-TCDD	81.7	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	83.3	

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Sample ID: SB23-161110 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	15-Nov-2016
Project ID:	JC31595X	Weight/Volume:	10.21 g	Lab Sample ID	A9435_14534_DF_002-D2-CU	Date Extracted:	22-Nov-2016
Date Collected:	10-Nov-2016	% Solid:	95.2 %	QC Batch No:	14534	Date Analyzed:	08-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	16:10:42

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.319			ES 2378-TCDD	87.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	79.7	

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Sample ID: SB24-161110 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	15-Nov-2016
Project ID:	JC31595X	Weight/Volume:	9.50 g	Lab Sample ID	A9435_14534_DF_003	Date Extracted:	22-Nov-2016
Date Collected:	10-Nov-2016	% Solid:	91.5 %	QC Batch No:	14534	Date Analyzed:	07-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	19:27:33

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.295			ES 2378-TCDD	83.4	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	78.4	

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Sample ID: SB02-161111 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	15-Nov-2016
Project ID:	JC31595X	Weight/Volume:	9.50 g	Lab Sample ID	A9435_14534_DF_004	Date Extracted:	22-Nov-2016
Date Collected:	11-Nov-2016	% Solid:	93.1 %	QC Batch No:	14534	Date Analyzed:	07-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	20:19:44

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	4.18				ES 2378-TCDD	86.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	85.1	

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Sample ID: SB01-161111 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	15-Nov-2016
Project ID:	JC31595X	Weight/Volume:	9.66 g	Lab Sample ID	A9435_14534_DF_005	Date Extracted:	22-Nov-2016
Date Collected:	11-Nov-2016	% Solid:	94.5 %	QC Batch No:	14534	Date Analyzed:	07-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	21:11:50

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		0.398	J	ES 2378-TCDD	82.3	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	82.5	

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Sample ID: SB05-161111 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	15-Nov-2016
Project ID:	JC31595X	Weight/Volume:	9.31 g	Lab Sample ID	A9435_14534_DF_006	Date Extracted:	22-Nov-2016
Date Collected:	11-Nov-2016	% Solid:	88.6 %	QC Batch No:	14534	Date Analyzed:	07-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	22:04:02

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	EMPC		0.179	J	ES 2378-TCDD	87.8	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	88.3	

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Sample ID: Method Blank A9435_14534 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	n/a
Project ID:	JC31595X	Weight/Volume:	10.00 g	Lab Sample ID	MB1_14534_DF_SDS	Date Extracted:	22-Nov-2016
Date Collected:	n/a	% Solid:	n/a	QC Batch No:	14534	Date Analyzed:	07-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	16:49:15

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.166			ES 2378-TCDD	82.5	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	82.2	

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Sample ID: Method Blank A9435_14534 — Method 8290A

Client Data		Sample Data		Laboratory Data			
Name:	Accutest	Matrix:	Soil	Lab Project ID:	A9435	Date Received:	n/a
Project ID:	JC31595X	Weight/Volume:	10.00 g	Lab Sample ID	MB1_14534_DF_SDS-CU	Date Extracted:	22-Nov-2016
Date Collected:	n/a	% Solid:	n/a	QC Batch No:	14534	Date Analyzed:	08-Dec-2016
		Split:	-	Dilution:	-	Time Analyzed:	14:25:44

Analyte	Conc. (pg/g)	DL (pg/g)	EMPC (pg/g)	Qualifiers	Standard	ES Recoveries	Qualifiers
2378-TCDD	ND	0.142			ES 2378-TCDD	81.9	

Totals					Standard	CS/AS Recoveries	
					CS 37Cl-2378-TCDD	81.4	

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METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161207C02	Analysis Date:	07-DEC-2016 15:01:30
Lab ID:	OPR1_14534_DF-RJ		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	9.34	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 09 Dec 2016 11:45 Analyst: al

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161207C02	Analysis Date:	07-DEC-2016 15:01:30
Lab ID:	OPR1_14534_DF-RJ		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	81.6	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	31.8	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 09 Dec 2016 11:45 Analyst: al

Sample Receipt Notification

5500 Business Drive
Wilmington, NC 28405 USA
Tel: 910 794-1613
Toll Free: 866 846-8290
Fax: 910 794-3919

Project Manager:	*Tamara Morgan*
Receipt Date & Time:	*15-Nov-16 at 10:40*
AP Project name:	*A9435*
Requested TAT:	*14 days*
Projected due date:	*1-Dec-16*
Matrix:	*Soil*
Phone#:	*910-794-1613*
Email Address:	*Tamara.Morgan@sgs.com*

Company Contact:	*Tammy McCloskey*
Company:	*Accutest*
Project Name & Site:	*JC31595X*
Project PO#:	*JC31595X*
QAAP/Contract #:	*N/A*
Requested Analysis:	*Method 8290 TCDD only*
Phone#:	*732-329-0200*
Email Address:	*tammy.mccloskey@sgs.com*

Client Smp ID	AP Smp ID	Sample Condition & Notes	Quantity	Size	Sampling Date	Sampling Time	Received Temp	Container #	Shipping #
SB40-161110	A9435_001	SO	1	8oz Clear	10-Nov-16	09:55	1.5	1	5633 9349 6479
SB23-161110	A9435_002	SO	1	8oz Clear	10-Nov-16	12:07	1.5	1	5633 9349 6479
SB24-161110	A9435_003	SO	1	8oz Clear	10-Nov-16	12:36	1.5	1	5633 9349 6479
SB02-161111	A9435_004	SO	1	8oz Clear	11-Nov-16	10:10	1.5	1	5633 9349 6479
SB01-161111	A9435_005	SO	1	8oz Clear	11-Nov-16	10:36	1.5	1	5633 9349 6479
SB05-161111	A9435_006	SO	1	8oz Clear	11-Nov-16	11:53	1.5	1	5633 9349 6479

Preservation Type: **Sample Seals:** No

Notes/Comments:

Samples received intact.

Any un-extracted sample will be stored for 90 days from reporting date. Additional storage fees may apply for any samples stored longer than 90 days.

Received by: Ashley Owens *Logged in by: Ashley Owens* *QC'ed by:* AK 16 Nov 16

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/terms_and_conditions.htm

CHAIN OF CUSTODY

 A9435

SGS ACCUTEST

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

FED-EX Tracking #: 5633 9349 6479
Bottle Order Control #:
SGS Accutest Quote #:
SGS Accutest Job: JC31595X

Client / Reporting Information

Company Name: SGS Accutest
Street Address: 2235 Route 130
City: Dayton State: NJ Zip: 08810
Project Contact: Tammy.McCloskey@sgs.com E-mail:
Phone #: 732-329-0200 Fax #:
Sampler(s) Name(s): MC Phone:

Project Information

Project Name: LIRR Expansion, Long Island, NY
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8290TCDD	LAB USE ONLY
1X	SB40-161110		11/10/16	9:55:00 AM	MC	SO	1					1				X	001
2X	SB23-161110		11/10/16	12:07:00 PM	MC	SO	1					1				X	002
3X	SB24-161110		11/10/16	12:36:00 PM	MC	SO	1					1				X	003
4X	SB02-161111		11/11/16	10:10:00 AM	MC	SO	1					1				X	004
5X	SB01-161111		11/11/16	10:36:00 AM	MC	SO	1					1				X	005
6X	SB05-161111		11/11/16	11:53:00 AM	MC	SO	1					1				X	006

Number of preserved Bottles

Turnaround Time (Business days)

Approved By (SGS Accutest PM): / Date:

- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other 14

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other NYASPA

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler	Date Time	Received By	Relinquished By	Date Time	Received By
1	11-14-16 1700	1 FED EX	2		2
Relinquished by Sampler 3	Date Time:	Received By: 3	Relinquished By: 4	Date/Time: 11/15/16 10:40	Received By: 4 Ashley Owens
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 486	[X] Intact [ ] Not intact	Preserved where applicable [ ] Ice [X] Cooler Temp. 1.5

2

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Project Initiation Form

Project Number: A9435

Initiation Date: 16-Nov-16

Client Name: Accutest

Analysis Method: 8290 PCDD/F

Sample Matrix: Soil

TAT: 14 days

Project Manager: Tamara

Special Instructions

8290 w/ OPR
2378 TCDD only

Reporting Instructions

8290 w/ OPR
2378 TCDD only

PM Initials: akornega Date: 16-Nov-2016

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Methods: PCB, PAH, PCDD/F, WHO-2, QUANTICS, USV, PEST

Extraction Type: SDS, CLL, TALEX, Carbon SPE

Solid

Final Volume:

Batch# 14534 | Split: 1/2 1/4 | Extract Initial/Date: AW 11/22/16 | Clean-up Initial/Date: AW 11/30/16 | Transfer Init/Date:

Lab Sample ID	Extraction Position / Solvent: DCM	Extraction Weight/Volume g	mL	(Td)	~~ASECS #~~ manual columns	Observations
A9434_14534_001	27	10.19				drk brown wood pieces
A9435_14534_001	28	10.25				brown, sand-like, cm, sm rocks
A9435_14534_002	29	10.73				brown, sand-like, cm, sm rocks
A9435_14534_003	30	10.39				brown soil, cm, sm rocks
A9435_14534_004	31	10.20				brown soil, sm rocks
A9435_14534_005	32	10.22				brown, sand-like, cm, sm rocks
A9435_14534_006	33	10.50				drk brown, sand-like, cm, sm rocks
A9446_14534_001	35	10.09				lt tan, fine powder
MB1_14534	25	10.00				Sodium Sulfate XE21F
OPR1_14534	26	10.00				Sodium Sulfate XE21F
~~OPR1_14534~~	AW 11/22/16			11/30/16	11/30/16	

Supply IDs

Toluene	158853
MeCHL	163037
Florisil	7537701
Hexane	163429
Silica	06272016
Nitrate	11282016
Base Silica	10212016
HydroMatrix	—
Tetradecane	08042016
H_2SO_4	—
A Silica	11/30/2016
Sodium Sulfate	XE21F/161506

Additional Cleanup

Acid Partition Date/Initial:	
Mini-Acid Date/Initial:	12/8/16
Carbon Column Date/Initial:	
GPC Date/Initial:	
Bond-Elute Date/Initial:	

Cycle Time

TOL	Start:	1452
	Stop:	0817
HEX	Start:	
	Stop:	AW
DCM	Start:	11/22/16
	Stop:	

SGS

Methods: PCB PCDD/F QUANTICS
PAH WHO-2 USV PEST

Solid

Batch# 14534

Inter-Department Communication Sheet

Cleanups used 1.70 g Florisil and 60 mL DCM for collection. Jme 11/30/16

Sample -002 Yellow + Blew out source
will send back for C.U. al 12.7.16

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Wt. Volume Results
14534

Batch #: A9435
A9446

Comments:

ac 12/12/16

Lab Sample ID	Boat WT.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	% Solid	Average % Solid	RSD	Qtest Ratio (if Applicable)	Dry Wt. Equiv.	Extracted Wt.	Final Wt.
A9435_001	1.11	4.43	4.23	93.98%	93.98%	N/A	N/A	10.64	10.25	9.63295
A9435_002	1.12	4.63	4.46	95.16%	95.16%	N/A	N/A	10.51	10.73	10.210668
A9435_003	1.12	3.82	3.59	91.48%	91.48%	N/A	N/A	10.93	10.39	9.504772
A9435_004	1.11	3.58	3.41	93.12%	93.12%	N/A	N/A	10.74	10.2	9.49824
A9435_005	1.11	3.49	3.36	94.54%	94.54%	N/A	N/A	10.58	10.22	9.661988
A9435_006	1.1	4.18	3.83	88.64%	88.64%	N/A	N/A	11.28	10.5	9.3072
A9446_001	1.09	3.46	3.49	101.27%	101.27%	N/A	N/A	9.88	10.09	10.218143

% Solid Determination WorkSheet

SGS

Batch: 14534

Lab Sample ID	Boat Wt.	Sample Wt. + Boat Wt.	Dried Sample + Boat Wt.	Comments
A9434_14534_001	* ~~1.10~~ 1.11	* ~~3.59~~ 3.74	2.05	
A9435_14534_001	1.11	4.43	4.23	
A9435_14534_002	1.12	4.63	4.46	
A9435_14534_003	1.12	3.82	3.59	
A9435_14534_004	1.11	3.58	3.41	
A9435_14534_005	1.11	3.49	3.36	
A9435_14534_006	1.10	4.18	3.83	
A9446_14534_001	1.09	3.46	3.49	
~~A9446_14534_002~~				

AW 11/22/16

*EG AW 11/22/16

Date/Initials: AW 11/22/16

2

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Methods: PCB, PAH, PCDD/F, WHO-2, QUANTICS, USV, PEST

Solid

Batch # 14534

Lab Sample ID	Spiker Initials/Date:						
	AK 11/22/16	AK 11/22/16	AK 11/22/16	AK 11/30/16	AK 11/30/16		
	Ax-A	Ax-B	ES	CS	JS		
	Amount: 20ul	Amount: 20ul	Amount: 20ul	Amount: 20ul	Amount: 20ul	Amount:	Amount:
	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials	Observer Initials
A9434_14534_001	—	—	AW	AW	[illegible]		
A9435_14534_001	—	—	AW	AW	[illegible]		
A9435_14534_002	—	—	AW	AW	[illegible]		
A9435_14534_003	—	—	AW	AW	[illegible]		
A9435_14534_004	—	—	AW	AW	[illegible]		
A9435_14534_005	—	—	AW	AW	[illegible]		
A9435_14534_006	—	—	AW	AW	[illegible]		
A9446_14534_001	—	—	AW	AW	[illegible]		
MB1_14534	—	—	AW	AW	[illegible]		
OPR1_14534	AW	AW	AW	AW	[illegible]		
~~OPR1_14534~~ AW 11/22/16							
	11/22/16	11/22/16	11/22/16	11/30/16	11/30/16		

Standard Information

Spike ID	DF Ax-A	DF Ax-B	DF ES	DF CS/SS	DIF JS		
SIL #	21163	15-175-2	2230	15-211-1	15-102-4		
Concentration	10ng/mL	10ng/mL	100ng/mL	40 ng/mL	100 ng/mL		
Expiration Date	11/16/17	9/29/17	11/2021	9/21/17	12/21/16		

SGS Environmental Services — Run Log **Project: A9435_14534_DF**

Instrument: HRMS3 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
1	161207C01	3	CS3_161207_DF_CA	1.00	SIL 15-104-2	ARL	621-299	07-Dec-2016	14:01:54
2	161207C02	71	OPR1_14534_DF-RJ	1.00	0_14534_OPR001	ARL	508-740	07-Dec-2016	15:01:30
3	161207C03	2	SBS_161207_DF_CA	1.00	SIL 15-49-1	ARL	091-427	07-Dec-2016	15:58:54
4	161207C04	72	MB1_14534_DF_SDS	10.00	Method Blank	ARL	976-061	07-Dec-2016	16:49:15
6	161207C06	75	A9435_14534_DF_001	9.63	SB40-161110	ARL	163-511	07-Dec-2016	18:35:20
7	161207C07	77	A9435_14534_DF_003	9.50	SB24-161110	ARL	143-218	07-Dec-2016	19:27:33
8	161207C08	78	A9435_14534_DF_004	9.50	SB02-161111	ARL	123-078	07-Dec-2016	20:19:44
9	161207C09	79	A9435_14534_DF_005	9.66	SB01-161111	ARL	302-304	07-Dec-2016	21:11:50
10	161207C10	80	A9435_14534_DF_006	9.31	SB05-161111	ARL	835-640	07-Dec-2016	22:04:02
11	161207C11	3	CS3_161207_DF_CB	1.00	SIL 15-104-2	ARL	597-841	07-Dec-2016	22:56:14
1	161208C01	3	CS3_161208_DF_CA	1.00	SIL 15-104-2	ARL	453-748	08-Dec-2016	10:45:50
3	161208C03	71	OPR1_14534_DF-RJ3	1.00	0_14534_OPR001	ARL	854-187	08-Dec-2016	12:43:10
4	161208C04	2	SBS_161208_DF_CA	1.00	SIL 15-49-1	ARL	323-407	08-Dec-2016	13:34:30
5	161208C05	72	MB1_14534_DF_SDS-CU	10.00	Method Blank	ARL	350-671	08-Dec-2016	14:25:44
7	161208C07	76	A9435_14534_DF_002-D2-CU	10.21	SB23-161110	ARL	127-589	08-Dec-2016	16:10:42
8	161208C08	3	CS3_161208_DF_CB	1.00	SIL 15-104-2	ARL	976-099	08-Dec-2016	17:10:47

REVIEWED
By Amber Kornegay at 9:47 am, Dec 12, 2016

REVIEWED
By Autumn Lindquist at 12:02 pm, Dec 09, 2016

Project file: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF.utp_prj, saved 09-Dec-2016 12:00
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951

Printed: 09-Dec-2016 12:00

Lab ID: MB1_14534_DF_SDS | Acq'd: 07 Dec 2016 16:49 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9435_14534 | UTP: 09-Dec-2016 11:29:01 ARL | J-level: 0.5 pg/g | Split: 1 | Checkcode: 976-061-RVZ

Datafile: 161207C04 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	2961	0.166

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.00	1.0263	1.0264	+0.2	3.22E+07	0.80	Y	1.06	82.5

Lab ID: MB1_14534_DF_SDS | Acq'd: 07 Dec 2016 16:49 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9435_14534 | UTP: 09-Dec-2016 11:29:01 ARL | J-level: 0.5 pg/g | Split: 1 | Checkcode: 976-061-RVZ

Datafile: 161207C04 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.31		-	-	-	3.67E+07	0.81	Y	-	-
JS 123467-HxCDD	37.10		-	-	-	1.44E+07	1.25	Y	-	-
CS 37Cl-2378-TCDD	27.03		1.0272	1.0273	+0.2	1.50E+07	n/a	-	1.24	82.2

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: MB1_14534_DF_SDS | **Sample ID: Method Blank** | **Acq: 07-Dec-2016 16:49:15**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 161207C04**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\MB1_14534_DF_SDS.utp_res, saved 09-Dec-2016 11:29 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 1013, 6023, 6270 scc: 976-061 *Revised: 09-Dec-2016 11:25 (ARL) Printed: 09-Dec-2016 11:30 Page 1 of 1*

Lab ID: MB1_14534_DF_SDS-CU | Acq'd: 08 Dec 2016 14:25 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9435_14534 | UTP: 09-Dec-2016 11:29:11 ARL | J-level: 0.5 pg/g | Split: 1 | Checkcode: 350-671-TCP

Datafile: 161208C05 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	3175	0.142

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.01	1.0263	1.0265	+0.3	4.15E+07	0.79	Y	1.06	81.9

Lab ID: MB1_14534_DF_SDS-CU | Acq'd: 08 Dec 2016 14:25 ARL | Wt/Vol: 10.00 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: Method Blank A9435_14534 | UTP: 09-Dec-2016 11:29:11 ARL | J-level: 0.5 pg/g | Split: 1 | Checkcode: 350-671-TCP

Datafile: 161208C05 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.31		-	-	-	4.77E+07	0.81	Y	-	-
JS 123467-HxCDD	37.13		-	-	-	1.76E+07	1.27	Y	-	-
CS 37Cl-2378-TCDD	27.03		1.0272	1.0274	+0.3	1.93E+07	n/a	-	1.24	81.4

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: MB1_14534_DF_SDS-CU | **Sample ID: Method Blank** | **Acq: 08-Dec-2016 14:25:44**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 161208C05**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\MB1_14534_DF_SDS-CU.utp_res, saved 09-Dec-2016 11:29 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 8194, 2774, 2098 scc: 350-671 *PKD: 09-Dec-2016 11:21 Printed: 09-Dec-2016 11:31 Page 1 of 1*

Lab ID: A9435_14534_DF_001 | Acq'd: 07 Dec 2016 18:35 ARL | Wt/Vol: 9.63 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB40-161110 | UTP: 09-Dec-2016 11:29:02 ARL | J-level: 0.519 pg/g | Split: 1 | Checkcode: 163-511-RBK

Datafile: 161207C06 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	3854	0.297

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.00	1.0263	1.0265	+0.3	2.52E+07	0.80	Y	1.06	81.7

Lab ID: A9435_14534_DF_001 | Acq'd: 07 Dec 2016 18:35 ARL | Wt/Vol: 9.63 g | ICAL: HRMS3_DF_12212015_06JAN2016

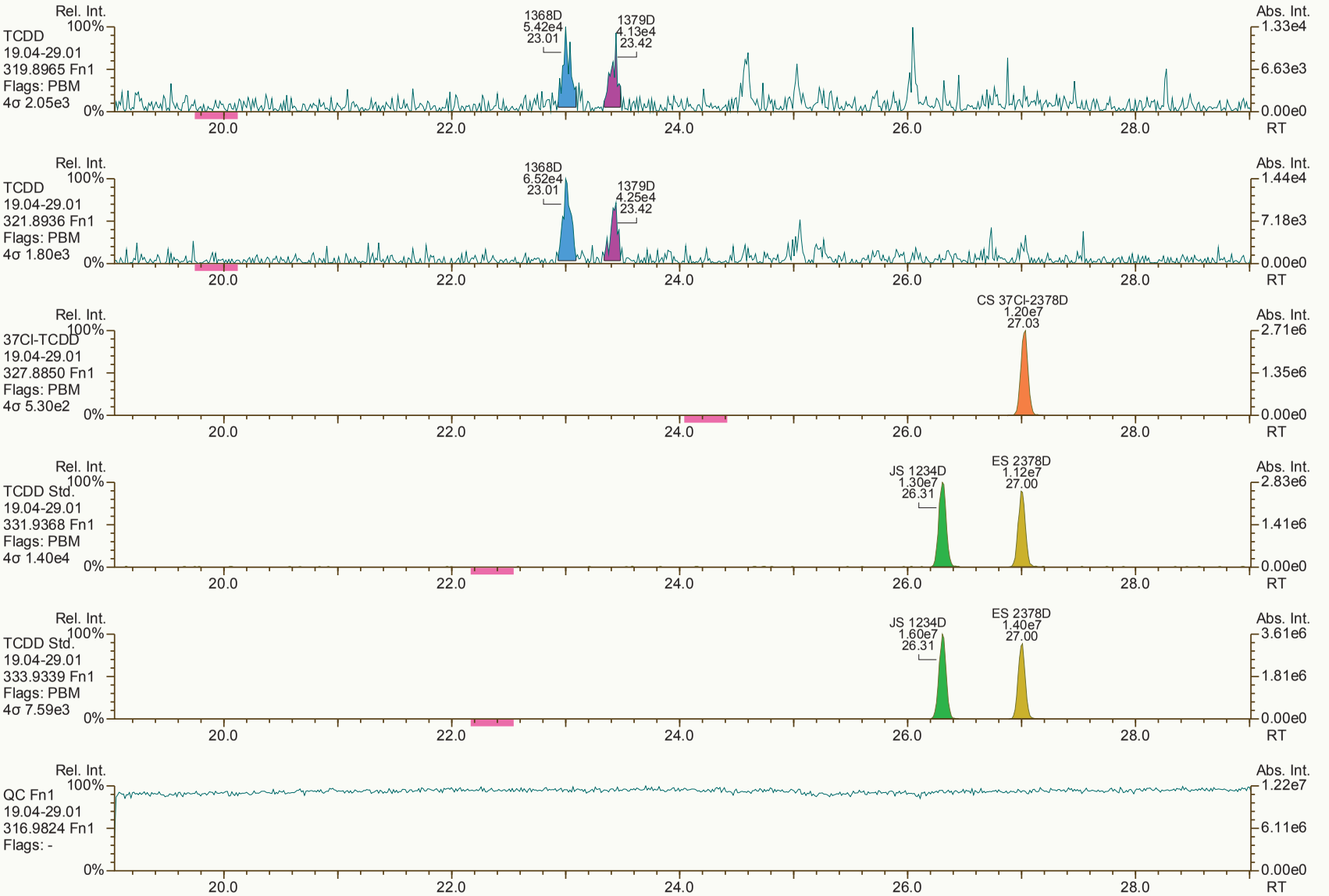
Client ID: SB40-161110 | UTP: 09-Dec-2016 11:29:02 ARL | J-level: 0.519 pg/g | Split: 1 | Checkcode: 163-511-RBK

Datafile: 161207C06 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.31		-	-	-	2.90E+07	0.81	Y	-	-
JS 123467-HxCDD	37.10		-	-	-	1.00E+07	1.25	Y	-	-
CS 37Cl-2378-TCDD	27.03		1.0272	1.0273	+0.2	1.20E+07	n/a	-	1.24	83.3

Totals	Conc	EMPC
Total TCDD	0.829	1.35

SGS ID: A9435_14534_DF_001 | **Sample ID: SB40-161110** | **Acq: 07-Dec-2016 18:35:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 161207C06**



Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF_001.utp_res, saved 09-Dec-2016 11:29 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 8981, 4164, 5625 scc: 163-511 | *PKD: 09-Dec-2016 11:14 Printed: 09-Dec-2016 11:30 Page 1 of 1*

Lab ID: A9435_14534_DF_002-D2-CU | Acq'd: 08 Dec 2016 16:10 ARL | Wt/Vol: 10.21 g | ICAL: HRMS3_DF_12212015_06JAN2016
Client ID: SB23-161110 | UTP: 09-Dec-2016 11:29:12 ARL | J-level: 0.49 pg/g | Split: 1 | Checkcode: 127-589-XTM
Datafile: 161208C07 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	3822	0.319

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.01	1.0263	1.0264	+0.2	2.13E+07	0.81	Y	1.06	87.9

Lab ID: A9435_14534_DF_002-D2-CU | Acq'd: 08 Dec 2016 16:10 ARL | Wt/Vol: 10.21 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB23-161110 | UTP: 09-Dec-2016 11:29:12 ARL | J-level: 0.49 pg/g | Split: 1 | Checkcode: 127-589-XTM

Datafile: 161208C07 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.31		-	-	-	2.27E+07	0.83	Y	-	-
JS 123467-HxCDD	37.12		-	-	-	7.82E+06	1.23	Y	-	-
CS 37Cl-2378-TCDD	27.03		1.0272	1.0273	+0.2	9.00E+06	n/a	-	1.24	79.7

Totals	Conc	EMPC
Total TCDD	0	0

SGS ID: A9435_14534_DF_002-D2-CU **Sample ID: SB23-161110** **Acq: 08-Dec-2016 16:10:42**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** **User: ARL Datafile: 161208C07**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF_002-D2-CU.utp_res, saved 09-Dec-2016 11:29 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 6826, 9679, 4077 scc: 127-589 *PKD: 09-Dec-2016 11:22 Printed: 09-Dec-2016 11:31 Page 1 of 1*

Lab ID: A9435_14534_DF_003 | Acq'd: 07 Dec 2016 19:27 ARL | Wt/Vol: 9.50 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB24-161110 | UTP: 09-Dec-2016 11:29:03 ARL | J-level: 0.526 pg/g | Split: 1 | Checkcode: 143-218-JSX

Datafile: 161207C07 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	NotFnd		1.0009	-		-	-	-	1.19	-	3798	0.295

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.00	1.0263	1.0265	+0.3	2.65E+07	0.81	Y	1.06	83.4

Lab ID: A9435_14534_DF_003 | Acq'd: 07 Dec 2016 19:27 ARL | Wt/Vol: 9.50 g | ICAL: HRMS3_DF_12212015_06JAN2016
Client ID: SB24-161110 | UTP: 09-Dec-2016 11:29:03 ARL | J-level: 0.526 pg/g | Split: 1 | Checkcode: 143-218-JSX
Datafile: 161207C07 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.30		-	-	-	2.99E+07	0.80	Y	-	-
JS 123467-HxCDD	37.11		-	-	-	1.05E+07	1.30	Y	-	-
CS 37Cl-2378-TCDD	27.02		1.0272	1.0274	+0.3	1.16E+07	n/a	-	1.24	78.4

Totals	Conc	EMPC
Total TCDD	0.573	1.39

SGS ID: A9435_14534_DF_003 | **Sample ID: SB24-161110** | **Acq: 07-Dec-2016 19:27:33**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 161207C07**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF_003.utp_res, saved 09-Dec-2016 11:29 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 8056, 3739, 4282 scc: 143-218 *Revised: 09-Dec-2016 11:26 (ARL) Printed: 09-Dec-2016 11:30 Page 1 of 1*

Lab ID: A9435_14534_DF_004 | Acq'd: 07 Dec 2016 20:19 ARL | Wt/Vol: 9.50 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB02-161111 | UTP: 09-Dec-2016 11:29:04 ARL | J-level: 0.526 pg/g | Split: 1 | Checkcode: 123-078-QTM

Datafile: 161207C08 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.04		1.0009	1.0009	0	5.87E+05	0.75	Y	1.19	4.18	3419	0.253

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.02	1.0263	1.0263	0	2.49E+07	0.81	Y	1.06	86.8

Lab ID: A9435_14534_DF_004 | Acq'd: 07 Dec 2016 20:19 ARL | Wt/Vol: 9.50 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB02-161111 | UTP: 09-Dec-2016 11:29:04 ARL | J-level: 0.526 pg/g | Split: 1 | Checkcode: 123-078-QTM

Datafile: 161207C08 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.32		-	-	-	2.70E+07	0.79	Y	-	-
JS 123467-HxCDD	37.11		-	-	-	9.64E+06	1.21	Y	-	-
CS 37Cl-2378-TCDD	27.04		1.0272	1.0272	0	1.14E+07	n/a	-	1.24	85.1

Totals	Conc	EMPC
Total TCDD	8.94	8.94

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.74	0.75
Response	5.94E+05	5.87E+05

SGS ID: A9435_14534_DF_004 | **Sample ID: SB02-161111** | **Acq: 07-Dec-2016 20:19:44**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 161207C08**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF_004.utp_res, saved 09-Dec-2016 11:29 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 6067, 8081, 0009 scc: 123-078 | *PKD: 09-Dec-2016 11:26 Printed: 09-Dec-2016 11:30 Page 1 of 1*

Lab ID: A9435_14534_DF_005 | Acq'd: 07 Dec 2016 21:11 ARL | Wt/Vol: 9.66 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB01-161111 | UTP: 09-Dec-2016 11:29:05 ARL | J-level: 0.517 pg/g | Split: 1 | Checkcode: 302-304-YYF

Datafile: 161207C09 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.03	J EMPC	1.0009	1.0010	+0.2	6.19E+04	0.92	N	1.19	0.398	3385	0.228

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.01	1.0263	1.0263	0	2.71E+07	0.80	Y	1.06	82.3

Lab ID: A9435_14534_DF_005 | Acq'd: 07 Dec 2016 21:11 ARL | Wt/Vol: 9.66 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB01-161111 | UTP: 09-Dec-2016 11:29:05 ARL | J-level: 0.517 pg/g | Split: 1 | Checkcode: 302-304-YYF

Datafile: 161207C09 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.32		-	-	-	3.10E+07	0.81	Y	-	-
JS 123467-HxCDD	37.10		-	-	-	1.09E+07	1.26	Y	-	-
CS 37Cl-2378-TCDD	27.03		1.0272	1.0272	0	1.27E+07	n/a	-	1.24	82.5

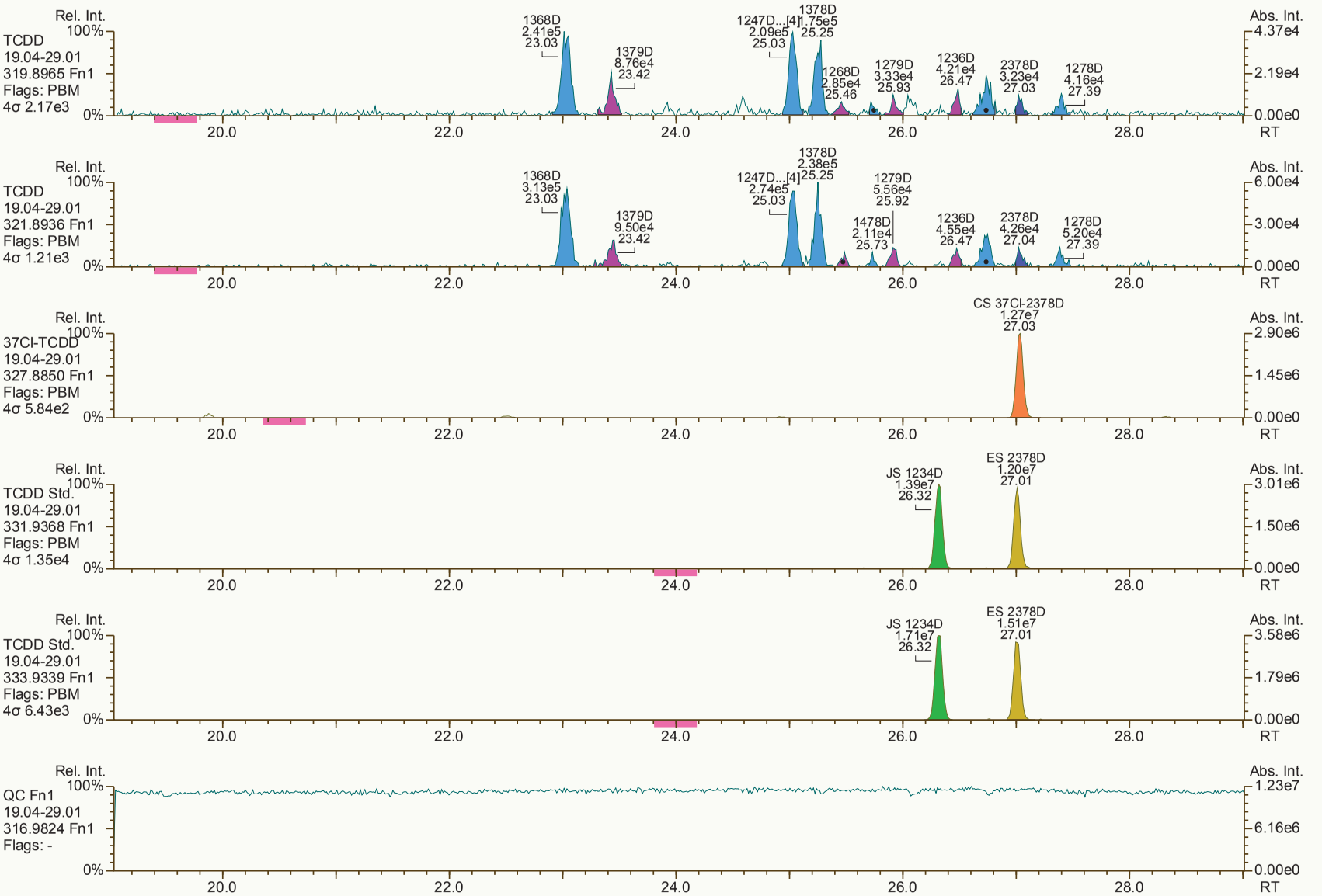
Totals	Conc	EMPC
Total TCDD	11.6	14.5

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.76	0.92
Response	7.49E+04	6.73E+04

SGS ID: A9435_14534_DF_005 | **Sample ID: SB01-161111** | **Acq: 07-Dec-2016 21:11:50**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 79** | **User: ARL Datafile: 161207C09**



Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF_005.utp_res, saved 09-Dec-2016 11:29 (ARL)

Peak annotation: Areas, Centroids

SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 2135, 7283, 1913 scc: 302-304

PKD: 09-Dec-2016 11:18 Printed: 09-Dec-2016 11:30 Page 1 of 1

Lab ID: A9435_14534_DF_006 | Acq'd: 07 Dec 2016 22:04 ARL | Wt/Vol: 9.31 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB05-161111 | UTP: 09-Dec-2016 11:29:07 ARL | J-level: 0.537 pg/g | Split: 1 | Checkcode: 835-640-BBQ

Datafile: 161207C10 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.04	J EMPC	1.0009	1.0012	+0.5	4.19E+04	1.34	N	1.19	0.179	4008	0.188

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.01	1.0263	1.0264	+0.2	4.24E+07	0.82	Y	1.06	87.8

Lab ID: A9435_14534_DF_006 | Acq'd: 07 Dec 2016 22:04 ARL | Wt/Vol: 9.31 g | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: SB05-161111 | UTP: 09-Dec-2016 11:29:07 ARL | J-level: 0.537 pg/g | Split: 1 | Checkcode: 835-640-BBQ

Datafile: 161207C10 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 2000 ES: 2000 CS/SS: 2000, 800 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.32		-	-	-	4.54E+07	0.78	Y	-	-
JS 123467-HxCDD	37.11		-	-	-	1.84E+07	1.28	Y	-	-
CS 37Cl-2378-TCDD	27.03		1.0272	1.0273	+0.2	1.99E+07	n/a	-	1.24	88.3

Totals	Conc	EMPC
Total TCDD	4.27	5.64

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.89	1.34
Response	6.74E+04	5.54E+04

SGS ID: A9435_14534_DF_006 | **Sample ID: SB05-161111** | **Acq: 07-Dec-2016 22:04:02**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 80** | **User: ARL Datafile: 161207C10**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF_006.utp_res, saved 09-Dec-2016 11:29 (ARL)

Peak annotation: Areas, Centroids

SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 4002, 3280, 2771 scc: 835-640

PKD: 09-Dec-2016 11:19 Printed: 09-Dec-2016 11:30 Page 1 of 1

SGS Environmental Services — Run Log **Project: A9435_14534_DF**

Instrument: HRMS3 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
1	161207C01	3	CS3_161207_DF_CA	1.00	SIL 15-104-2	ARL	621-299	07-Dec-2016	14:01:54
2	161207C02	71	OPR1_14534_DF-RJ	1.00	0_14534_OPR001	ARL	508-740	07-Dec-2016	15:01:30
3	161207C03	2	SBS_161207_DF_CA	1.00	SIL 15-49-1	ARL	091-427	07-Dec-2016	15:58:54
4	161207C04	72	MB1_14534_DF_SDS	10.00	Method Blank	ARL	976-061	07-Dec-2016	16:49:15
6	161207C06	75	A9435_14534_DF_001	9.63	SB40-161110	ARL	163-511	07-Dec-2016	18:35:20
7	161207C07	77	A9435_14534_DF_003	9.50	SB24-161110	ARL	143-218	07-Dec-2016	19:27:33
8	161207C08	78	A9435_14534_DF_004	9.50	SB02-161111	ARL	123-078	07-Dec-2016	20:19:44
9	161207C09	79	A9435_14534_DF_005	9.66	SB01-161111	ARL	302-304	07-Dec-2016	21:11:50
10	161207C10	80	A9435_14534_DF_006	9.31	SB05-161111	ARL	835-640	07-Dec-2016	22:04:02
11	161207C11	3	CS3_161207_DF_CB	1.00	SIL 15-104-2	ARL	597-841	07-Dec-2016	22:56:14
1	161208C01	3	CS3_161208_DF_CA	1.00	SIL 15-104-2	ARL	453-748	08-Dec-2016	10:45:50
3	161208C03	71	OPR1_14534_DF-RJ3	1.00	0_14534_OPR001	ARL	854-187	08-Dec-2016	12:43:10
4	161208C04	2	SBS_161208_DF_CA	1.00	SIL 15-49-1	ARL	323-407	08-Dec-2016	13:34:30
5	161208C05	72	MB1_14534_DF_SDS-CU	10.00	Method Blank	ARL	350-671	08-Dec-2016	14:25:44
7	161208C07	76	A9435_14534_DF_002-D2-CU	10.21	SB23-161110	ARL	127-589	08-Dec-2016	16:10:42
8	161208C08	3	CS3_161208_DF_CB	1.00	SIL 15-104-2	ARL	976-099	08-Dec-2016	17:10:47

2nd OPR ran as CPSM
AK 12 Dec 16

REVIEWED
By Amber Kornegay at 9:33 am, Dec 12, 2016

REVIEWED
By Autumn Lindquist at 12:02 pm, Dec 09, 2016

Project file: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\A9435_14534_DF.utp_prj, saved 09-Dec-2016 12:00
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951

Printed: 09-Dec-2016 12:00

Dioxin/Furan QC Summary | **Acq'd: 07 Dec 2016 14:01 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161207_DF_CA | **UTP: 09-Dec-2016 11:28:59 ARL** | **Checkcode: 621-299-LPC**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161207C01**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.03	5.20E+06	0.78	Y	1.19	1.11	-6%
ES 2378-TCDD	27.01	4.68E+07	0.82	Y	1.06	1.02	-4%

Dioxin/Furan QC Summary | **Acq'd: 07 Dec 2016 14:01 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161207_DF_CA | **UTP: 09-Dec-2016 11:28:59 ARL** | **Checkcode: 621-299-LPC**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161207C01**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.32	4.59E+07	0.79	Y	-	-	-
CS 37Cl-2378-TCDD	27.03	5.28E+06	n/a	-	1.24	1.15	-7%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161207C01 Analysis Date: 07-DEC-2016 14:01:54

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.78	0.65 - 0.89	Y	9.35	8 - 12	Y

Processed: 09 Dec 2016 11:45 Analyst: al

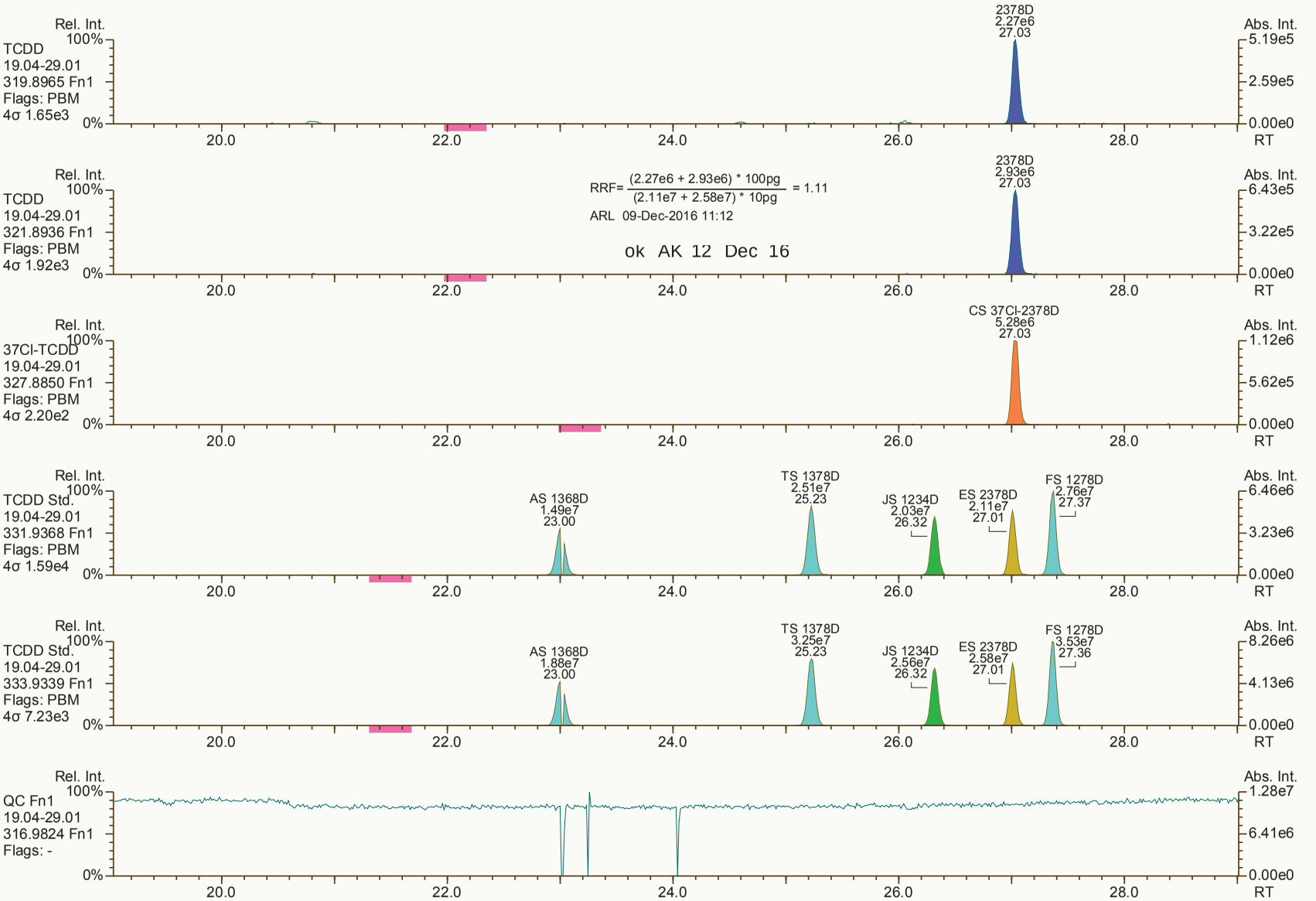
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161207C01 Analysis Date: 07-DEC-2016 14:01:54

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.82	0.65 - 0.89	Y	96	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.26	7.9 - 12.7	Y

Processed: 09 Dec 2016 11:45 Analyst: al

SGS ID: CS3_161207_DF_CA | **Sample ID: SIL 15-104-2** | **Acq: 07-Dec-2016 14:01:54**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161207C01**



Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\CS3_161207_DF_CA.utp_res, saved 09-Dec-2016 11:28 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 4210, 0507, 2156 scc: 621-299 *PKD: 08-Dec-2016 10:20 Printed: 09-Dec-2016 11:30 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 07 Dec 2016 22:56 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161207_DF_CB | **UTP: 09-Dec-2016 11:29:08 ARL** | **Checkcode: 597-841-ZFD**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161207C11**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.03	4.65E+06	0.80	Y	1.19	1.05	-11%
ES 2378-TCDD	27.00	4.41E+07	0.81	Y	1.06	1.06	0%

Dioxin/Furan QC Summary | **Acq'd: 07 Dec 2016 22:56 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161207_DF_CB | **UTP: 09-Dec-2016 11:29:08 ARL** | **Checkcode: 597-841-ZFD**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161207C11**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.31	4.17E+07	0.80	Y	-	-	-
CS 37Cl-2378-TCDD	27.02	4.69E+06	n/a	-	1.24	1.13	-9%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161207C11 Analysis Date: 07-DEC-2016 22:56:14

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.80	0.65 - 0.89	Y	8.88	8 - 12	Y

Processed: 09 Dec 2016 11:44 Analyst: al

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161207C11 Analysis Date: 07-DEC-2016 22:56:14

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.81	0.65 - 0.89	Y	99.5	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.08	7.9 - 12.7	Y

Processed: 09 Dec 2016 11:44 Analyst: al

SGS ID: CS3_161207_DF_CB | **Sample ID: SIL 15-104-2** | **Acq: 07-Dec-2016 22:56:14**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161207C11**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\CS3_161207_DF_CB.utp_res, saved 09-Dec-2016 11:29 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 4090, 7752, 7184 scc: 597-841 | *PKD: 08-Dec-2016 10:22 Printed: 09-Dec-2016 11:31 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 08 Dec 2016 10:45 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161208_DF_CA | **UTP: 09-Dec-2016 11:29:09 ARL** | **Checkcode: 453-748-LLP**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161208C01**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.04	4.88E+06	0.75	Y	1.19	1.10	-7%
ES 2378-TCDD	27.01	4.44E+07	0.80	Y	1.06	1.04	-2%

Dioxin/Furan QC Summary | **Acq'd: 08 Dec 2016 10:45 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161208_DF_CA | **UTP: 09-Dec-2016 11:29:09 ARL** | **Checkcode: 453-748-LLP**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161208C01**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.32	4.27E+07	0.82	Y	-	-	-
CS 37Cl-2378-TCDD	27.04	4.82E+06	n/a	-	1.24	1.13	-9%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161208C01 Analysis Date: 08-DEC-2016 10:45:50

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.75	0.65 - 0.89	Y	9.28	8 - 12	Y

Processed: 09 Dec 2016 11:44 Analyst: al

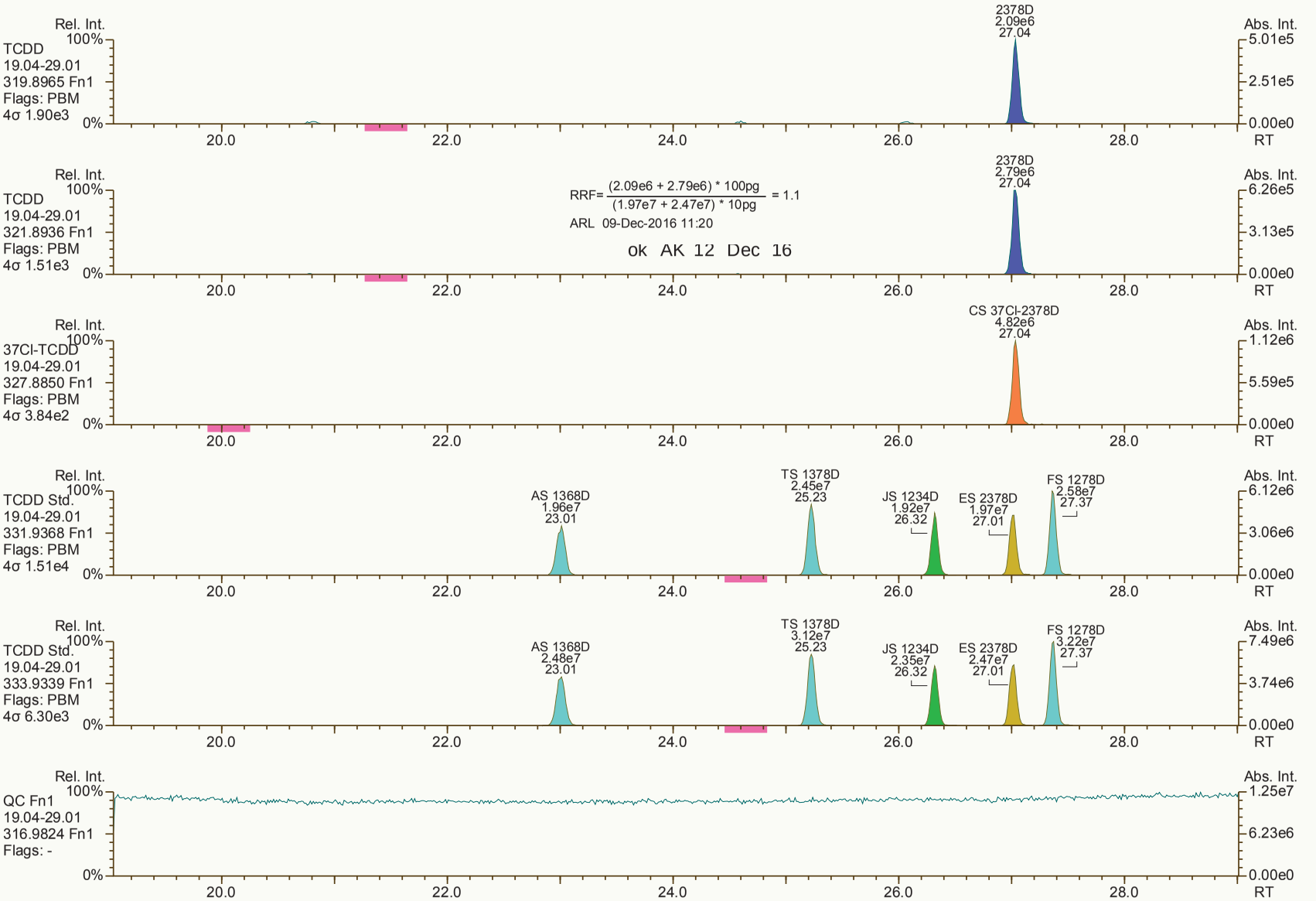
METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161208C01 Analysis Date: 08-DEC-2016 10:45:50

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65 - 0.89	Y	97.7	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				9.09	7.9 - 12.7	Y

Processed: 09 Dec 2016 11:44 Analyst: al

SGS ID: CS3_161208_DF_CA | **Sample ID: SIL 15-104-2** | **Acq: 08-Dec-2016 10:45:50**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161208C01**



Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\CS3_161208_DF_CA.utp_res, saved 09-Dec-2016 11:29 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 9825, 8275, 6257 scc: 453-748 *PKD: 09-Dec-2016 11:19 Printed: 09-Dec-2016 11:31 Page 1 of 1*

Dioxin/Furan QC Summary | **Acq'd: 08 Dec 2016 17:10 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161208_DF_CB | **UTP: 09-Dec-2016 11:29:14 ARL** | **Checkcode: 976-099-VXL**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161208C08**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	27.04	4.71E+06	0.80	Y	1.19	1.10	-7%
ES 2378-TCDD	27.02	4.26E+07	0.79	Y	1.06	0.95	-11%

Dioxin/Furan QC Summary | **Acq'd: 08 Dec 2016 17:10 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_161208_DF_CB | **UTP: 09-Dec-2016 11:29:14 ARL** | **Checkcode: 976-099-VXL**

Sample ID: SIL 15-104-2 | **Report: 09 Dec 2016 11:44 al** | **Datafile: 161208C08**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	26.33	4.49E+07	0.79	Y	-	-	-
CS 37Cl-2378-TCDD	27.04	4.53E+06	n/a	-	1.24	1.01	-19%

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4A**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161208C08 Analysis Date: 08-DEC-2016 17:10:47

NATIVE ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	M/M+2	0.80	0.65 - 0.89	Y	9.31	8 - 12	Y

Processed: 09 Dec 2016 11:44 Analyst: al

METHOD 8290A **PCDD/F CALIBRATION VERIFICATION** **FORM 4B**

Lab Name: SGS North America
Initial Calibration: ICAL: HRMS3_DF_12212015_06JAN2016
Instrument ID: HRMS3 GC Column ID: ZB-5ms
VER Data Filename: 161208C08 Analysis Date: 08-DEC-2016 17:10:47

LABELED ANALYTES	M/Z's FORMING RATIO	ION ABUND. RATIO	QC LIMITS	OK	CONC. FOUND	RANGE (ng/mL)	OK
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65 - 0.89	Y	89.4	70 - 130	Y
CLEANUP STANDARDS							
37Cl-2,3,7,8-TCDD	n/a				8.13	7.9 - 12.7	Y

Processed: 09 Dec 2016 11:44 Analyst: al

SGS ID: CS3_161208_DF_CB | **Sample ID: SIL 15-104-2** | **Acq: 08-Dec-2016 17:10:47**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 3** | **User: ARL Datafile: 161208C08**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\CS3_161208_DF_CB.utp_res, saved 09-Dec-2016 11:29 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 9063, 0584, 1724 scc: 976-099 *PKD: 09-Dec-2016 11:22 Printed: 09-Dec-2016 11:31 Page 1 of 1*

SGS ID: SBS_161207_DF_CA | **Sample ID: SIL 15-49-1** | **Acq: 07-Dec-2016 15:58:54**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 2** | **User: ARL Datafile: 161207C03**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\SBS_161207_DF_CA.utp_res, saved 09-Dec-2016 11:14 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 3743, 2219, 7125 scc: 091-427 *PKD: 08-Dec-2016 11:15 Printed: 09-Dec-2016 11:30 Page 1 of 1*

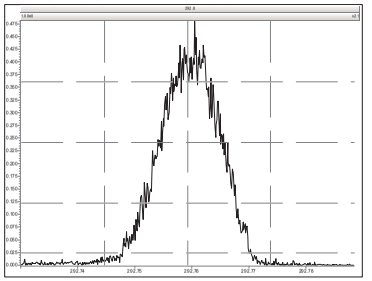
SGS ID: SBS_161208_DF_CA | **Sample ID: SIL 15-49-1** | **Acq: 08-Dec-2016 13:34:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 2** | **User: ARL Datafile: 161208C04**

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\SBS_161208_DF_CA.utp_res, saved 09-Dec-2016 11:15 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 6601, 5081, 5043 scc: 323-407 *PKD: 08-Dec-2016 15:56 Printed: 09-Dec-2016 11:31 Page 1 of 1*

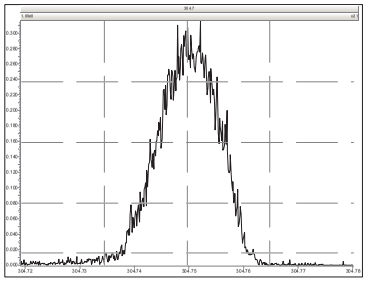
Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, December 07, 2016 14:01:48 Eastern Standard Time

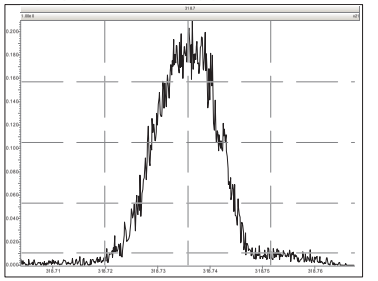
M 292.9824 R 13236



M 304.9824 R 12891



M 318.9792 R 12854



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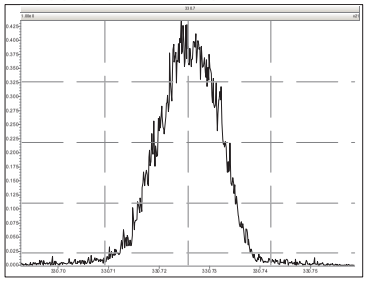
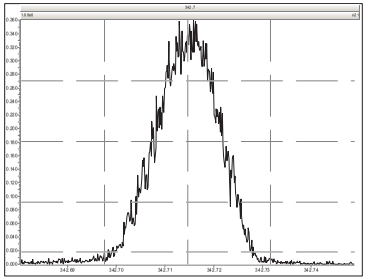
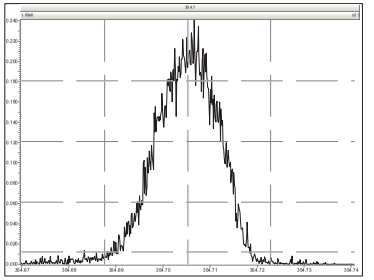


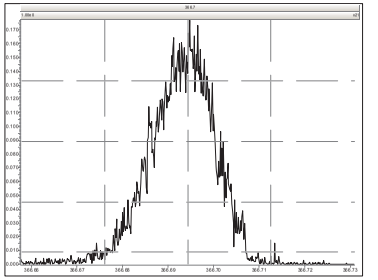
M 342.9792 R 12317



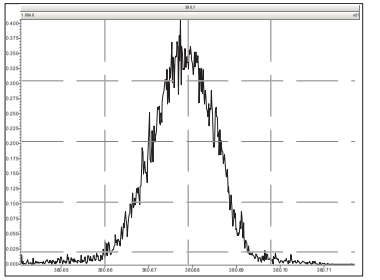
M 354.9792 R 12438



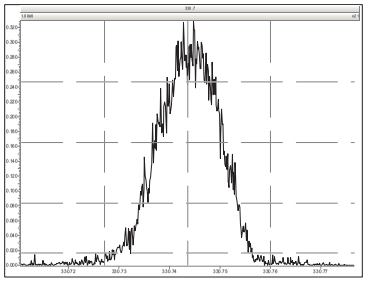
M 366.9792 R 12019



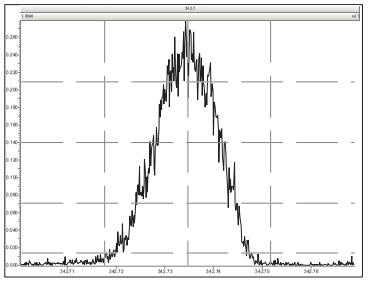
M 380.9760 R 12107



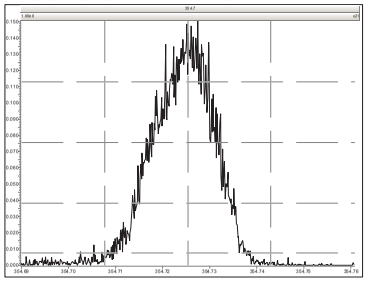
M 330.9792 R 12611



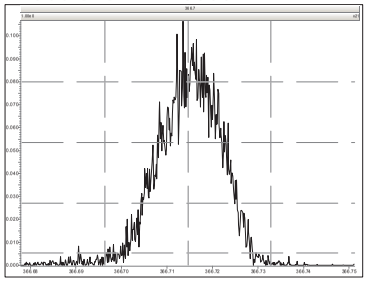
M 342.9792 R 12627



M 354.9792 R 12929



M 366.9792 R 13588



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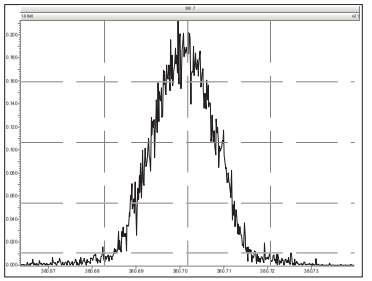
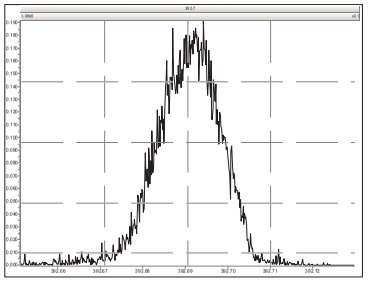
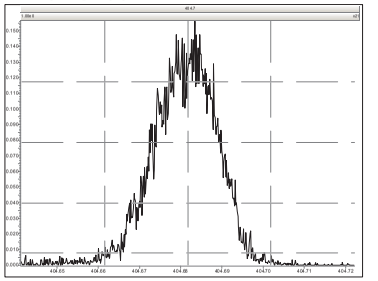
M 380.9760 R 12199



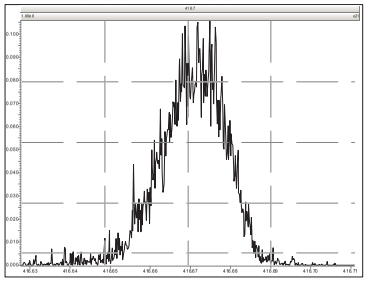
M 392.9760 R 12255



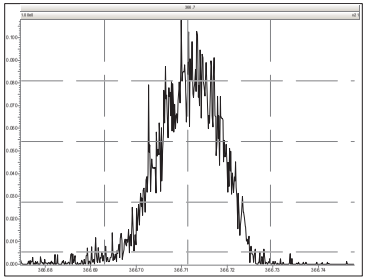
M 404.9760 R 12711



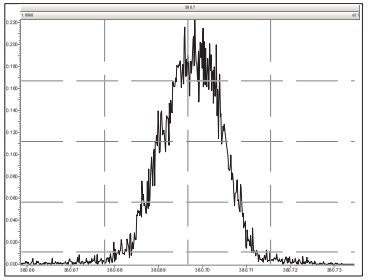
M 416.9760 R 12789



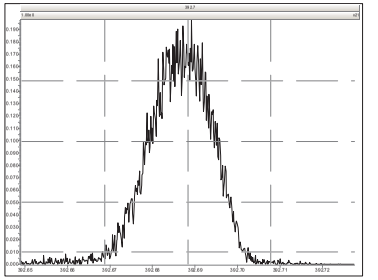
M 366.9792 R 13522



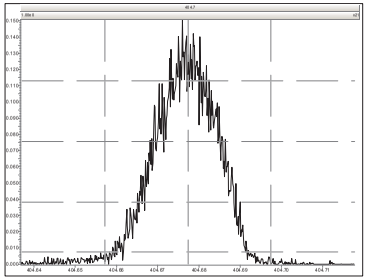
M 380.9760 R 13001



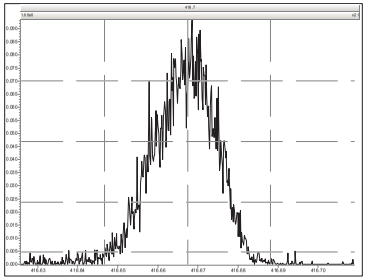
M 392.9760 R 12886



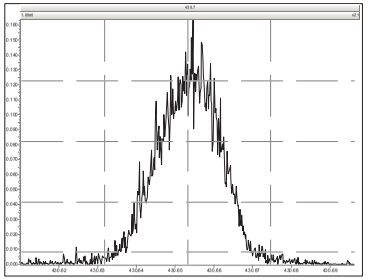
M 404.9760 R 12969



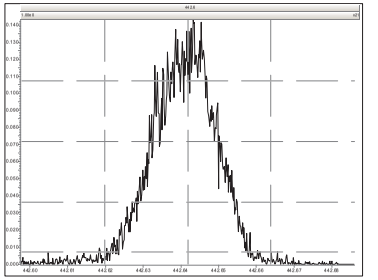
M 416.9760 R 13157



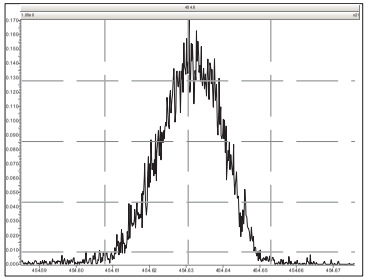
M 430.9728 R 12224



M 442.9728 R 12228



M 454.9728 R 12019



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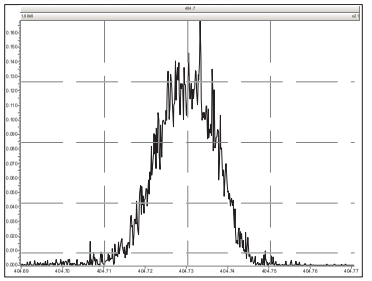
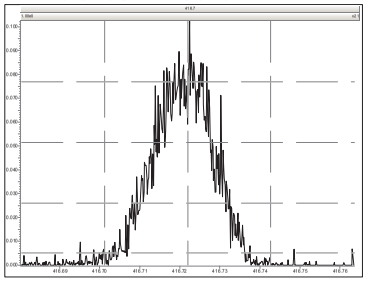
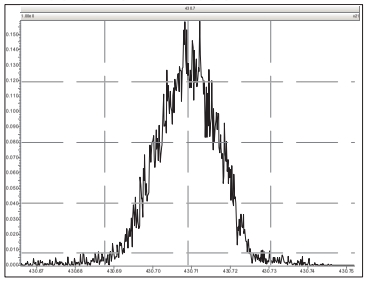
M 404.9760 R 12658



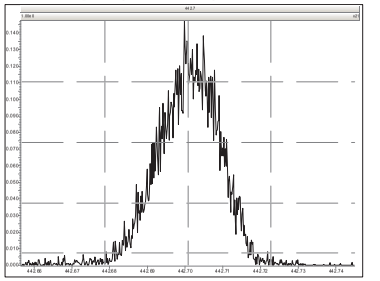
M 416.9760 R 13646



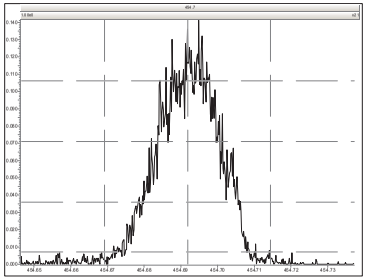
M 430.9728 R 12690



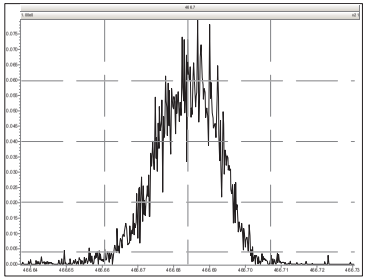
M 442.9728 R 12787



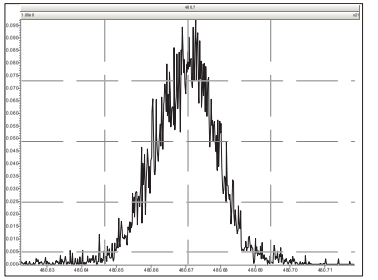
M 454.9728 R 13160



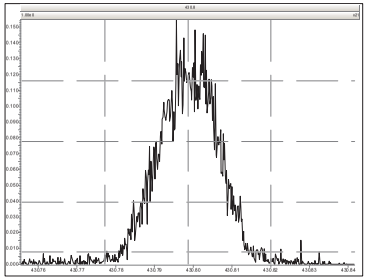
M 466.9728 R 13003



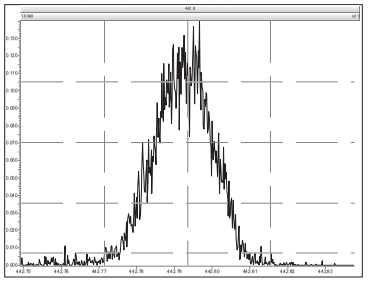
M 480.9696 R 12419



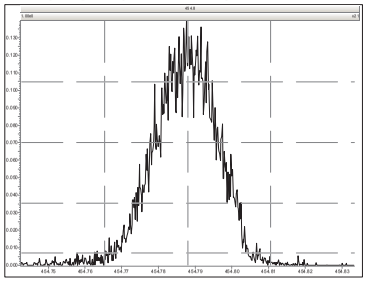
M 430.9728 R 13812



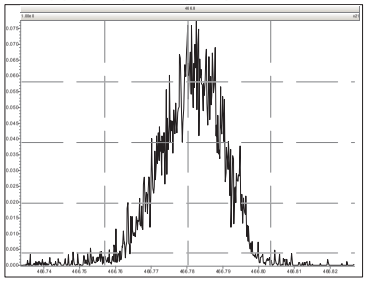
M 442.9728 R 13193



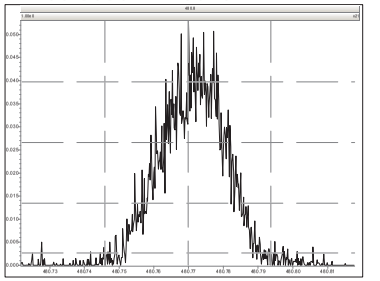
M 454.9728 R 12723



M 466.9728 R 13123



M 480.9696 R 13640



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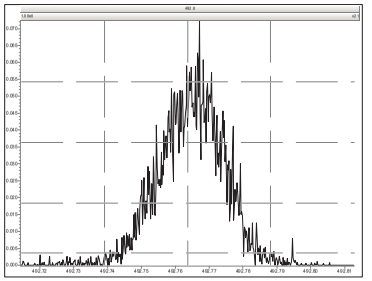
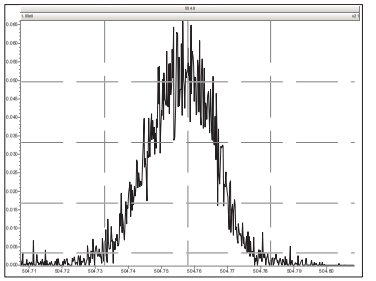
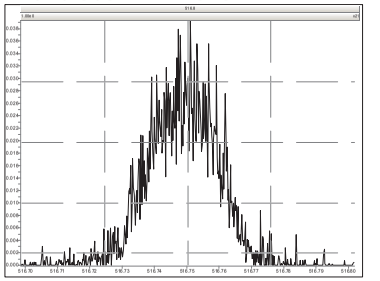
M 492.9696 R 12926



M 504.9696 R 11968



M 516.9697 R 12919



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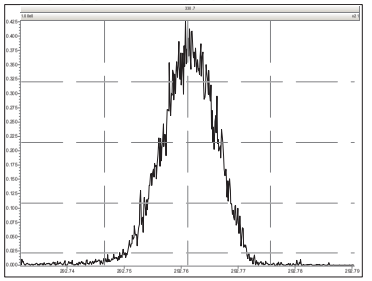
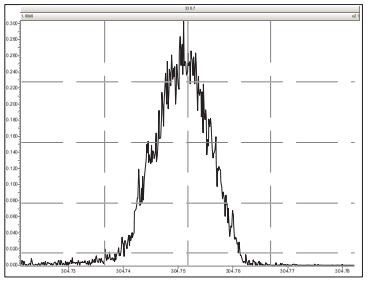
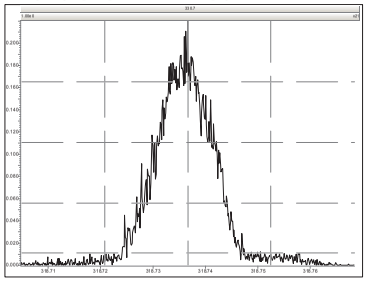
M 292.9824 R 13966



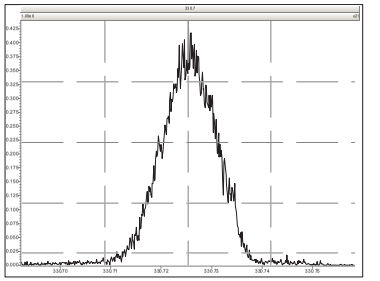
M 304.9824 R 14450



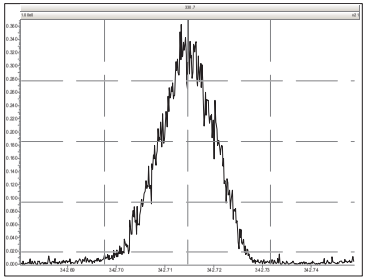
M 318.9792 R 14296



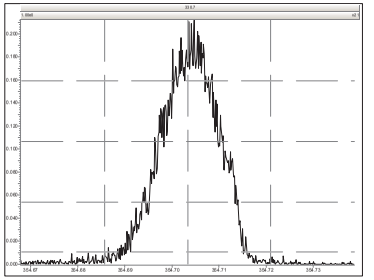
M 330.9792 R 14014



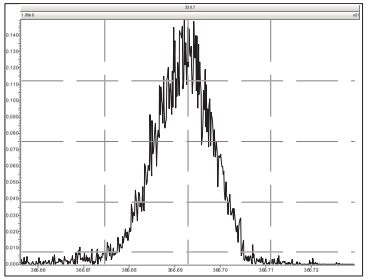
M 342.9792 R 13175



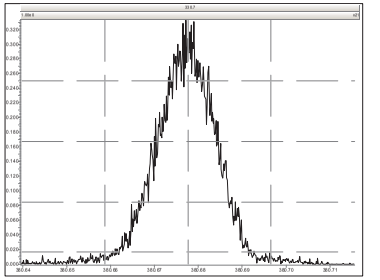
M 354.9792 R 13935



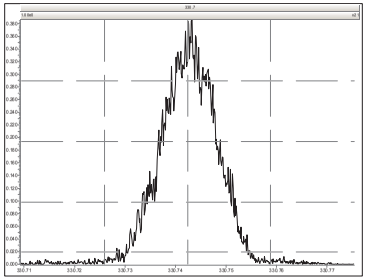
M 366.9792 R 13166



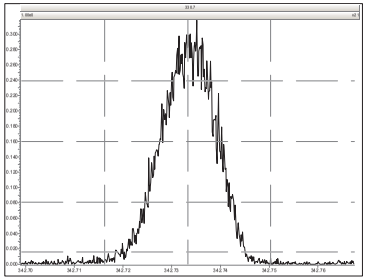
M 380.9760 R 12692



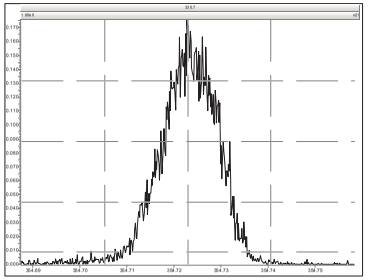
M 330.9792 R 14097



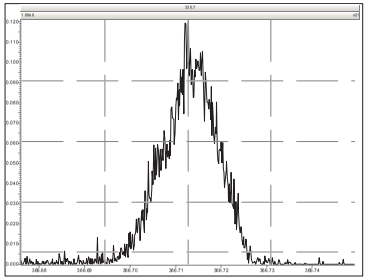
M 342.9792 R 13852



M 354.9792 R 14125



M 366.9792 R 13890



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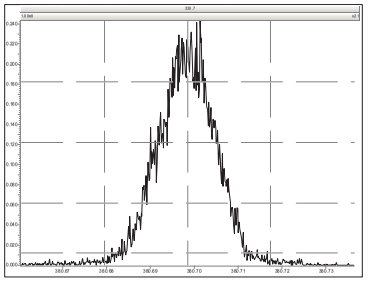
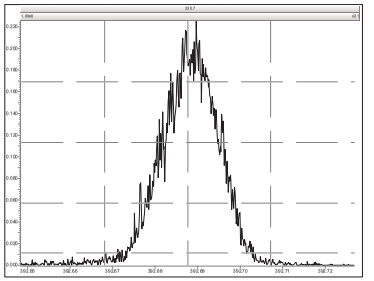
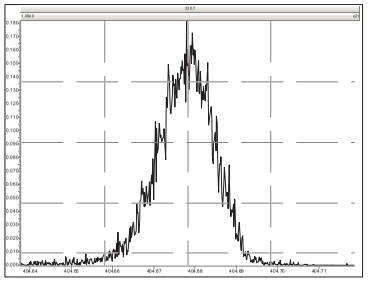
M 380.9760 R 13640



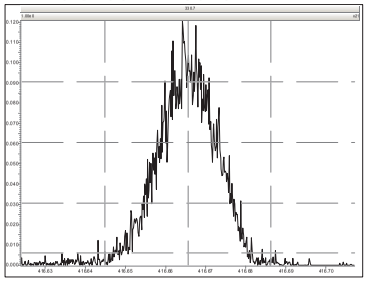
M 392.9760 R 13750



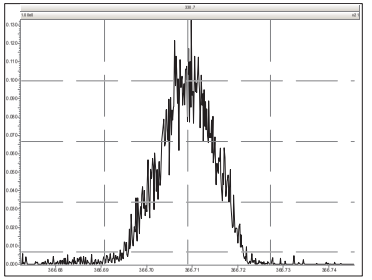
M 404.9760 R 13631



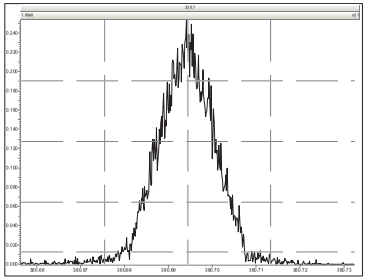
M 416.9760 R 13670



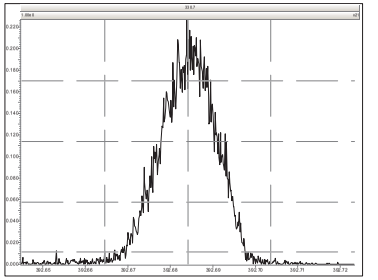
M 366.9792 R 14173



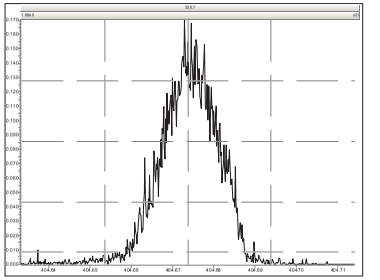
M 380.9760 R 14408



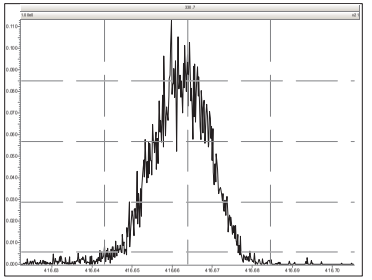
M 392.9760 R 14374



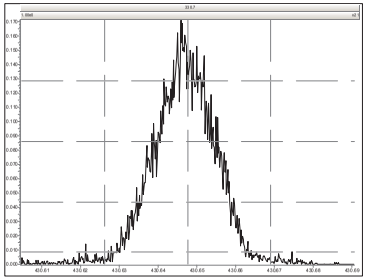
M 404.9760 R 14097



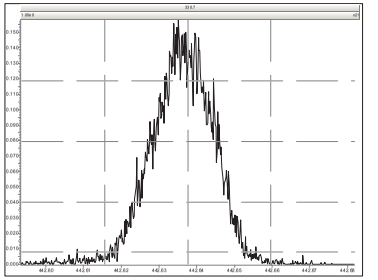
M 416.9760 R 14029



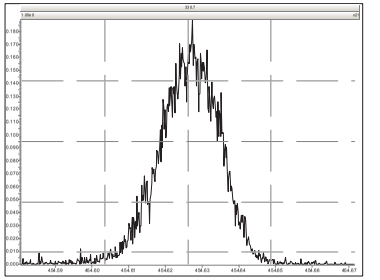
M 430.9728 R 12722



M 442.9728 R 13332



M 454.9728 R 12658



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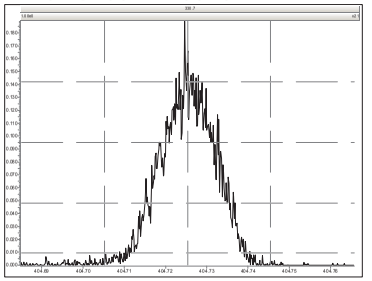
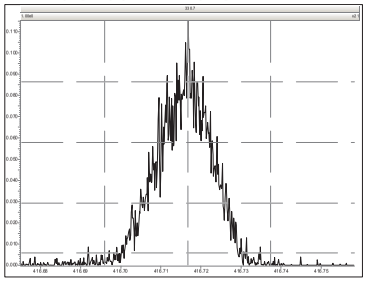
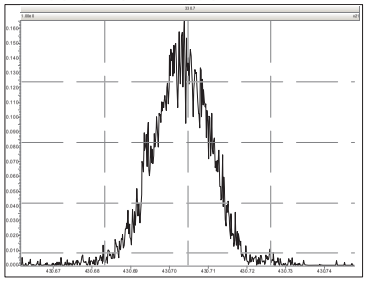
M 404.9760 R 13815



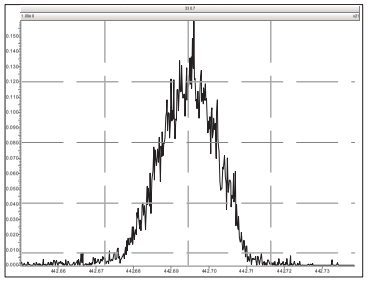
M 416.9760 R 14329



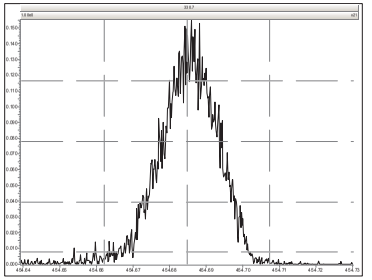
M 430.9728 R 13932



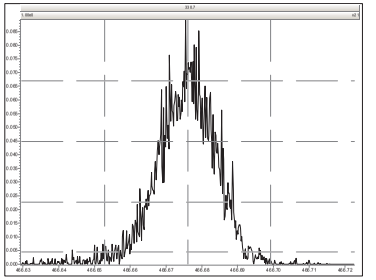
M 442.9728 R 13736



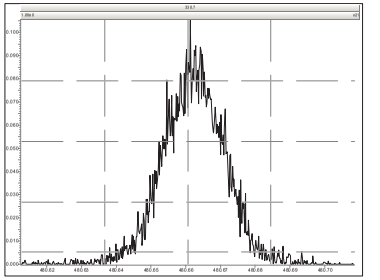
M 454.9728 R 13935



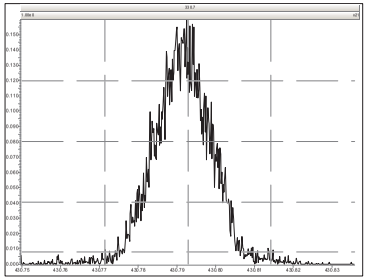
M 466.9728 R 13399



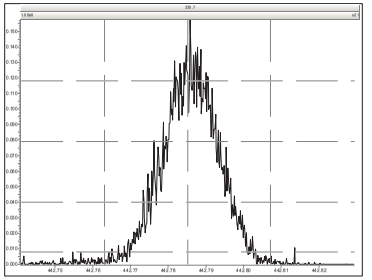
M 480.9696 R 13654



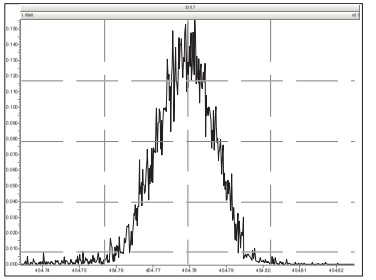
M 430.9728 R 14046



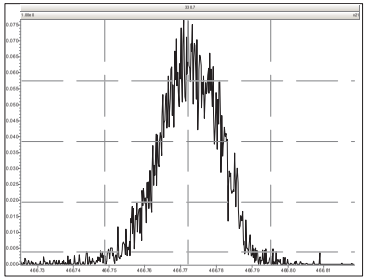
M 442.9728 R 14204



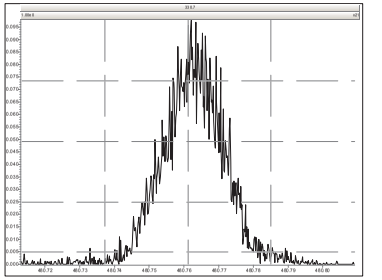
M 454.9728 R 14425



M 466.9728 R 14411



M 480.9696 R 12988



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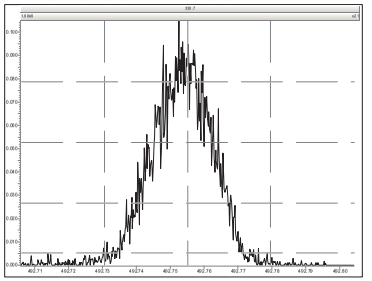
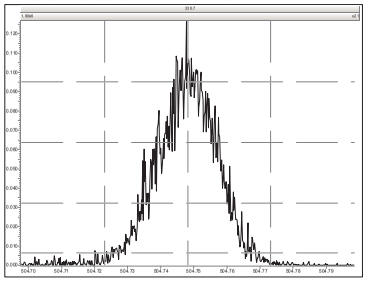
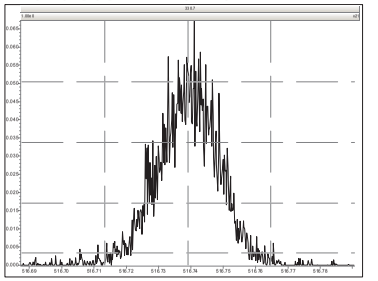
M 492.9696 R 13203



M 504.9696 R 13123



M 516.9697 R 13123



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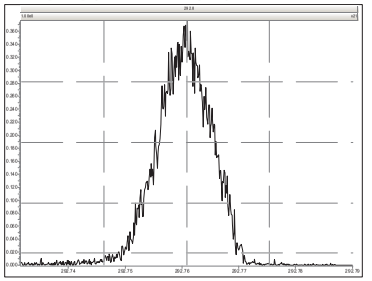
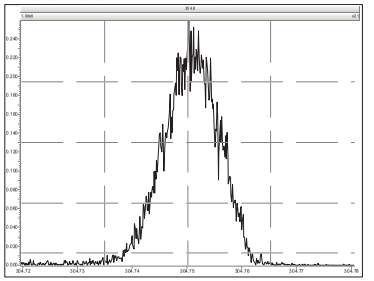
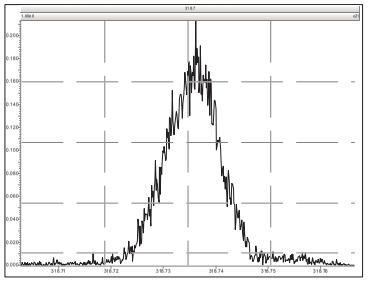
M 292.9824 R 14346



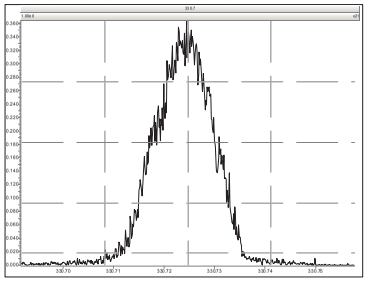
M 304.9824 R 13588



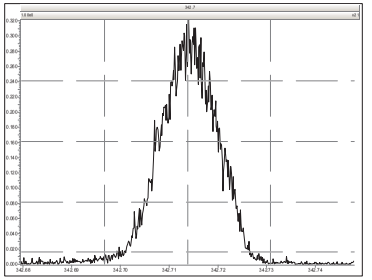
M 318.9792 R 14538



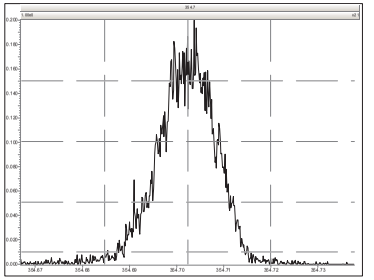
M 330.9792 R 13813



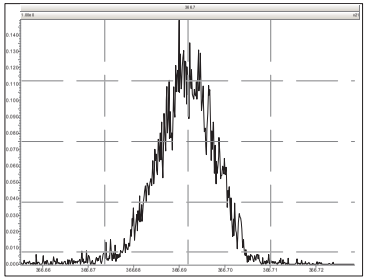
M 342.9792 R 13297



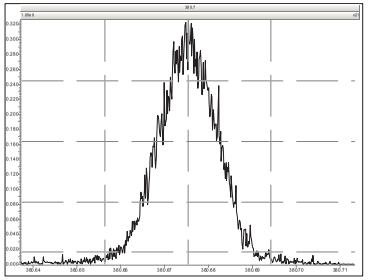
M 354.9792 R 13404



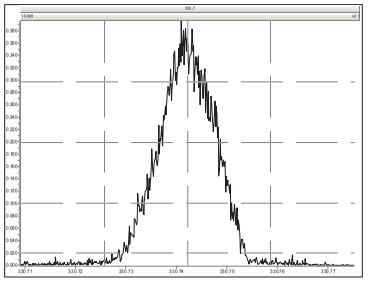
M 366.9792 R 13664



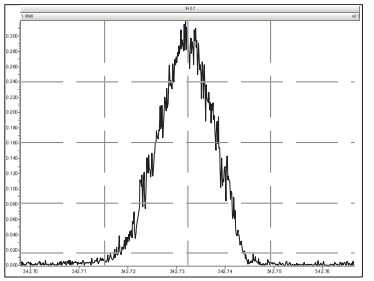
M 380.9760 R 12628



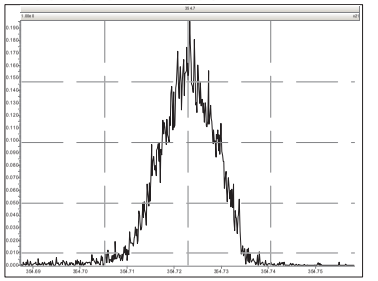
M 330.9792 R 14097



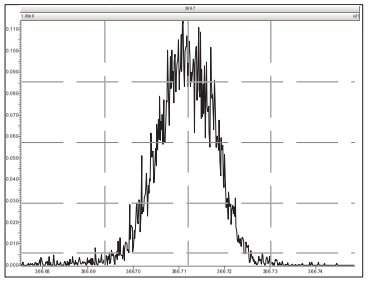
M 342.9792 R 14109



M 354.9792 R 13981



M 366.9792 R 13404



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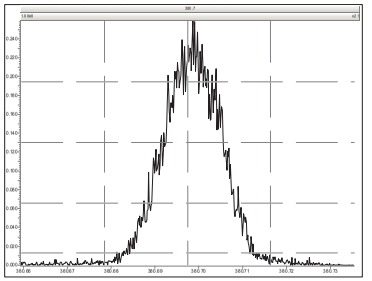
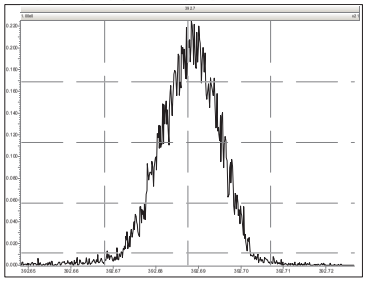
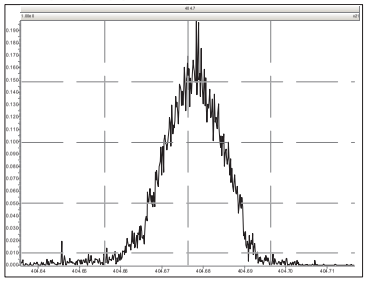
M 380.9760 R 13588



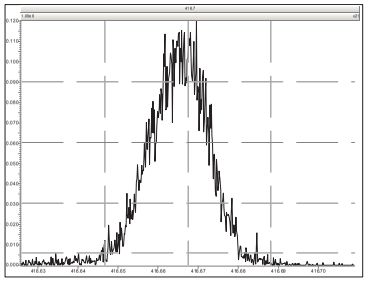
M 392.9760 R 13192



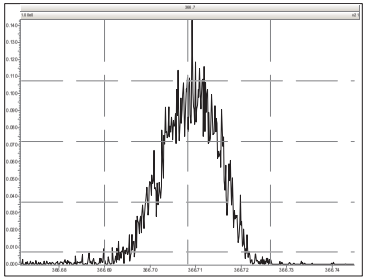
M 404.9760 R 13444



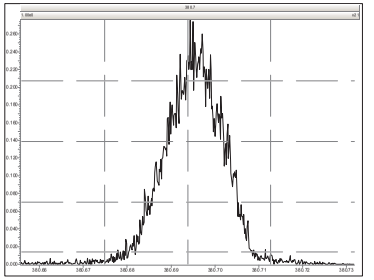
M 416.9760 R 12863



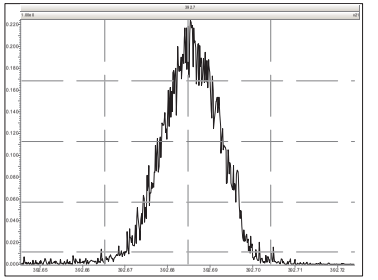
M 366.9792 R 14023



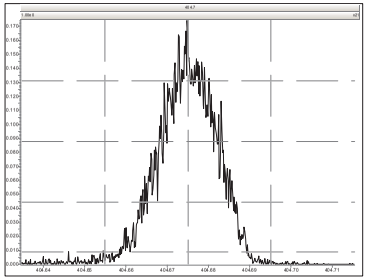
M 380.9760 R 13973



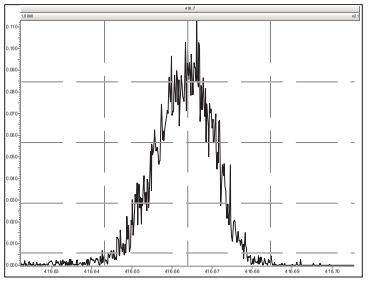
M 392.9760 R 13590



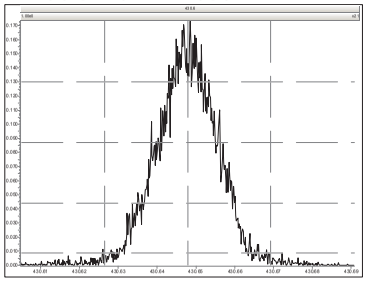
M 404.9760 R 13122



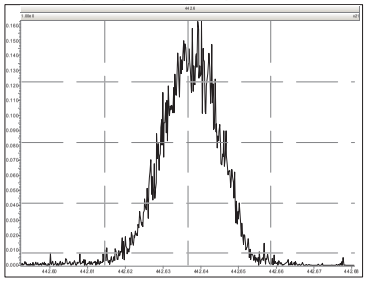
M 416.9760 R 13706



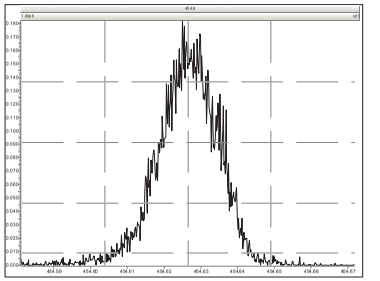
M 430.9728 R 12898



M 442.9728 R 13440



M 454.9728 R 12836



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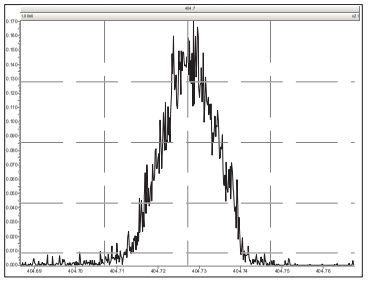
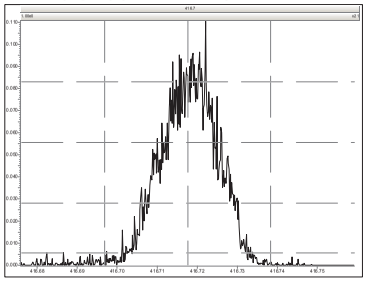
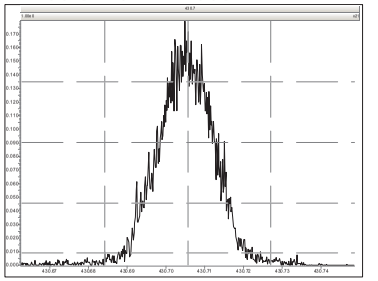


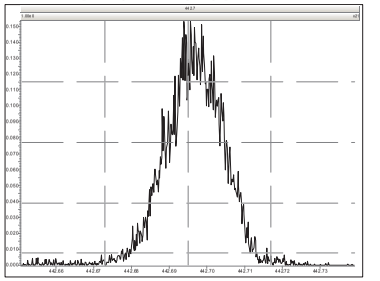
M 416.9760 R 14220



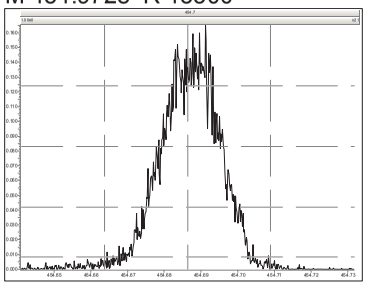
M 430.9728 R 14369



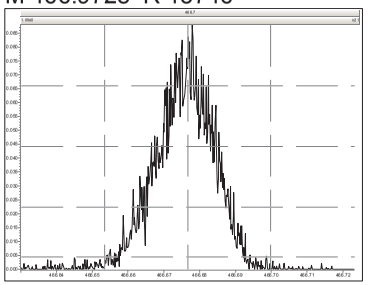
M 442.9728 R 13409



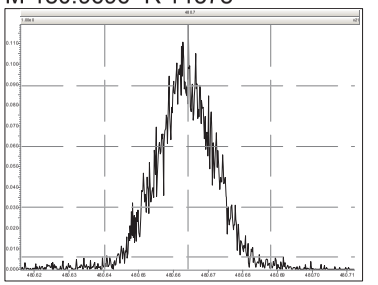
M 454.9728 R 13300



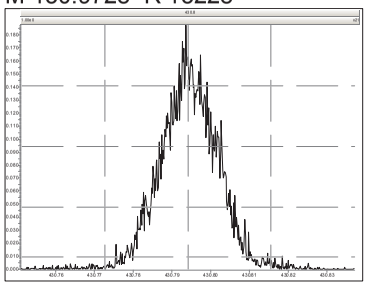
M 466.9728 R 13746



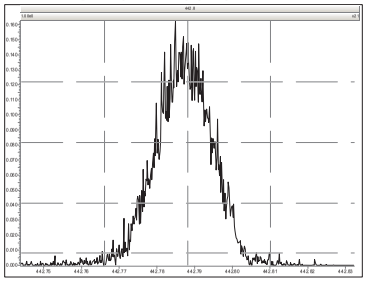
M 480.9696 R 14378



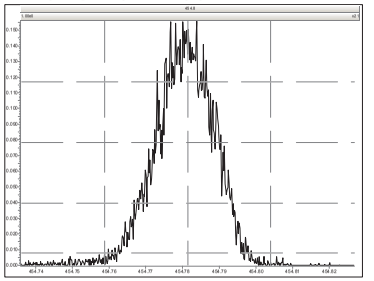
M 430.9728 R 13228



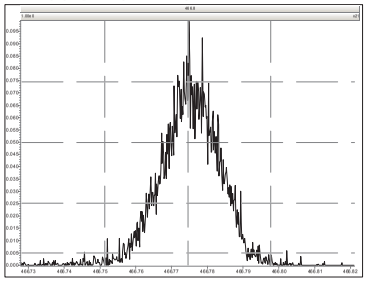
M 442.9728 R 13815



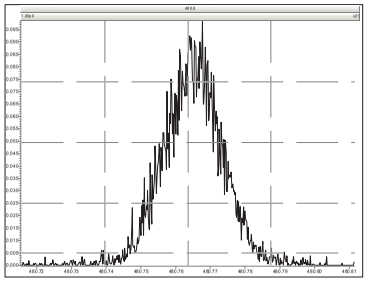
M 454.9728 R 13371



M 466.9728 R 13721



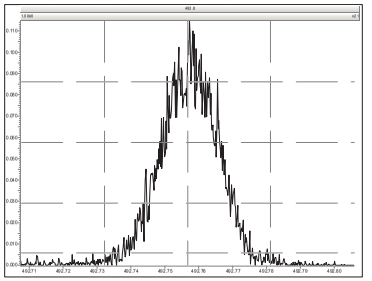
M 480.9696 R 12886



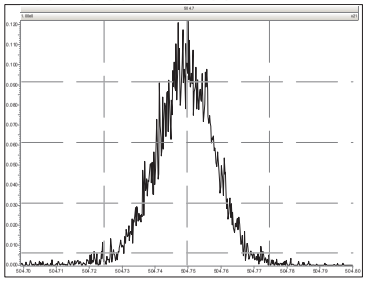
Resolution Check Report **MassLynx 4.1**

Printed: Thursday, December 08, 2016 10:45:44 Eastern Standard Time

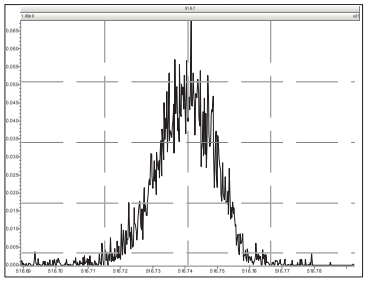
M 492.9696 R 14023



M 504.9696 R 13158



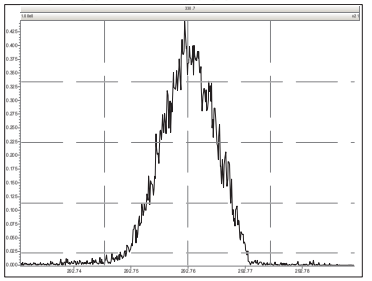
M 516.9697 R 14140



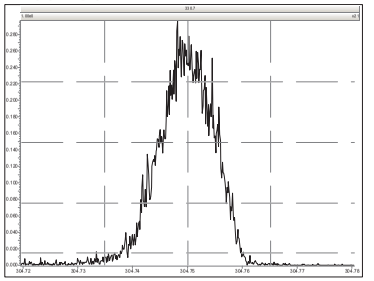
Resolution Check Report **MassLynx 4.1**

Printed: Thursday, December 08, 2016 18:09:08 Eastern Standard Time

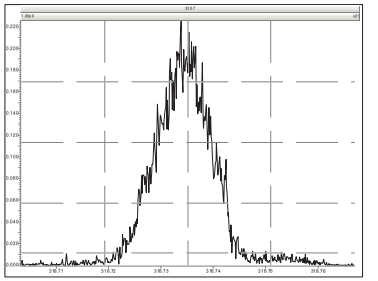
M 292.9824 R 13850



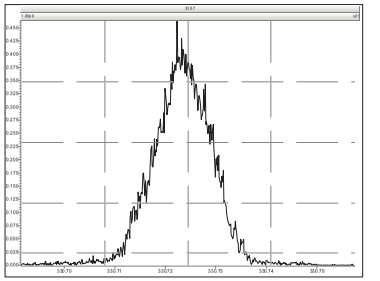
M 304.9824 R 14414



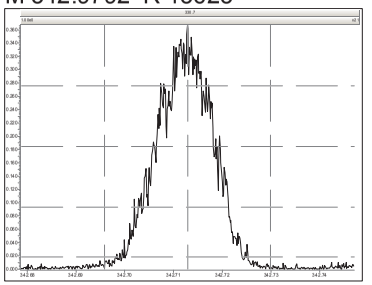
M 318.9792 R 14292



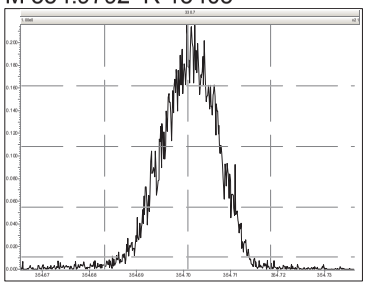
M 330.9792 R 13774



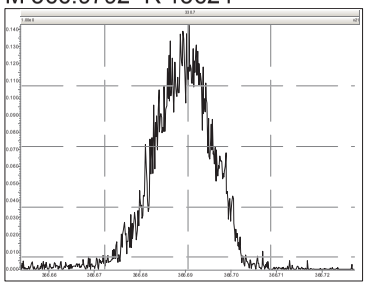
M 342.9792 R 13623



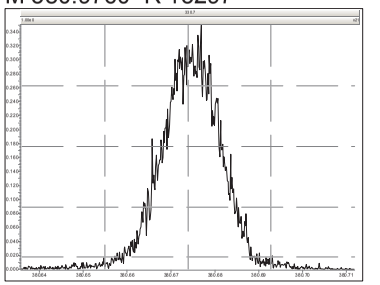
M 354.9792 R 13405



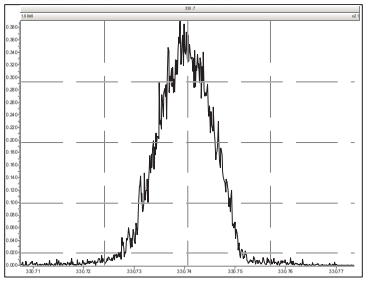
M 366.9792 R 13624



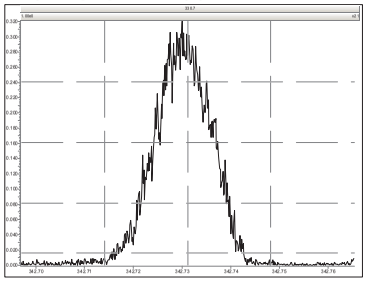
M 380.9760 R 13297



M 330.9792 R 14289



M 342.9792 R 13527



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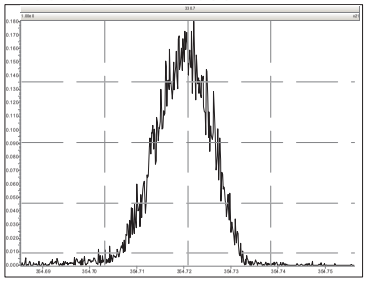
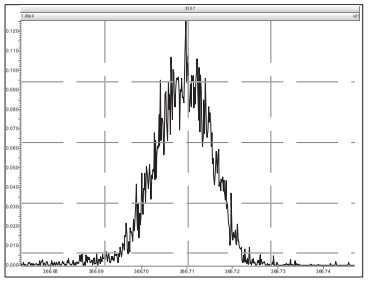


M 366.9792 R 13850



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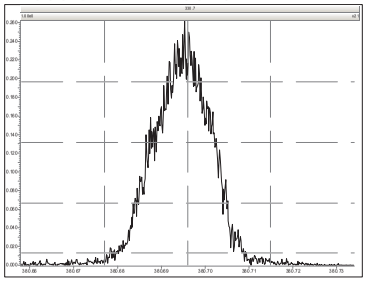
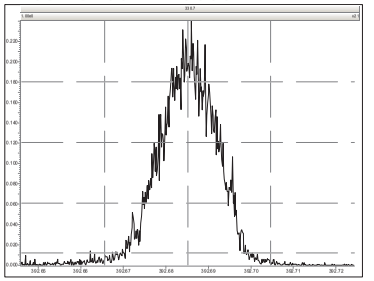
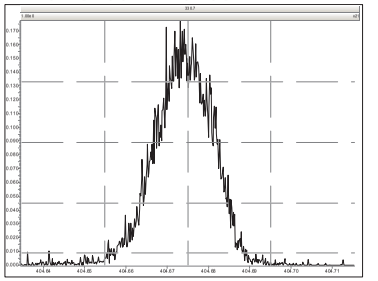
M 380.9760 R 13578



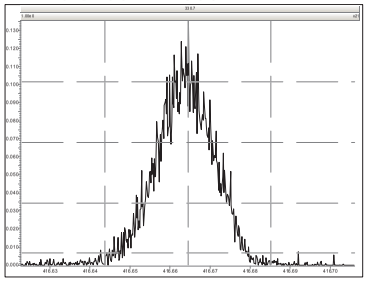
M 392.9760 R 13300



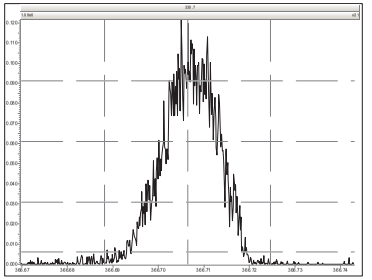
M 404.9760 R 13459



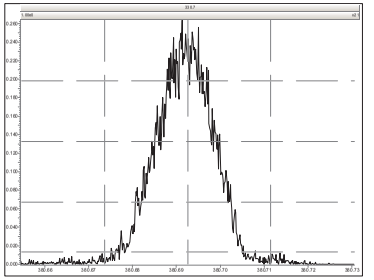
M 416.9760 R 13587



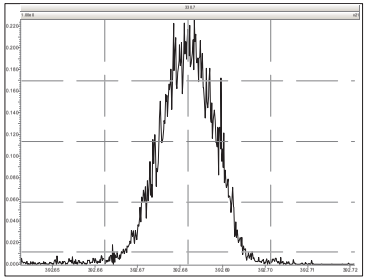
M 366.9792 R 14369



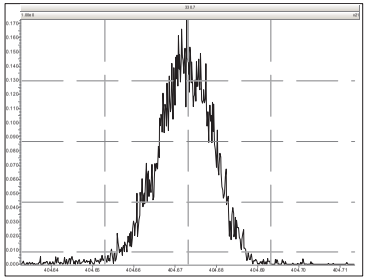
M 380.9760 R 13406



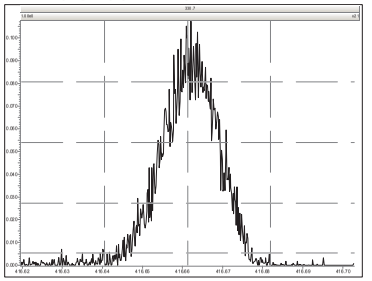
M 392.9760 R 13680



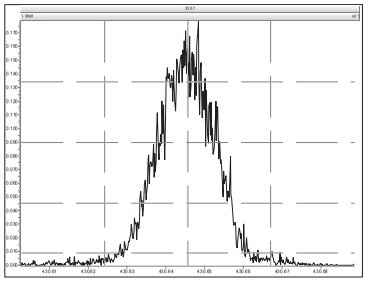
M 404.9760 R 13432



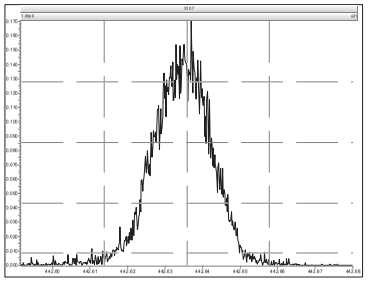
M 416.9760 R 15314



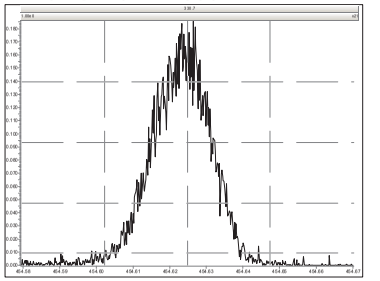
M 430.9728 R 13552



M 442.9728 R 13344



M 454.9728 R 13587



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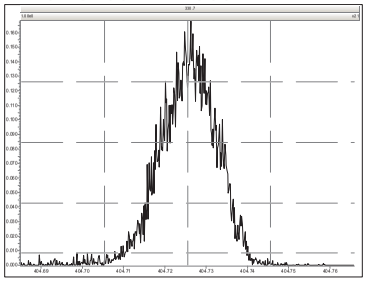
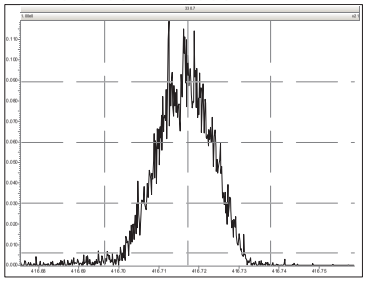
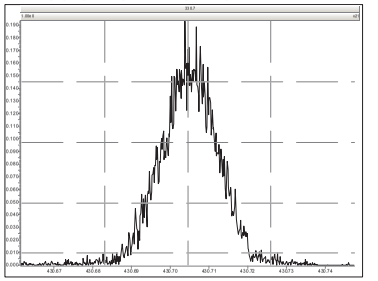
M 404.9760 R 14055



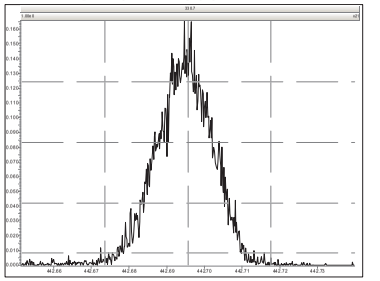
M 416.9760 R 15068



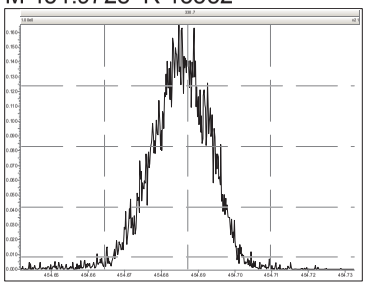
M 430.9728 R 13746



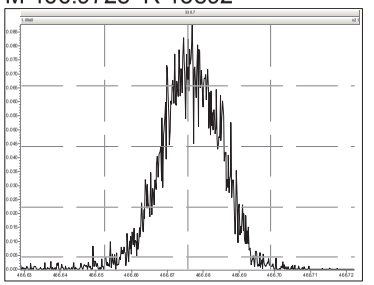
M 442.9728 R 13631



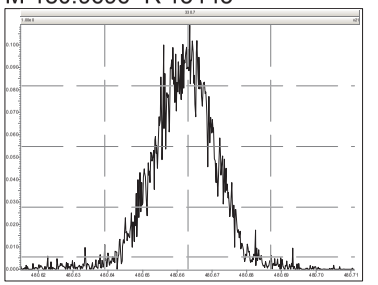
M 454.9728 R 13552



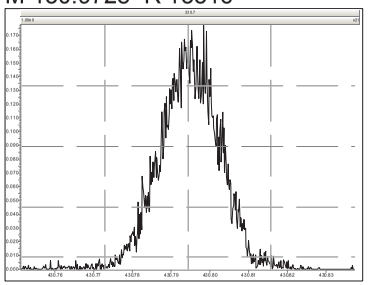
M 466.9728 R 13892



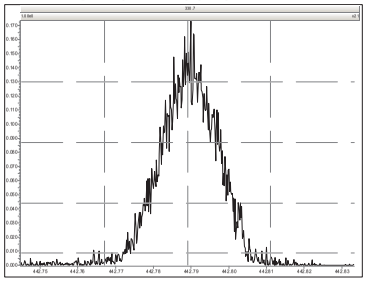
M 480.9696 R 13143



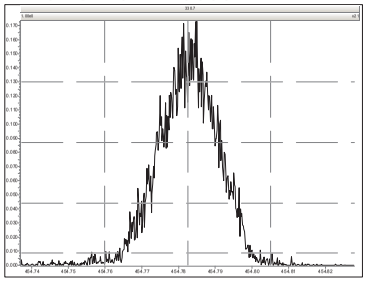
M 430.9728 R 13316



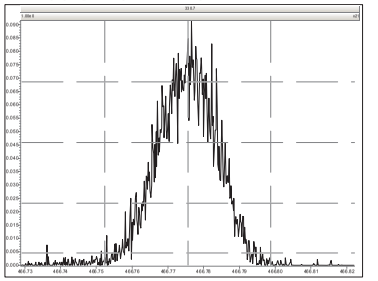
M 442.9728 R 13815



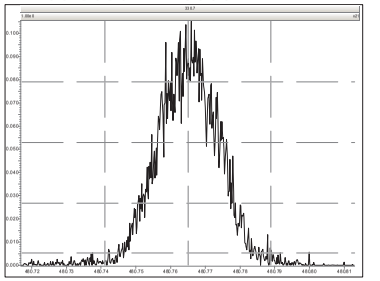
M 454.9728 R 13335



M 466.9728 R 14327



M 480.9696 R 13088



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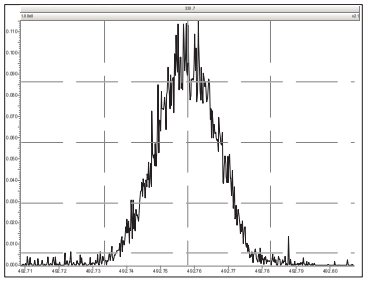
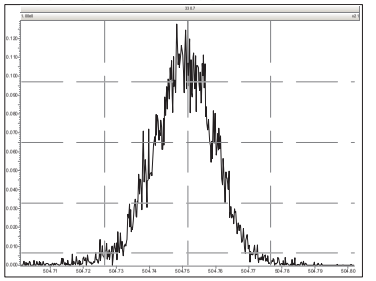
Printed: Thursday, December 08, 2016 18:09:08 Eastern Standard Time

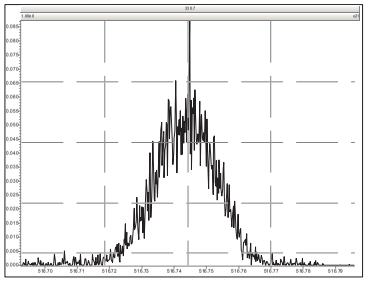
M 492.9696 R 12821



M 504.9696 R 12594



M 516.9697 R 14097



Dioxin/Furan ICAL Summary | **SGS Environmental Services** | **Processed: 7 Jan 2016 10:52**

ICAL: HRMS3_DF_12212015_06JAN2016
Data Acquired: 06-Jan-2016

Name	Mean	% RSD	160106C05 0.25 pg/uL CS0	160106C06 0.5 pg/uL CS1	160106C07 2.0 pg/uL CS2	160106C08 10 pg/uL CS3	160106C09 40 pg/uL CS4	160106C10 200 pg/uL CS5	160106C11 500 pg/uL CS6
2378-TCDD	1.19	3.3%	1.24	1.23	1.18	1.16	1.19	1.17	1.13
12378-PeCDD	1.02	2.9%	1.01	1.05	1.06	0.97	1.02	1.01	0.99
123478-HxCDD	1.08	2.9%	1.10	1.13	1.11	1.05	1.07	1.08	1.04
123678-HxCDD	1.05	5.1%	1.07	0.98	1.13	1.00	1.09	1.02	1.05
123789-HxCDD	0.99	5.5%	1.06	0.99	1.07	0.93	0.98	0.96	0.96
1234678-HpCDD	1.02	3.2%	1.06	1.02	1.06	1.00	1.03	1.00	0.97
OCDD	1.09	2.8%	1.11	1.11	1.14	1.05	1.10	1.08	1.06
2378-TCDF	1.09	4.8%	1.05	1.13	1.17	1.03	1.11	1.06	1.05
12378-PeCDF	1.03	2.6%	1.05	1.02	1.06	0.98	1.05	1.03	1.03
23478-PeCDF	1.02	3.4%	1.00	1.03	1.09	0.97	1.03	1.02	1.02
123478-HxCDF	1.29	4.7%	1.37	1.36	1.33	1.21	1.28	1.24	1.27
123678-HxCDF	1.17	3.3%	1.17	1.22	1.22	1.12	1.19	1.14	1.15
234678-HxCDF	1.18	3.2%	1.23	1.19	1.20	1.11	1.18	1.19	1.18
123789-HxCDF	1.18	4.5%	1.20	1.24	1.25	1.10	1.15	1.16	1.16
1234678-HpCDF	1.38	3.2%	1.38	1.46	1.40	1.34	1.37	1.36	1.33
1234789-HpCDF	1.30	4.6%	1.24	1.37	1.39	1.26	1.30	1.26	1.27
OCDF	1.03	4.6%	0.97	1.05	1.12	1.01	1.05	1.03	1.01
ES 2378-TCDD	1.06	4.2%	1.02	1.07	1.03	1.07	1.02	1.07	1.15
ES 12378-PeCDD	0.99	6.4%	0.97	0.92	1.00	0.96	0.98	1.01	1.12
ES 123478-HxCDD	1.09	6.0%	1.10	1.11	0.96	1.11	1.08	1.08	1.17
ES 123678-HxCDD	1.10	5.6%	1.06	1.13	0.99	1.16	1.06	1.12	1.14
ES 123789-HxCDD	1.24	6.7%	1.25	1.27	1.07	1.31	1.22	1.26	1.32
ES 1234678-HpCDD	0.93	5.4%	1.01	0.89	0.87	0.91	0.92	0.97	0.97
ES OCDD	0.71	6.7%	0.70	0.70	0.63	0.72	0.70	0.73	0.79
ES 2378-TCDF	1.02	3.5%	1.00	1.06	0.97	1.04	1.00	1.02	1.07
ES 12378-PeCDF	0.96	4.6%	0.99	0.95	0.92	0.95	0.91	1.03	1.00
ES 23478-PeCDF	0.95	3.2%	0.95	0.94	0.92	0.93	0.92	0.98	1.00
ES 123478-HxCDF	1.32	4.3%	1.31	1.32	1.21	1.34	1.33	1.34	1.40
ES 123678-HxCDF	1.51	5.2%	1.48	1.54	1.36	1.53	1.50	1.55	1.61
ES 234678-HxCDF	1.38	4.8%	1.38	1.43	1.26	1.43	1.35	1.37	1.46
ES 123789-HxCDF	1.25	5.9%	1.22	1.28	1.11	1.31	1.23	1.29	1.33
ES 1234678-HpCDF	1.03	5.0%	1.05	1.00	0.93	1.04	1.01	1.07	1.07
ES 1234789-HpCDF	0.87	5.5%	0.93	0.84	0.79	0.85	0.89	0.90	0.91
ES OCDF	0.92	8.6%	0.89	0.90	0.80	0.91	0.92	0.97	1.06

APPROVED
By Heather Distel at 2:41 pm, Jan 07, 2016

Dioxin/Furan ICAL Summary — SGS Environmental Services — Processed: 7 Jan 2016 10:52

ICAL: HRMS3_DF_12212015_06JAN2016
Data Acquired: 18-Jun-2009

Name	Mean	% RSD	160106C05 0.25 pg/uL CS0	160106C06 0.5 pg/uL CS1	160106C07 2.0 pg/uL CS2	160106C08 10 pg/uL CS3	160106C09 40 pg/uL CS4	160106C10 200 pg/uL CS5	160106C11 500 pg/uL CS6
CS 37Cl-2378-TCDD	1.24	4.2%	-	1.32	1.25	1.23	1.17	1.23	-
CS 12347-PeCDD	0.94	5.3%	0.99	0.85	0.98	0.92	0.92	0.93	0.97
CS 12346-PeCDF	0.92	4.3%	0.97	0.87	0.91	0.91	0.90	0.98	0.92
CS 123469-HxCDF	1.38	3.0%	1.44	1.40	1.33	1.43	1.37	1.36	1.35
CS 1234689-HpCDF	0.88	5.9%	0.97	0.85	0.84	0.90	0.90	0.88	0.82
SS 37Cl-2378-TCDD	1.18	3.4%	-	1.23	1.21	1.15	1.15	1.15	-
SS 12347-PeCDD	0.94	5.4%	1.03	0.92	0.99	0.95	0.94	0.91	0.87
SS 12346-PeCDF	0.96	3.2%	0.99	0.92	0.98	0.96	0.99	0.95	0.92
SS 123469-HxCDF	0.92	5.4%	0.97	0.91	0.98	0.93	0.91	0.88	0.84
SS 1234689-HpCDF	0.86	6.5%	0.92	0.85	0.91	0.87	0.89	0.82	0.76
AS 1368-TCDD	1.05	2.5%	1.05	0.99	1.08	1.06	1.06	1.05	1.06
AS 1368-TCDF	1.40	4.0%	1.39	1.40	1.33	1.50	1.36	1.44	1.37
OCDD-a	0.07	4.5%	-	-	0.06	0.07	0.07	0.07	0.07
OCDF-a	0.06	7.9%	-	-	0.06	0.07	0.07	0.06	0.06
Totals									
Total TCDD	1.19	3.3%	1.24	1.23	1.18	1.16	1.19	1.17	1.13
Total PeCDD	1.02	2.9%	1.01	1.05	1.06	0.97	1.02	1.01	0.99
Total HxCDD	1.04	3.7%	1.08	1.03	1.10	0.99	1.05	1.02	1.02
Total HpCDD	1.02	3.2%	1.06	1.02	1.06	1.00	1.03	1.00	0.97
Total TCDF	1.09	4.8%	1.05	1.13	1.17	1.03	1.11	1.06	1.05
Total PeCDF	1.03	2.8%	1.03	1.03	1.07	0.98	1.04	1.02	1.02
Total HxCDF	1.21	3.6%	1.24	1.25	1.25	1.13	1.20	1.18	1.19
Total HpCDF	1.34	3.7%	1.31	1.42	1.40	1.30	1.34	1.31	1.30
FS 1278-TCDD	1.28	2.8%	1.30	1.29	1.32	1.30	1.31	1.23	1.24
FS 12478-PeCDD	1.11	5.3%	1.19	1.14	1.13	1.12	1.08	1.11	1.00
FS 123468-HxCDD	1.36	6.5%	1.41	1.35	1.48	1.38	1.39	1.27	1.22
FS 1234679-HpCDD	1.30	7.1%	1.31	1.36	1.31	1.42	1.35	1.21	1.15
TS 1378-TCDD	1.21	3.9%	1.23	1.16	1.29	1.18	1.24	1.19	1.17

2

8290B ICALs

Ax	HRMS3_DF_01172014_29APR2014	HRMS3_03022015_21APR15	HRMS_DF_12212015_06JAN16	RSD	Mean	sd	PD from Mean
2,3,7,8-TCDD	1.22	1.16	1.19	2.5	1.19	0.03	0%
1,2,3,7,8-PeCDD	1.07	1.03	1.02	2.6	1.04	0.03	-2%
1,2,3,4,7,8-HxCDD	1.14	1.10	1.08	2.8	1.11	0.03	-2%
1,2,3,6,7,8-HxCDD	1.16	1.11	1.05	5.1	1.11	0.06	-5%
1,2,3,7,8,9-HxCDD	1.08	1.04	0.99	4.3	1.04	0.04	-4%
1,2,3,4,6,7,8-HpCDD	1.10	1.05	1.02	3.6	1.06	0.04	-3%
OCDD	1.19	1.14	1.09	4.4	1.14	0.05	-4%
2,3,7,8-TCDF	1.17	1.07	1.09	4.7	1.11	0.05	-2%
1,2,3,7,8-PeCDF	1.08	1.04	1.03	2.5	1.05	0.03	-2%
2,3,4,7,8-PeCDF	1.07	1.03	1.02	2.2	1.04	0.02	-2%
1,2,3,4,7,8-HxCDF	1.35	1.34	1.29	2.2	1.33	0.03	-2%
1,2,3,6,7,8-HxCDF	1.22	1.21	1.17	2.2	1.20	0.03	-3%
2,3,4,6,7,8-HxCDF	1.25	1.22	1.18	2.7	1.22	0.03	-3%
1,2,3,7,8,9-HxCDF	1.23	1.21	1.18	1.8	1.21	0.02	-2%
1,2,3,4,6,7,8-HpCDF	1.42	1.45	1.38	2.6	1.41	0.04	-3%
1,2,3,4,7,8,9-HpCDF	1.35	1.38	1.30	2.9	1.34	0.04	-3%
OCDF	1.12	1.10	1.03	4.3	1.09	0.05	-5%
ES							
2,3,7,8-TCDD	1.07	1.04	1.06	1.1	1.06	0.01	0%
1,2,3,7,8-PeCDD	0.98	0.88	0.99	6.3	0.95	0.06	5%
1,2,3,4,7,8-HxCDD	1.06	1.03	1.09	2.6	1.06	0.03	3%
1,2,3,6,7,8-HxCDD	1.01	1.02	1.10	4.5	1.04	0.05	5%
1,2,3,7,8,9-HxCDD	1.15	1.19	1.24	3.8	1.19	0.05	4%
1,2,3,4,6,7,8-HpCDD	0.90	0.94	0.93	2.6	0.92	0.02	1%
OCDD	0.69	0.67	0.71	3.2	0.69	0.02	3%
2,3,7,8-TCDF	1.04	1.05	1.02	1.3	1.04	0.01	-1%
1,2,3,7,8-PeCDF	0.94	0.89	0.96	4.1	0.93	0.04	3%
2,3,4,7,8-PeCDF	0.94	0.87	0.95	4.3	0.92	0.04	3%
1,2,3,4,7,8-HxCDF	1.40	1.28	1.32	4.5	1.33	0.06	-1%
1,2,3,6,7,8-HxCDF	1.68	1.49	1.51	6.9	1.56	0.11	-3%
2,3,4,6,7,8-HxCDF	1.46	1.38	1.38	3.3	1.41	0.05	-2%
1,2,3,7,8,9-HxCDF	1.32	1.25	1.25	3.4	1.27	0.04	-2%
1,2,3,4,6,7,8-HpCDF	1.04	1.04	1.03	0.9	1.04	0.01	-1%
1,2,3,4,7,8,9-HpCDF	0.87	0.89	0.87	1.4	0.88	0.01	-1%
OCDF	0.96	0.89	0.92	3.8	0.92	0.04	0%

D/F ICAL	Conc.					
Individual Native Standards	CS 0	CS 1	CS 2	CS 3	CS 4	CS 5
2378 TCDD	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
2378 TCDF	.25 pg/ul	0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12378 PeCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
12378 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
23478 PeCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123478 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
123789 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
234678 HxCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDD	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234678 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
1234789 HpCDF	1.25 pg/ul	2.5 pg/ul	10 pg/ul	50 pg/ul	200 pg/ul	1000 pg/ul
OCDD	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
OCDF	2.5 pg/ul	5 pg/ul	20 pg/ul	100 pg/ul	400 pg/ul	2000 pg/ul
Extraction Standards						
2378 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
2378 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12378 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
23478 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123478 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123789 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
234678 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234678 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234789 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
OCDD 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
OCDF 13C12	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul	200 pg/ul
Cleanup/Sampling standards						
2378 37Cl4		0.5 pg/ul	2 pg/ul	10 pg/ul	40 pg/ul	200 pg/ul
12347 PeCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
12346 PeCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123469 HxCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234689 HpCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Alternate Standard						
1368 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1368 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
Injection standards						
1234 TCDD 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
1234 TCDF 13C12	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul	100 pg/ul
123467 HxCDD 13C12	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul	50 pg/ul

Working Standards

ES

2378 TCDD 13C12	10 pg/ul
2378 TCDF 13C12	10 pg/ul
12378 PeCDD 13C12	10 pg/ul
12378 PeCDF 13C12	10 pg/ul
23478 PeCDF 13C12	10 pg/ul
123478 HxCDD 13C12	10 pg/ul
123678 HxCDD 13C12	10 pg/ul
123789 HxCDD 13C12	10 pg/ul
123478 HxCDF 13C12	10 pg/ul
123678 HxCDF 13C12	10 pg/ul
123789 HxCDF 13C12	10 pg/ul
234678 HxCDF 13C12	10 pg/ul
1234678 HpCDD 13C12	10 pg/ul
1234678 HpCDF 13C12	10 pg/ul
1234789 HpCDF 13C12	10 pg/ul
OCDD 13C12	10 pg/ul
OCDF 13C12	10 pg/ul

Ax

2378 TCDD	1 pg/ul
2378 TCDF	1 pg/ul
12378 PeCDD	1 pg/ul
12378 PeCDF	1 pg/ul
23478 PeCDF	1 pg/ul
123478 HxCDD	1 pg/ul
123678 HxCDD	1 pg/ul
123789 HxCDD	1 pg/ul
123478 HxCDF	1 pg/ul
123678 HxCDF	1 pg/ul
123789 HxCDF	1 pg/ul
234678 HxCDF	1 pg/ul
1234678 HpCDD	1 pg/ul
1234678 HpCDF	1 pg/ul
1234789 HpCDF	1 pg/ul
OCDD	1 pg/ul
OCDF	1 pg/ul

CS/SS

2378 37Cl4	4 pg/ul
12347 PeCDD 13C12	10 pg/ul
12346 PeCDF 13C12	10 pg/ul
123469 HxCDF 13C12	10 pg/ul
1234689 HpCDF 13C12	10 pg/ul

AS

1368 TCDD 13C12	10 pg/ul
1368 TCDF 13C12	10 pg/ul

JS

1234 TCDD 13C12	10 pg/ul
1234 TCDF 13C12	10 pg/ul
123467 HxCDD 13C12	5 pg/ul

FS

1278 TCDD 13C12	100 pg/ul
12478 PeCDD 13C12	100 pg/ul
123468 HxCDD 13C12	100 pg/ul
1234679 HpCDD 13C12	100 pg/ul

TS

1378 TCDD 13C12	100 pg/ul

CS6
500 pg/ul
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2500 pg/ul
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50 pg/ul

SGS Environmental Services — Run Log **Project: HRMS3_DF_12212015_06JAN2016**

Instrument: HRMS3 (AutoSpec-Ultima) MS Experiment: df_cl4-8_db5 GC Program: df_db5

#	Datafile	Vial#	Lab ID	Wt/Vol	Client/Sample ID	Analyst(s)	Checkcode	Acq Date	Acq Time
3	160106C03	71	SBS_160106_CA	1.00	SIL 15-49-1	ARL	152-729	06-Jan-2016	17:12:51
5	160106C05	72	CS0_160106_CA	1.00	SIL 15-105-2	ARL	695-693	06-Jan-2016	19:02:30
6	160106C06	73	CS1_160106_CA	1.00	SIL 15-105-1	ARL	311-800	06-Jan-2016	19:55:05
7	160106C07	74	CS2_160106_CA	1.00	SIL 15-104-3	ARL	134-724	06-Jan-2016	20:47:39
8	160106C08	75	CS3_160106_CA	1.00	SIL 15-104-2	ARL	110-238	06-Jan-2016	21:40:12
9	160106C09	76	CS4_160106_CA	1.00	SIL 15-104-1	ARL	873-132	06-Jan-2016	22:32:46
10	160106C10	77	CS5_160106_CA	1.00	SIL 15-103-4	ARL	040-020	06-Jan-2016	23:25:20
11	160106C11	78	CS6_160106_CA	1.00	SIL 15-105-3	ARL	804-666	07-Jan-2016	00:17:55

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:02 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS0_160106_CA | **UTP: 07-Jan-2016 10:52:21 ARL** | **Checkcode: 695-693-QXR**

Sample ID: SIL 15-105-2 | **Report: 07 Jan 2016 11:08 AL** | **Datafile: 160106C05**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.43	1.81E+05	0.78	Y	1.19	1.24	4%
12378-PeCDD	32.22	6.95E+05	1.50	Y	1.02	1.01	-1%
123478-HxCDD	36.33	6.19E+05	1.34	Y	1.08	1.10	2%
123678-HxCDD	36.45	5.81E+05	1.21	Y	1.05	1.07	2%
123789-HxCDD	36.74	6.81E+05	1.26	Y	0.99	1.06	7%
1234678-HpCDD	40.60	5.47E+05	1.10	Y	1.02	1.06	4%
OCDD	45.87	7.96E+05	0.97	Y	1.09	1.11	1%
2378-TCDF	25.46	2.25E+05	0.87	Y	1.09	1.05	-4%
12378-PeCDF	30.66	1.11E+06	1.51	Y	1.03	1.05	2%
23478-PeCDF	31.85	1.03E+06	1.52	Y	1.02	1.00	-2%
123478-HxCDF	35.30	9.13E+05	1.16	Y	1.29	1.37	6%
123678-HxCDF	35.45	8.84E+05	1.31	Y	1.17	1.17	-1%
234678-HxCDF	36.14	8.64E+05	1.25	Y	1.18	1.23	4%
123789-HxCDF	37.12	7.50E+05	1.17	Y	1.18	1.20	2%
1234678-HpCDF	39.02	7.41E+05	1.02	Y	1.38	1.38	0%
1234789-HpCDF	41.39	5.93E+05	1.06	Y	1.30	1.24	-4%
OCDF	46.17	8.87E+05	0.98	Y	1.03	0.97	-6%
ES 2378-TCDD	26.40	5.83E+07	0.83	Y	1.06	1.02	-4%
ES 12378-PeCDD	32.21	5.53E+07	1.56	Y	0.99	0.97	-3%
ES 123478-HxCDD	36.32	4.50E+07	1.26	Y	1.09	1.10	1%
ES 123678-HxCDD	36.43	4.33E+07	1.27	Y	1.10	1.06	-3%
ES 123789-HxCDD	36.73	5.12E+07	1.23	Y	1.24	1.25	1%
ES 1234678-HpCDD	40.58	4.13E+07	1.07	Y	0.93	1.01	8%
ES OCDD	45.85	5.76E+07	0.88	Y	0.71	0.70	-1%
ES 2378-TCDF	25.44	8.59E+07	0.80	Y	1.02	1.00	-2%
ES 12378-PeCDF	30.64	8.47E+07	1.57	Y	0.96	0.99	2%
ES 23478-PeCDF	31.83	8.20E+07	1.59	Y	0.95	0.95	1%
ES 123478-HxCDF	35.28	5.34E+07	0.53	Y	1.32	1.31	-1%
ES 123678-HxCDF	35.43	6.07E+07	0.54	Y	1.51	1.48	-2%
ES 234678-HxCDF	36.12	5.63E+07	0.54	Y	1.38	1.38	0%
ES 123789-HxCDF	37.10	4.99E+07	0.52	Y	1.25	1.22	-3%
ES 1234678-HpCDF	39.01	4.31E+07	0.44	Y	1.03	1.05	3%
ES 1234789-HpCDF	41.37	3.82E+07	0.46	Y	0.87	0.93	7%
ES OCDF	46.16	7.31E+07	0.91	Y	0.92	0.89	-3%

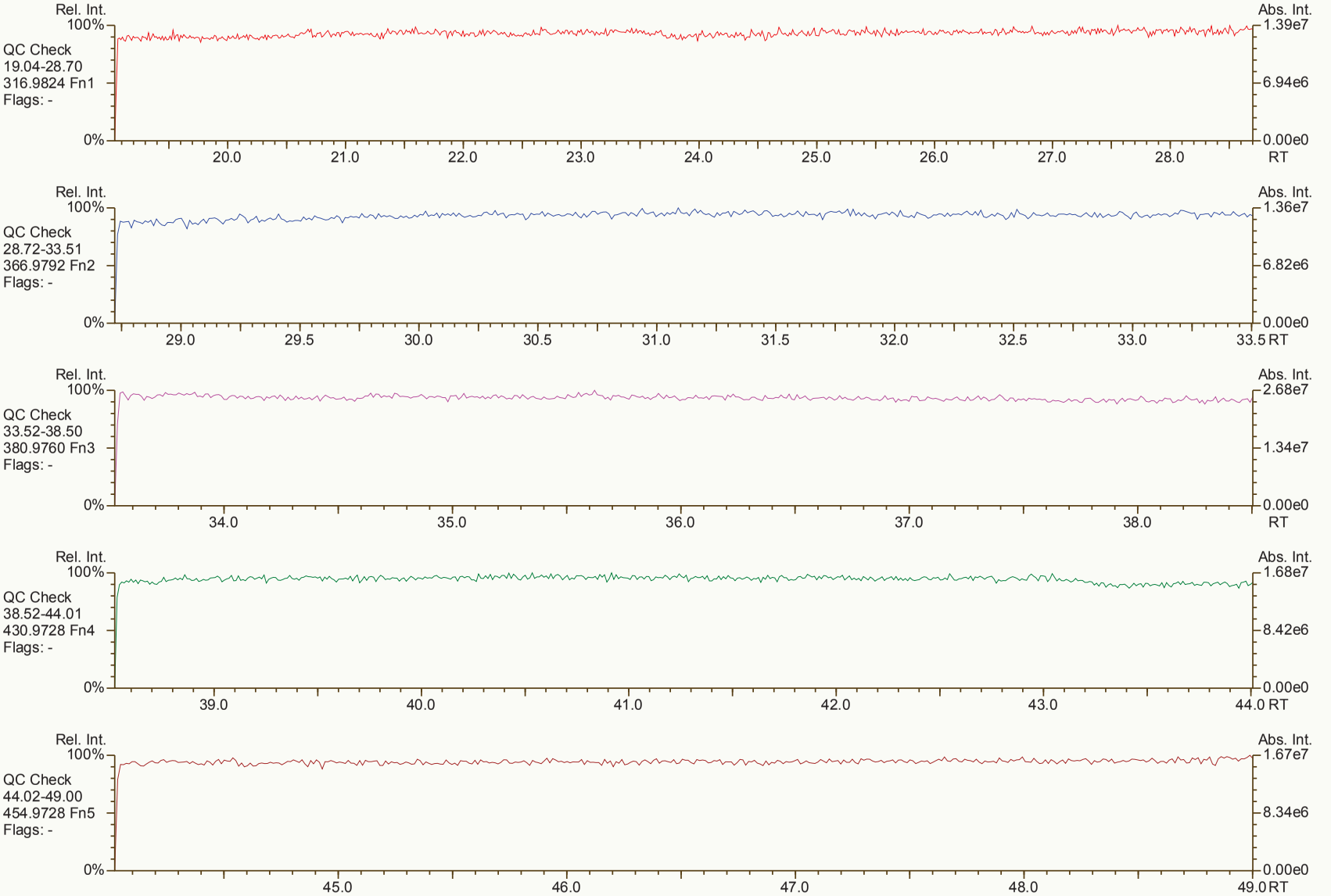
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:02 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS0_160106_CA | **UTP: 07-Jan-2016 10:52:21 ARL** | **Checkcode: 695-693**

Sample ID: SIL 15-105-2 | **Report: 07 Jan 2016 11:08 AL** | **Datafile: 160106C05**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.69	5.71E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.92	8.59E+07	0.79	Y	-	-	-
JS 123467-HxCDD	36.62	2.04E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	Not Fnd		n/a	-			
CS 12347-PeCDD	31.67	5.67E+07	1.57	Y	0.94	0.99	6%
CS 12346-PeCDF	30.08	8.37E+07	1.60	Y	0.92	0.97	5%
CS 123469-HxCDF	35.75	5.87E+07	0.53	Y	1.38	1.44	4%
CS 1234689-HpCDF	39.66	3.98E+07	0.46	Y	0.88	0.97	11%
SS 37Cl-2378-TCDD	Not Fnd		n/a	-			
SS 12347-PeCDD	31.67	5.67E+07	1.57	Y	0.94	1.03	9%
SS 12346-PeCDF	30.08	8.37E+07	1.60	Y	0.96	0.99	3%
SS 123469-HxCDF	35.75	5.87E+07	0.53	Y	0.92	0.97	6%
SS 1234689-HpCDF	39.66	3.98E+07	0.46	Y	0.86	0.92	7%
AS 1368-TCDD	22.25	6.02E+07	0.79	Y	1.05	1.05	0%
AS 1368-TCDF	20.13	1.20E+08	0.79	Y	1.40	1.39	-1%
FS 1278-TCDD	26.77	7.60E+07	0.80	Y	1.28	1.30	1%
FS 12478-PeCDD	30.90	6.60E+07	1.58	Y	1.11	1.19	8%
FS 123468-HxCDD	35.22	6.33E+07	1.24	Y	1.36	1.41	4%
FS 1234679-HpCDD	39.45	5.39E+07	1.08	Y	1.30	1.31	0%
TS 1378-TCDD	24.56	7.15E+07	0.82	Y	1.21	1.23	2%
OCDD-a	Not Fnd				0.07		
OCDF-a	Not Fnd				0.06		

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 695-693 | *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

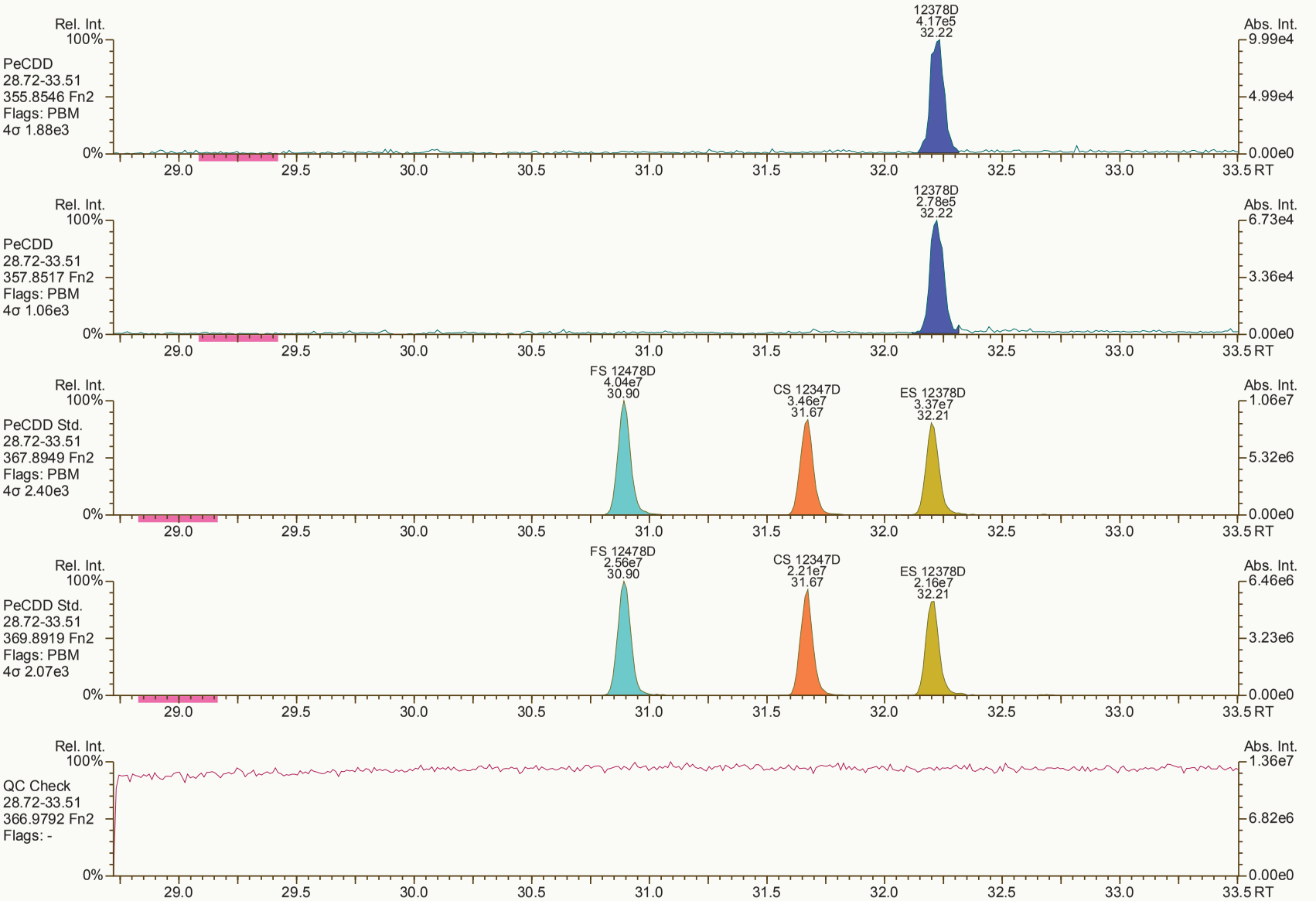
SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

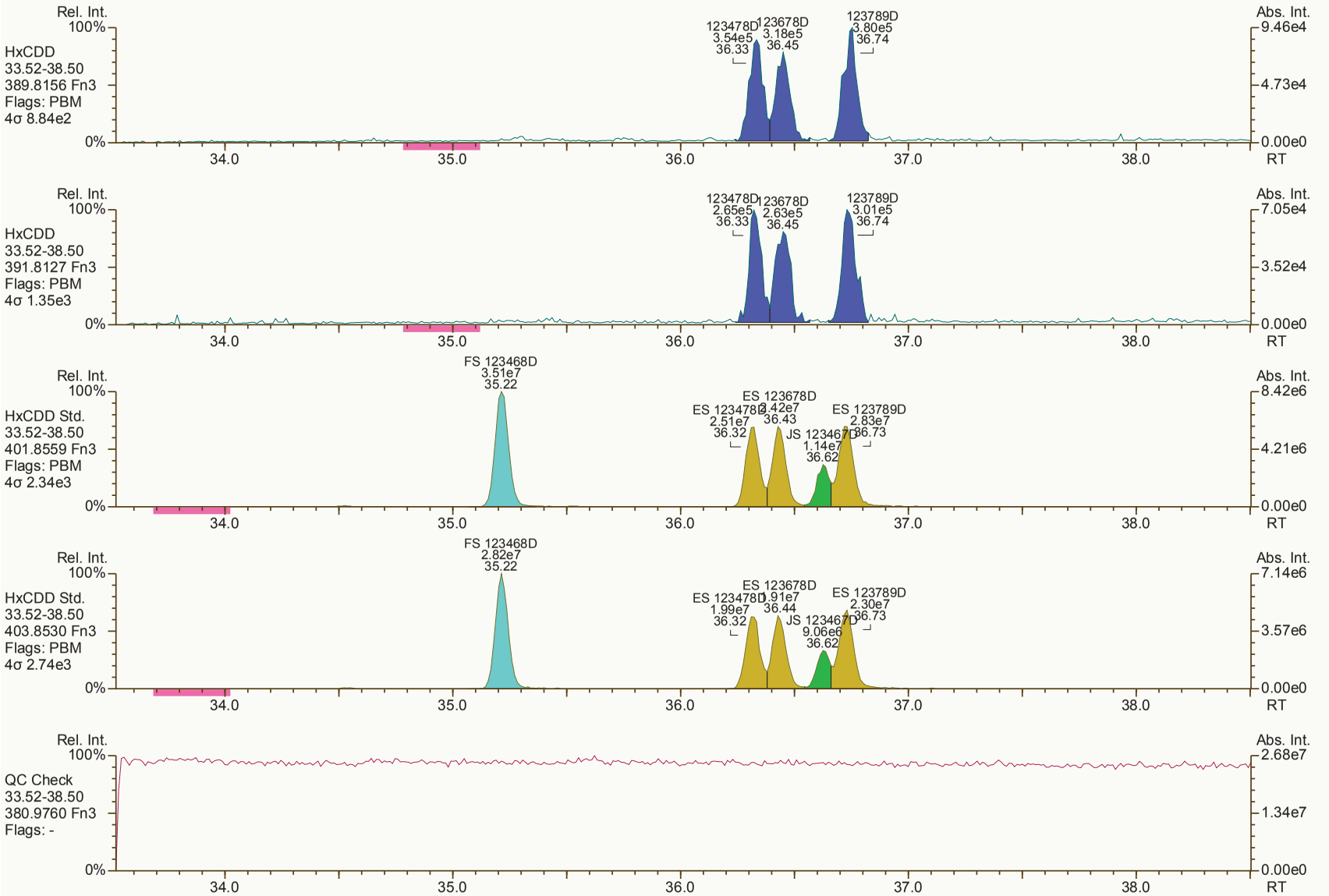
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5992, 7894, 7420 scc: 695-693 *Revised: 07-Jan-2016 09:35 (ARL) Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



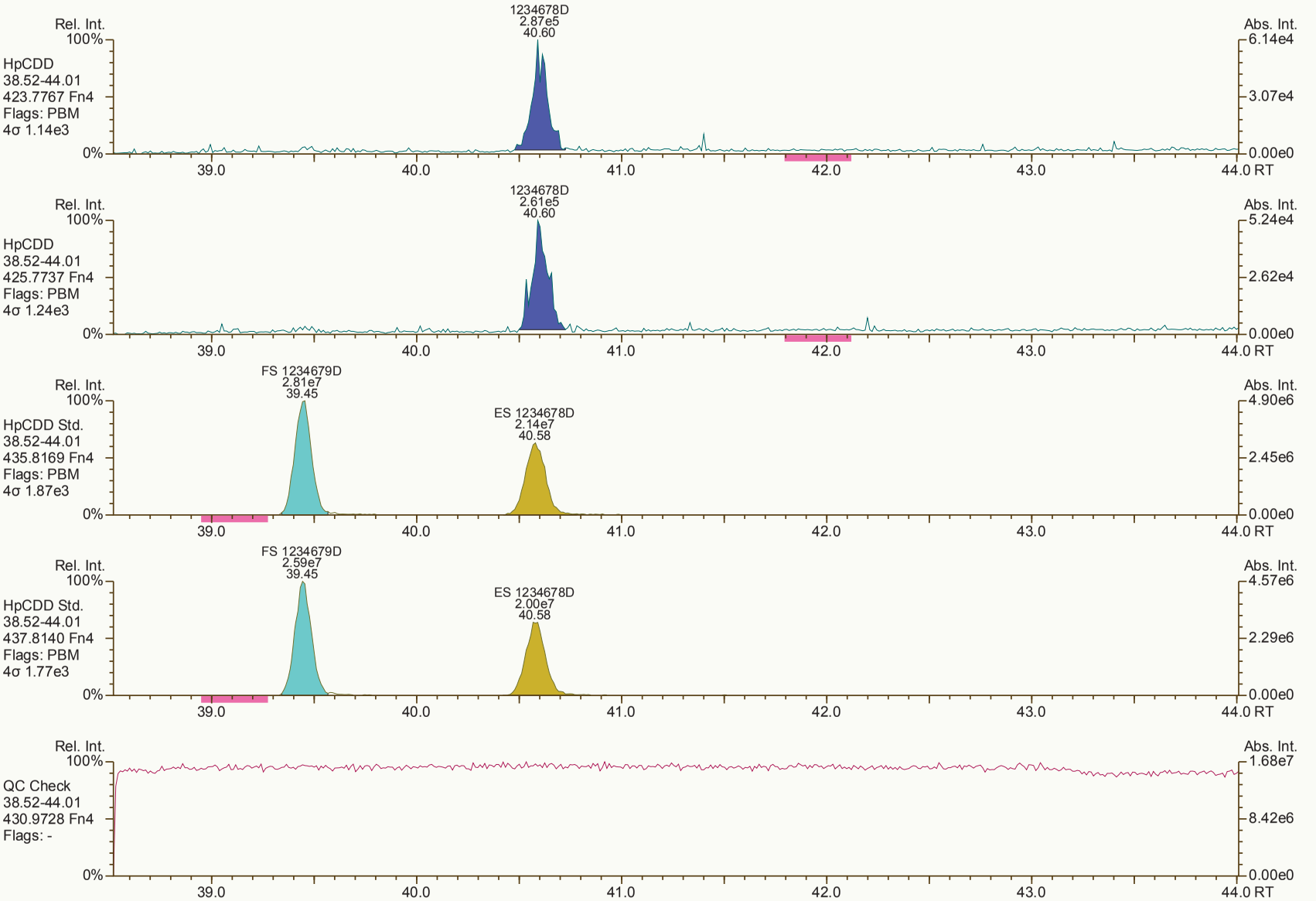
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1398, 3531 scc: 695-693 *Revised: 07-Jan-2016 10:52 (ARL) Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9222, 7274 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 4 of 12*

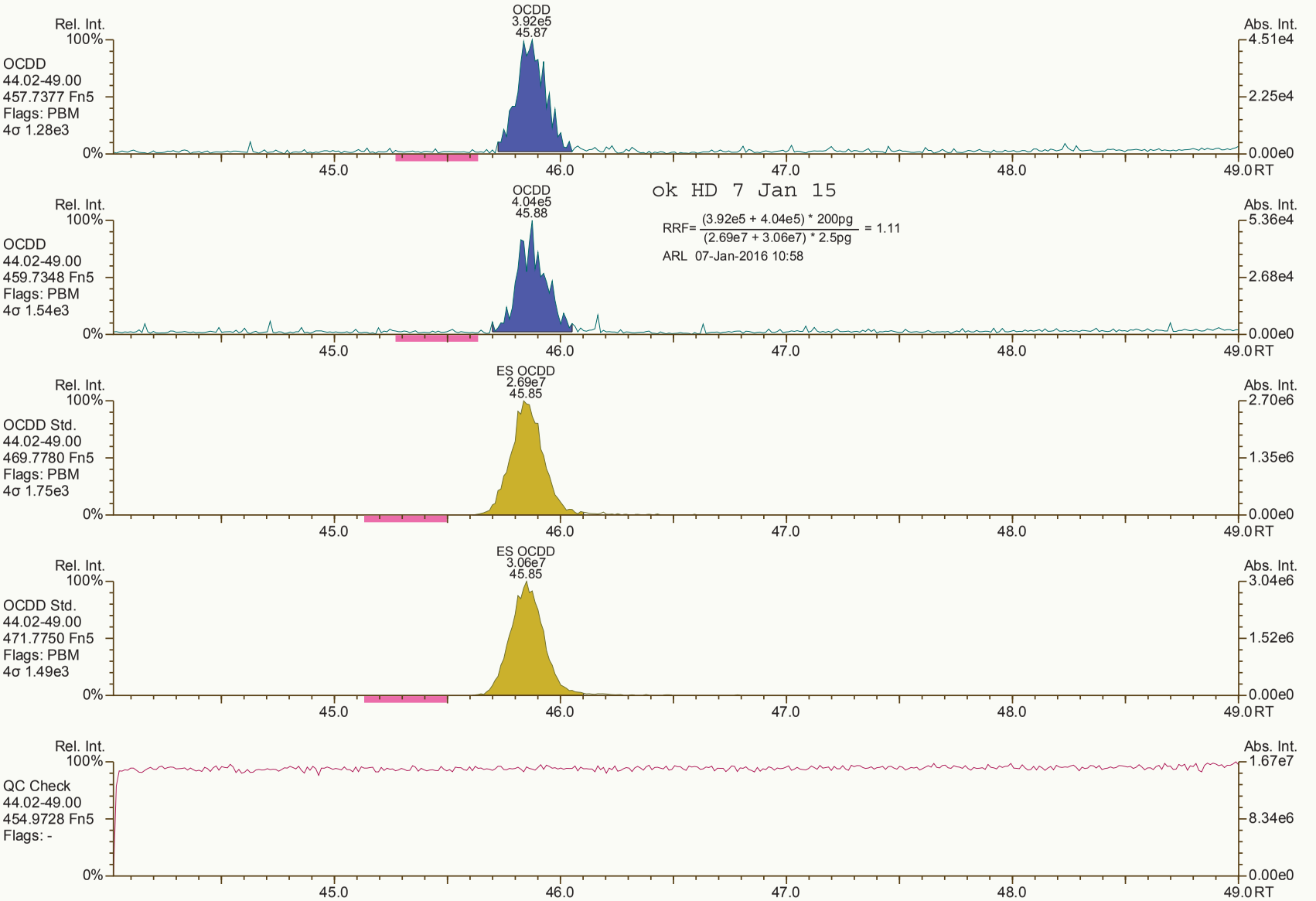
SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1521, 6632 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0871, 8309 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 6 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

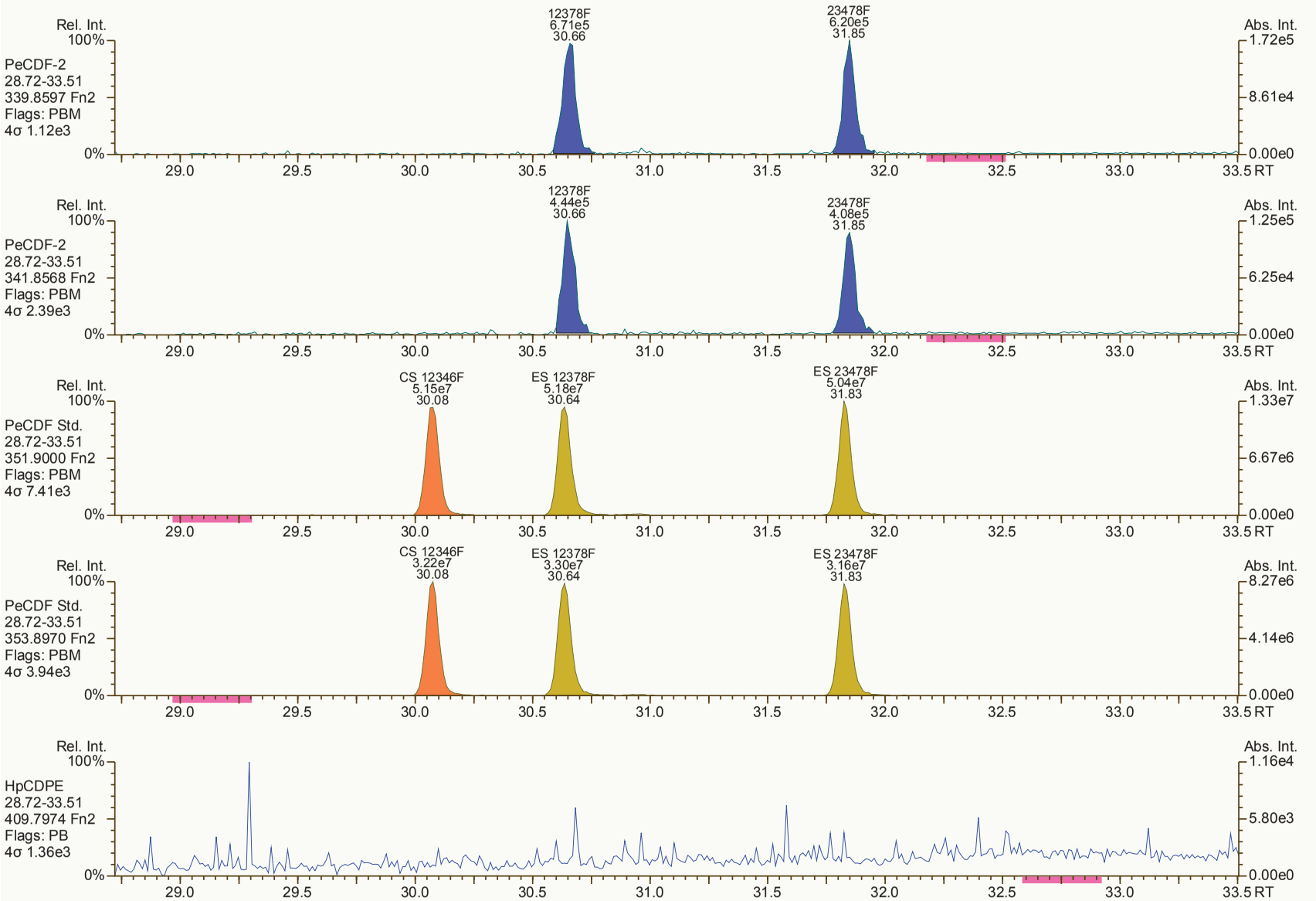
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1187, 6280, 8512 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 7 of 12*

SGS ID: CS0_160106_CA **Sample ID: SIL 15-105-2** **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** **User: ARL Datafile: 160106C05**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4185 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 8 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**

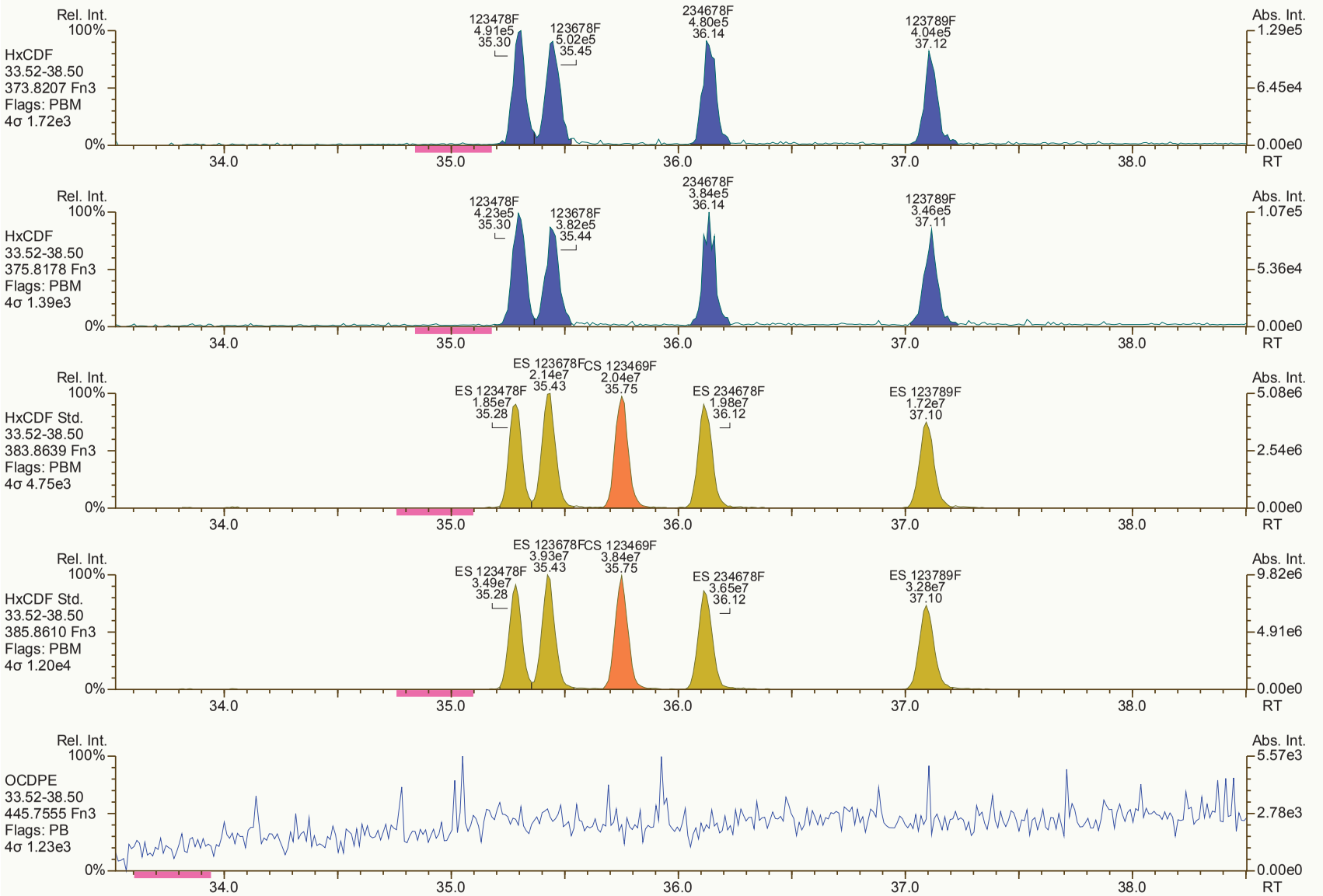


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0699, 4697, 4389 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 9 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**

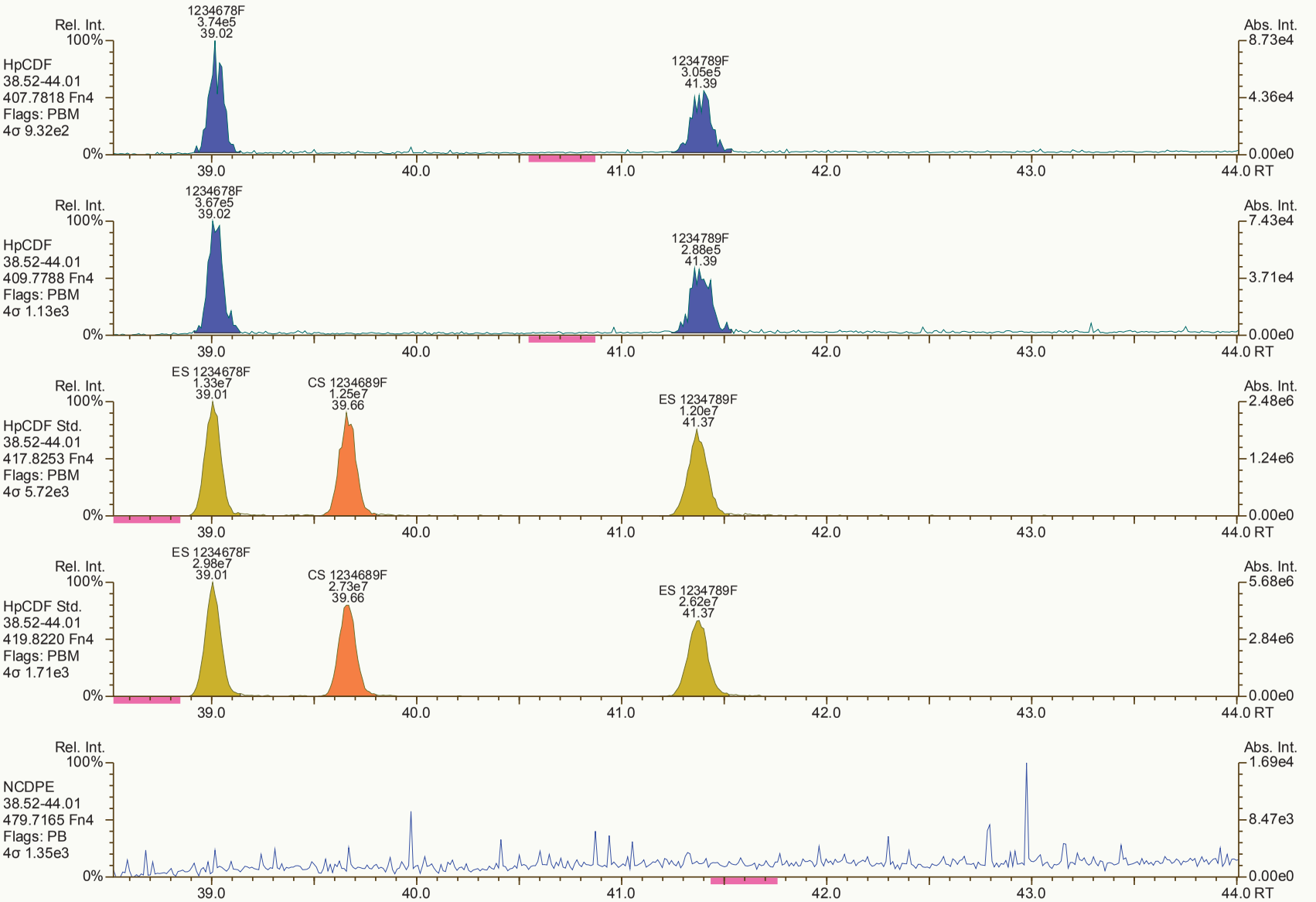
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*

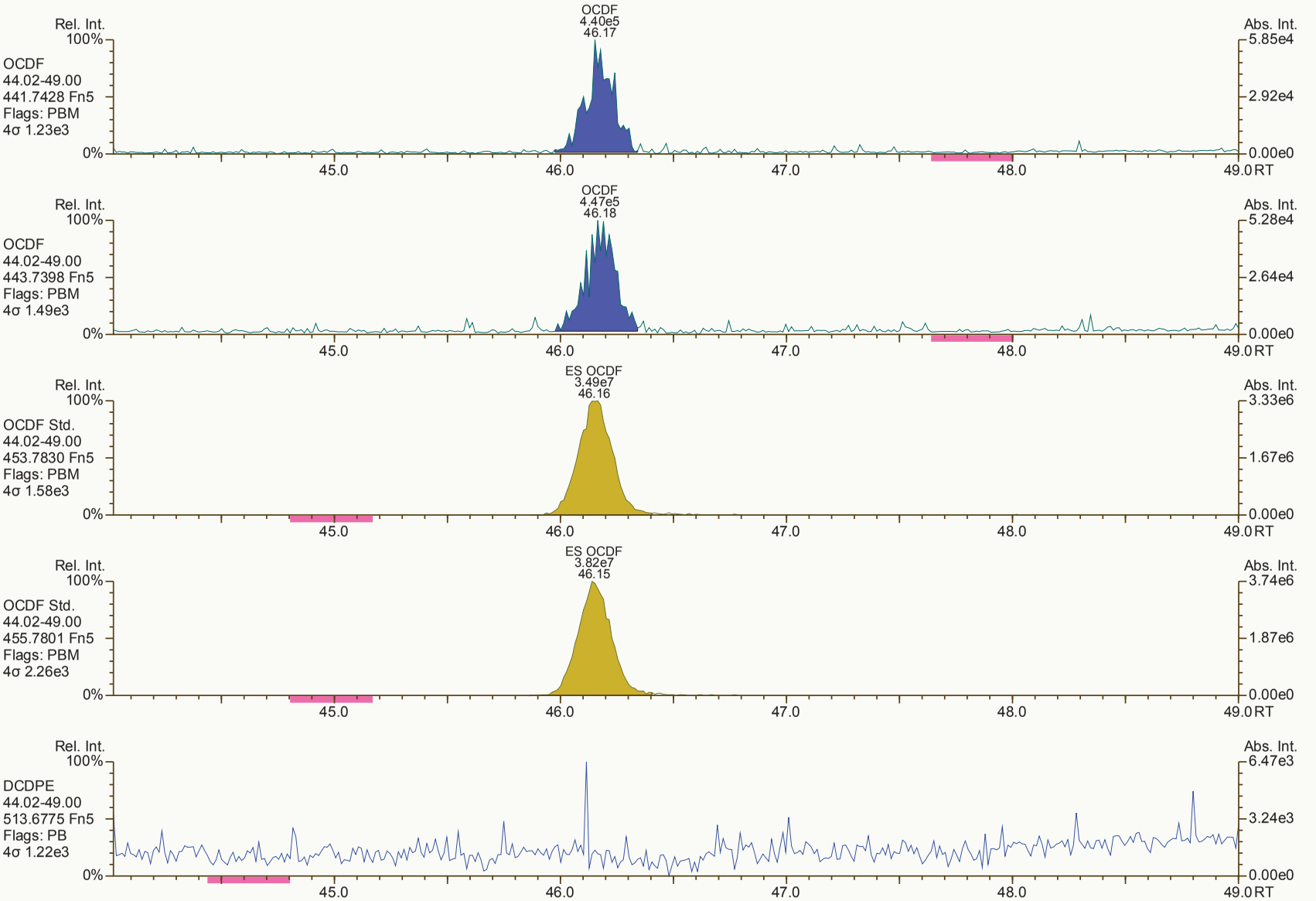
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0144, 5495, 9016 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 10 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6360, 8290, 8128 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 11 of 12*

SGS ID: CS0_160106_CA | **Sample ID: SIL 15-105-2** | **Acq: 06-Jan-2016 19:02:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 72** | **User: ARL Datafile: 160106C05**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS0_160106_CA.utp_res, saved 07-Jan-2016 10:59 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6417, 1191, 3831 scc: 695-693 *PKD: 07-Jan-2016 09:19 Printed: 07-Jan-2016 11:29 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:55 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS1_160106_CA | **UTP: 07-Jan-2016 10:52:22 ARL** | **Checkcode: 311-800-WDV**

Sample ID: SIL 15-105-1 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C06**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.42	3.50E+05	0.82	Y	1.19	1.23	4%
12378-PeCDD	32.23	1.28E+06	1.56	Y	1.02	1.05	3%
123478-HxCDD	36.33	1.24E+06	1.27	Y	1.08	1.13	4%
123678-HxCDD	36.45	1.10E+06	1.30	Y	1.05	0.98	-6%
123789-HxCDD	36.75	1.25E+06	1.23	Y	0.99	0.99	0%
1234678-HpCDD	40.64	9.02E+05	1.02	Y	1.02	1.02	0%
OCDD	45.85	1.55E+06	0.92	Y	1.09	1.11	2%
2378-TCDF	25.45	4.70E+05	0.85	Y	1.09	1.13	4%
12378-PeCDF	30.66	1.90E+06	1.55	Y	1.03	1.02	-1%
23478-PeCDF	31.86	1.89E+06	1.46	Y	1.02	1.03	1%
123478-HxCDF	35.31	1.78E+06	1.22	Y	1.29	1.36	5%
123678-HxCDF	35.45	1.86E+06	1.31	Y	1.17	1.22	4%
234678-HxCDF	36.12	1.68E+06	1.26	Y	1.18	1.19	1%
123789-HxCDF	37.10	1.58E+06	1.21	Y	1.18	1.24	5%
1234678-HpCDF	38.99	1.45E+06	1.10	Y	1.38	1.46	6%
1234789-HpCDF	41.42	1.14E+06	1.07	Y	1.30	1.37	6%
OCDF	46.09	1.88E+06	0.82	Y	1.03	1.05	2%
ES 2378-TCDD	26.40	5.67E+07	0.80	Y	1.06	1.07	1%
ES 12378-PeCDD	32.21	4.88E+07	1.57	Y	0.99	0.92	-7%
ES 123478-HxCDD	36.31	4.41E+07	1.27	Y	1.09	1.11	2%
ES 123678-HxCDD	36.43	4.47E+07	1.26	Y	1.10	1.13	3%
ES 123789-HxCDD	36.73	5.04E+07	1.26	Y	1.24	1.27	2%
ES 1234678-HpCDD	40.62	3.52E+07	1.14	Y	0.93	0.89	-5%
ES OCDD	45.84	5.58E+07	0.90	Y	0.71	0.70	-1%
ES 2378-TCDF	25.43	8.34E+07	0.79	Y	1.02	1.06	4%
ES 12378-PeCDF	30.65	7.43E+07	1.59	Y	0.96	0.95	-2%
ES 23478-PeCDF	31.84	7.36E+07	1.57	Y	0.95	0.94	-1%
ES 123478-HxCDF	35.29	5.23E+07	0.54	Y	1.32	1.32	0%
ES 123678-HxCDF	35.43	6.10E+07	0.53	Y	1.51	1.54	2%
ES 234678-HxCDF	36.11	5.65E+07	0.52	Y	1.38	1.43	3%
ES 123789-HxCDF	37.09	5.08E+07	0.54	Y	1.25	1.28	2%
ES 1234678-HpCDF	38.98	3.96E+07	0.46	Y	1.03	1.00	-3%
ES 1234789-HpCDF	41.41	3.33E+07	0.45	Y	0.87	0.84	-4%
ES OCDF	46.07	7.13E+07	0.92	Y	0.92	0.90	-2%

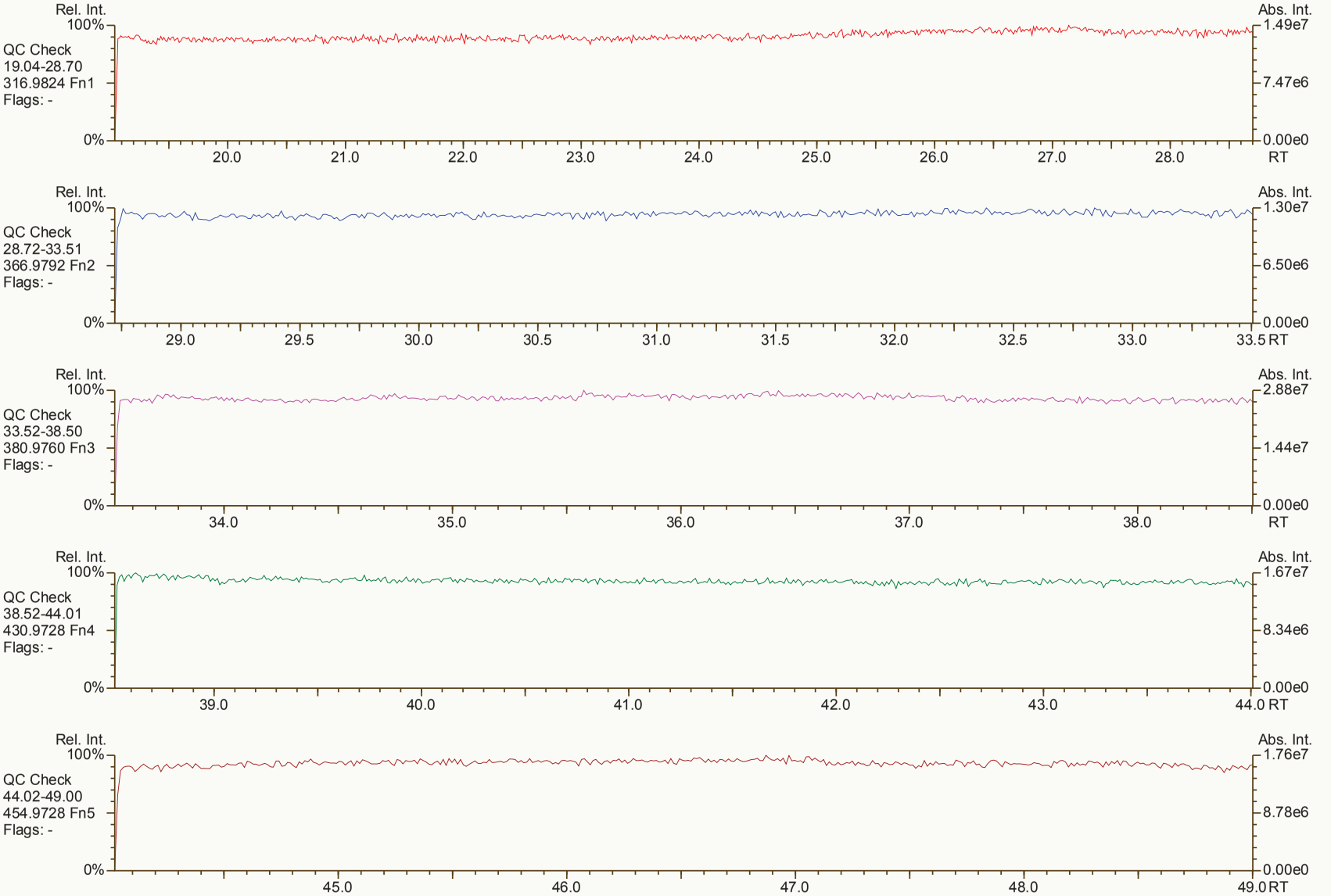
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 19:55 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS1_160106_CA | **UTP: 07-Jan-2016 10:52:22 ARL** | **Checkcode: 311-800**

Sample ID: SIL 15-105-1 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C06**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.68	5.30E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.91	7.84E+07	0.79	Y	-	-	-
JS 123467-HxCDD	36.62	1.98E+07	1.22	Y	-	-	-
CS 37Cl-2378-TCDD	26.43	3.49E+05	n/a	-	1.24	1.32	6%
CS 12347-PeCDD	31.68	4.51E+07	1.58	Y	0.94	0.85	-9%
CS 12346-PeCDF	30.08	6.86E+07	1.61	Y	0.92	0.87	-5%
CS 123469-HxCDF	35.74	5.54E+07	0.54	Y	1.38	1.40	1%
CS 1234689-HpCDF	39.66	3.36E+07	0.46	Y	0.88	0.85	-4%
SS 37Cl-2378-TCDD	26.43	3.49E+05	n/a	-	1.18	1.23	4%
SS 12347-PeCDD	31.68	4.51E+07	1.58	Y	0.94	0.92	-2%
SS 12346-PeCDF	30.08	6.86E+07	1.61	Y	0.96	0.92	-4%
SS 123469-HxCDF	35.74	5.54E+07	0.54	Y	0.92	0.91	-1%
SS 1234689-HpCDF	39.66	3.36E+07	0.46	Y	0.86	0.85	-1%
AS 1368-TCDD	22.23	5.26E+07	0.81	Y	1.05	0.99	-5%
AS 1368-TCDF	20.12	1.10E+08	0.81	Y	1.40	1.40	0%
FS 1278-TCDD	26.77	7.30E+07	0.80	Y	1.28	1.29	0%
FS 12478-PeCDD	30.90	5.58E+07	1.56	Y	1.11	1.14	3%
FS 123468-HxCDD	35.22	5.96E+07	1.27	Y	1.36	1.35	0%
FS 1234679-HpCDD	39.42	4.78E+07	1.06	Y	1.30	1.36	4%
TS 1378-TCDD	24.55	6.59E+07	0.80	Y	1.21	1.16	-4%
OCDD-a	Not Fnd				0.07		
OCDF-a	Not Fnd				0.06		

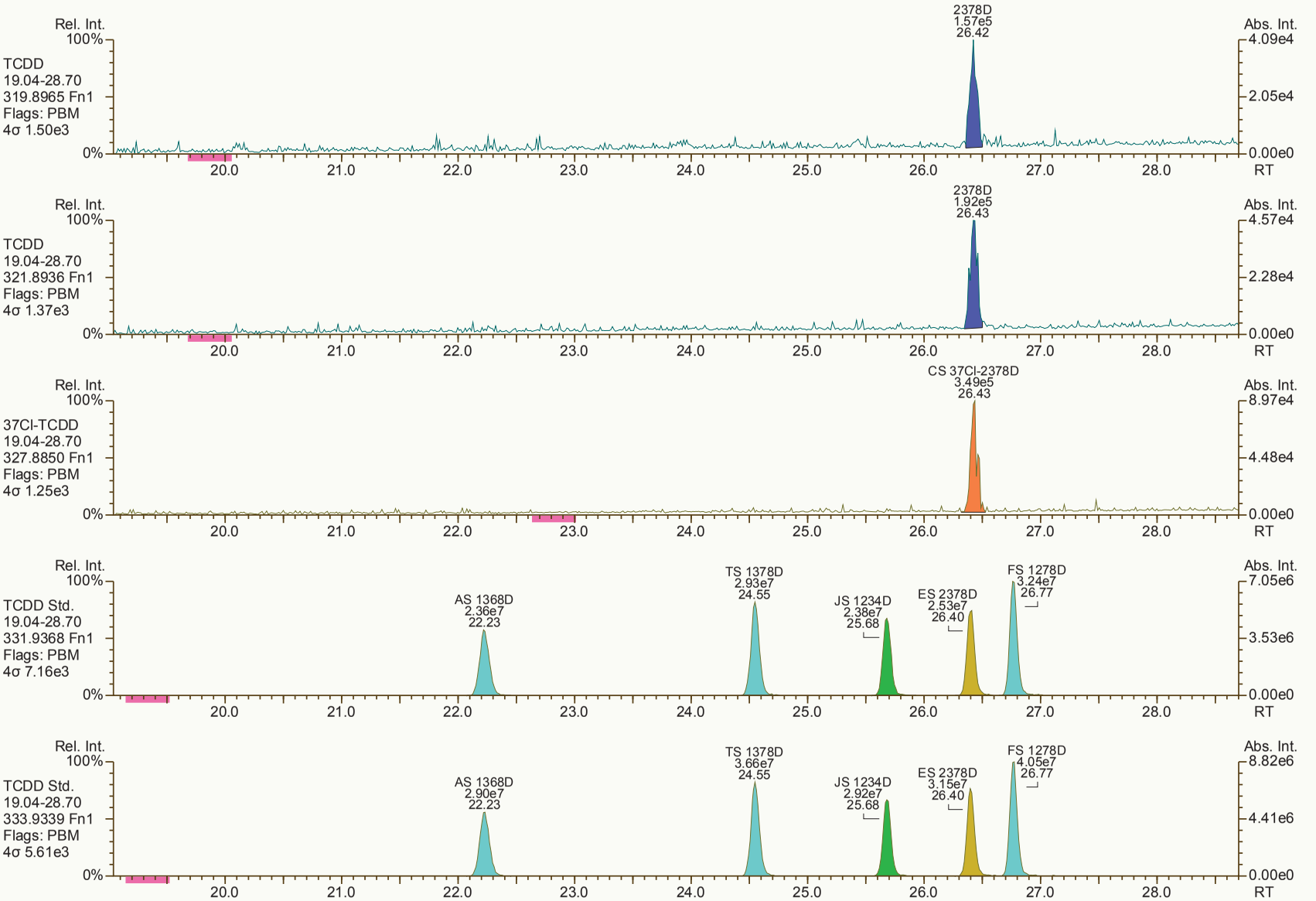
SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL)
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 311-800

Peak annotation: Areas, Centroids
PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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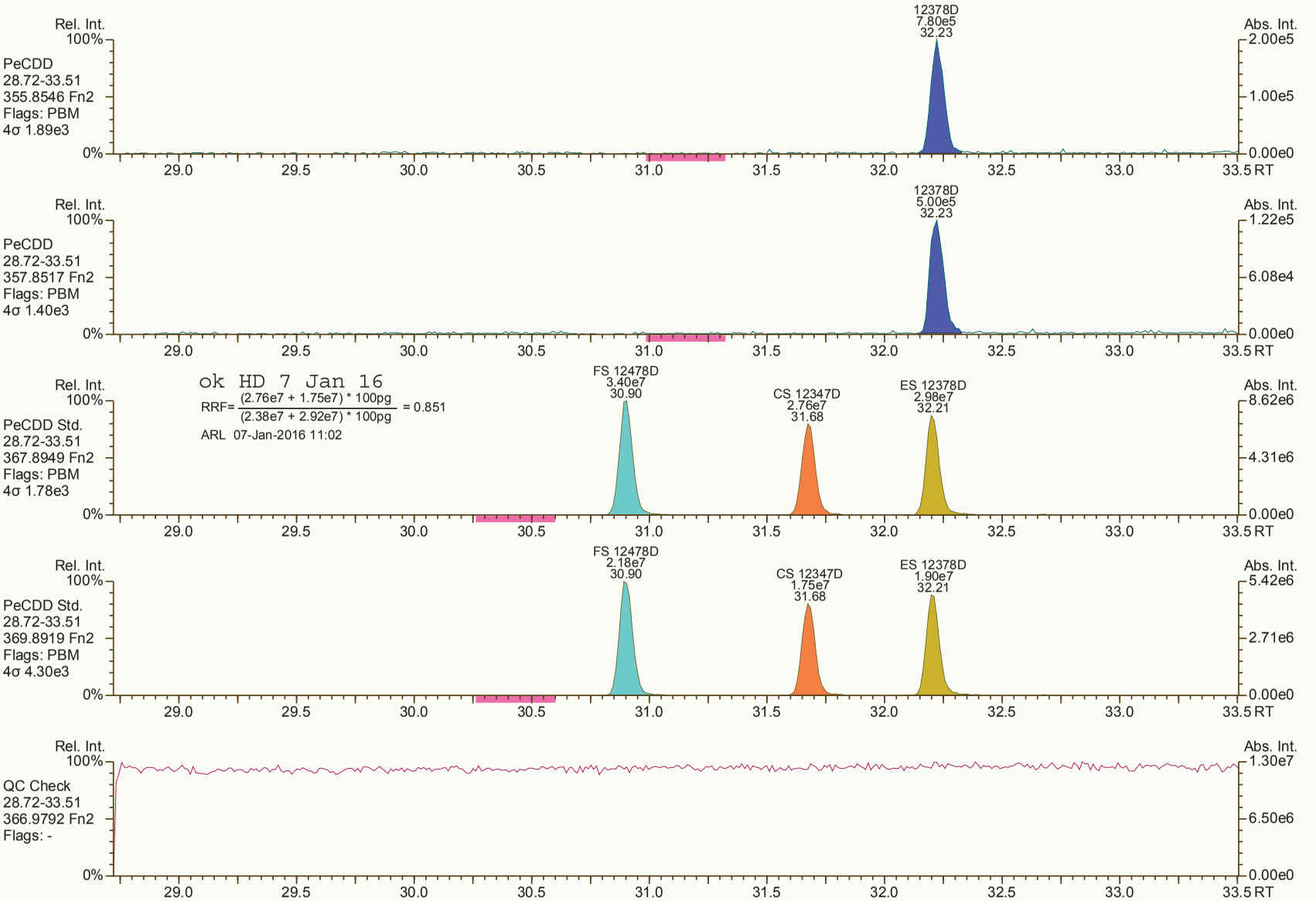
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2821, 1397, 4479 scc: 311-800 — *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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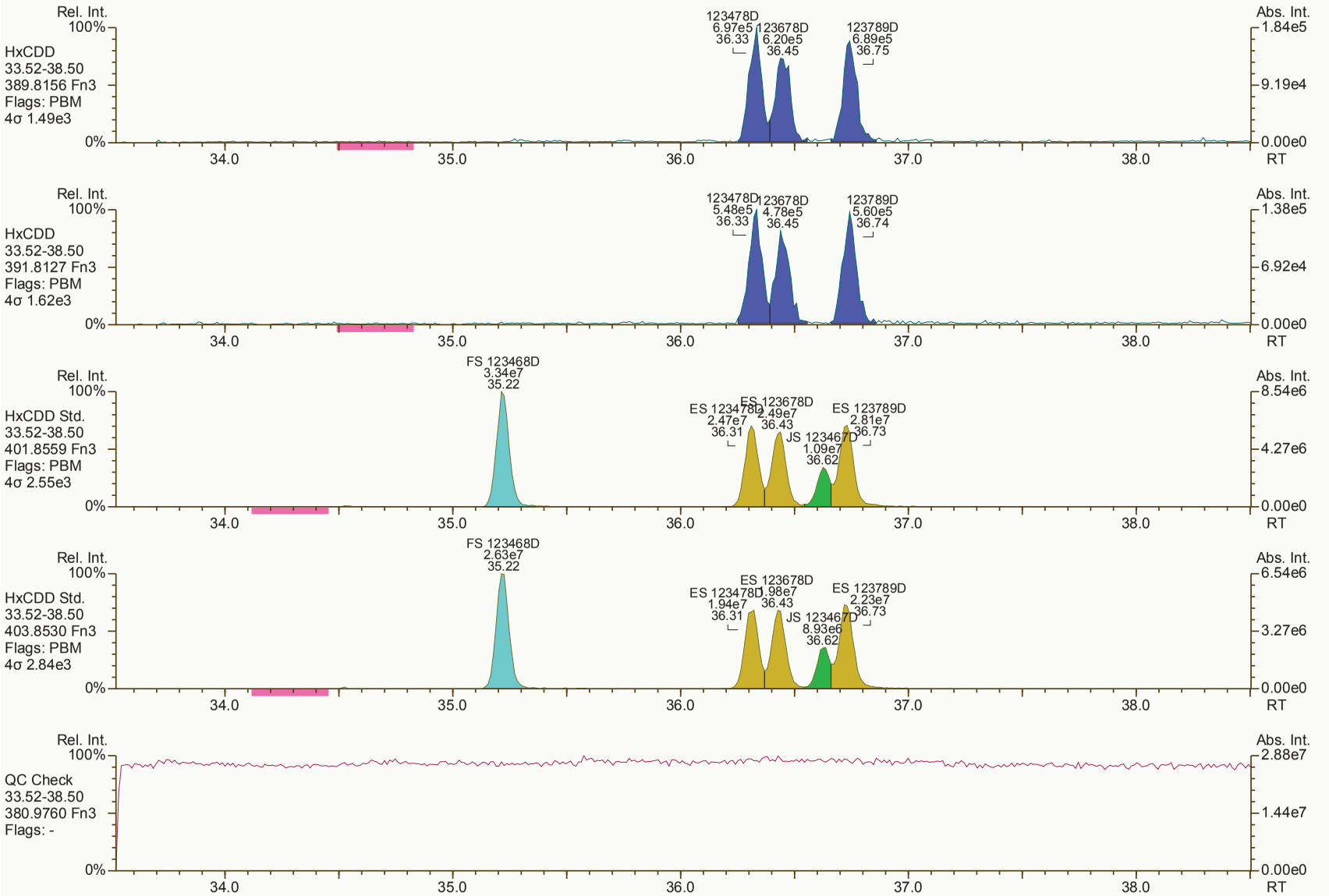
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2972, 5261 scc: 311-800 *Revised: 07-Jan-2016 09:22 (ARL) Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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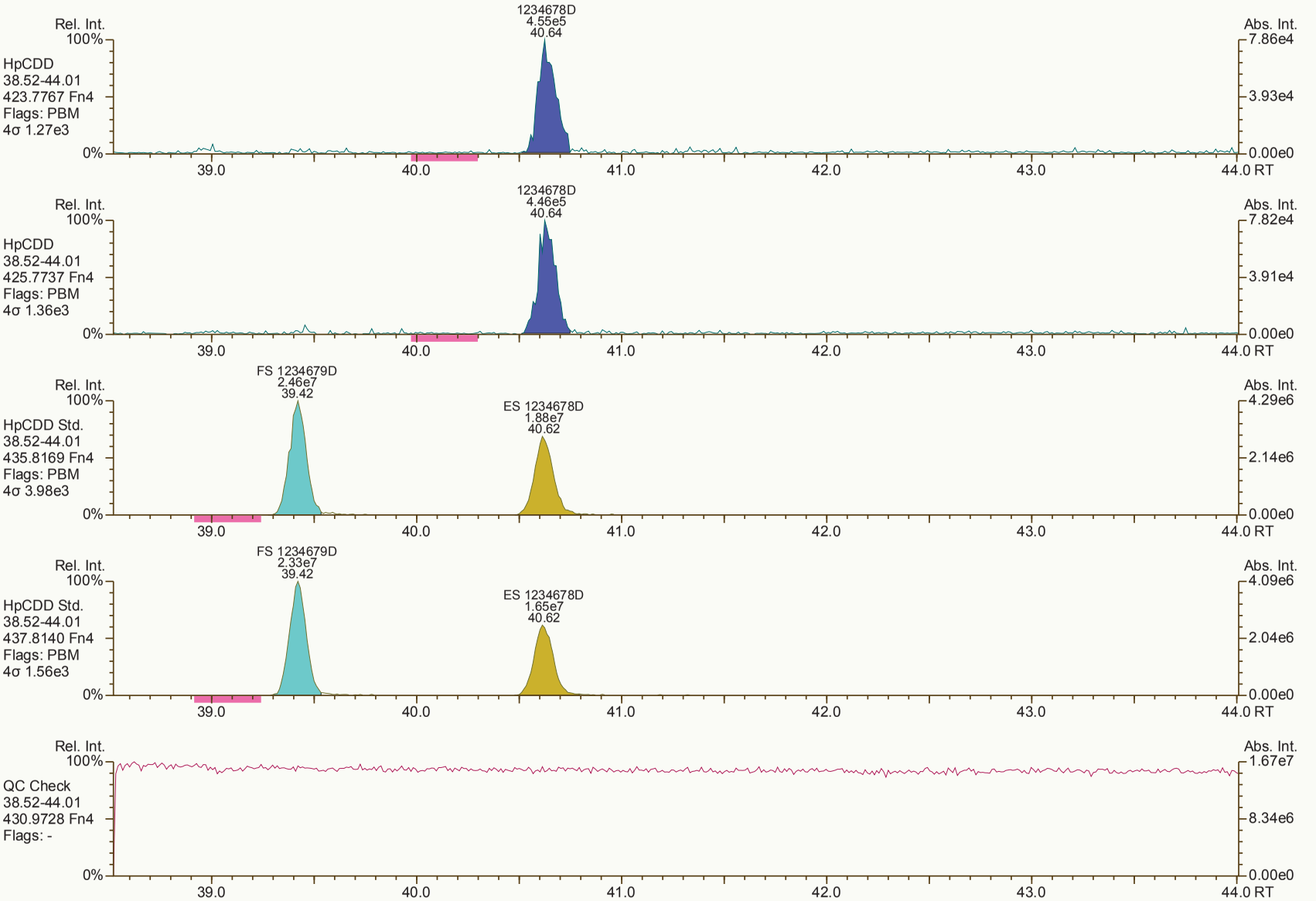
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6879, 7757 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 4 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9040, 2724 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1887, 4898 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 6 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**

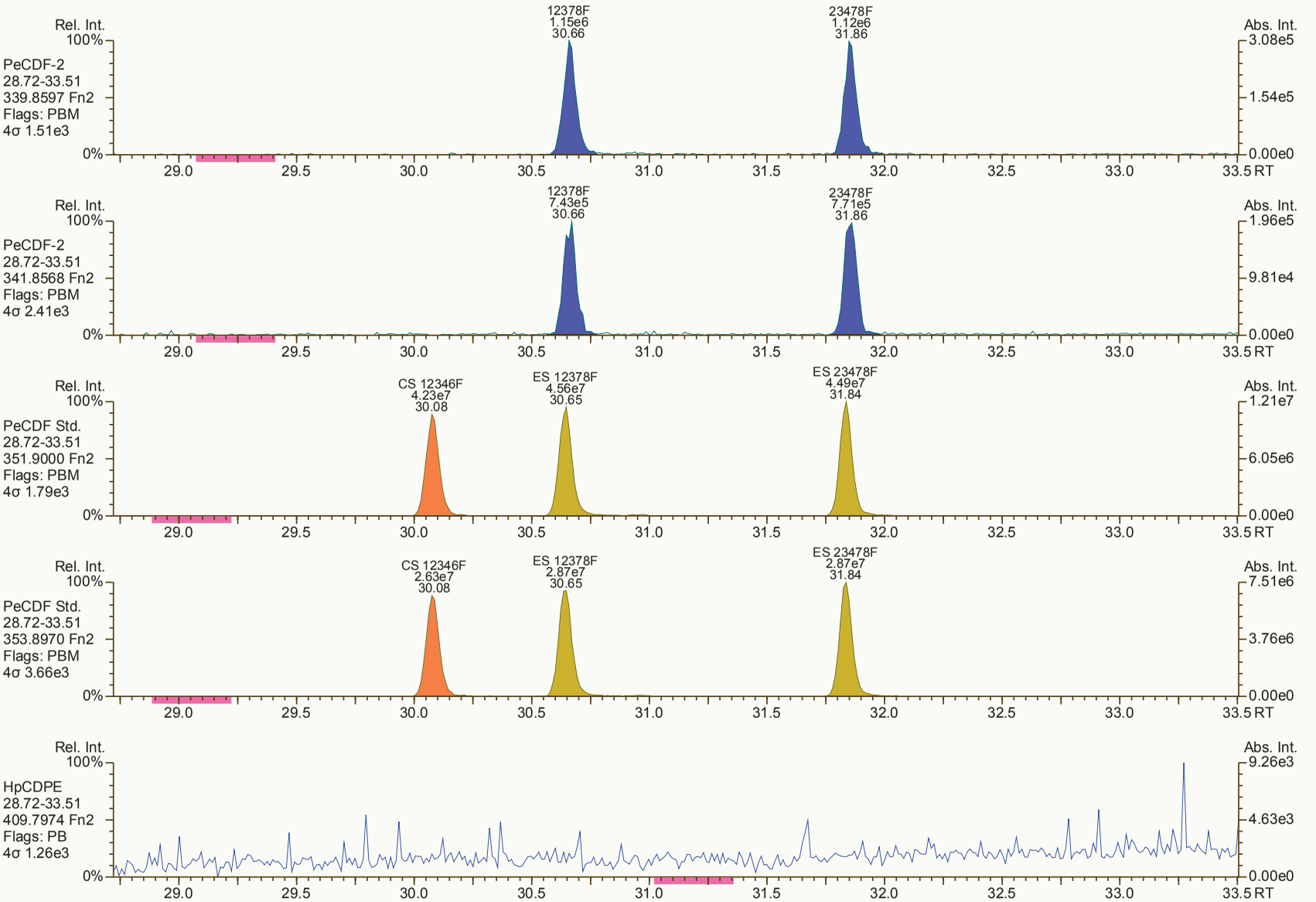
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7240, 3263, 8391 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS1_160106_CA **Sample ID: SIL 15-105-1** **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** **User: ARL Datafile: 160106C06**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3476 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 8 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



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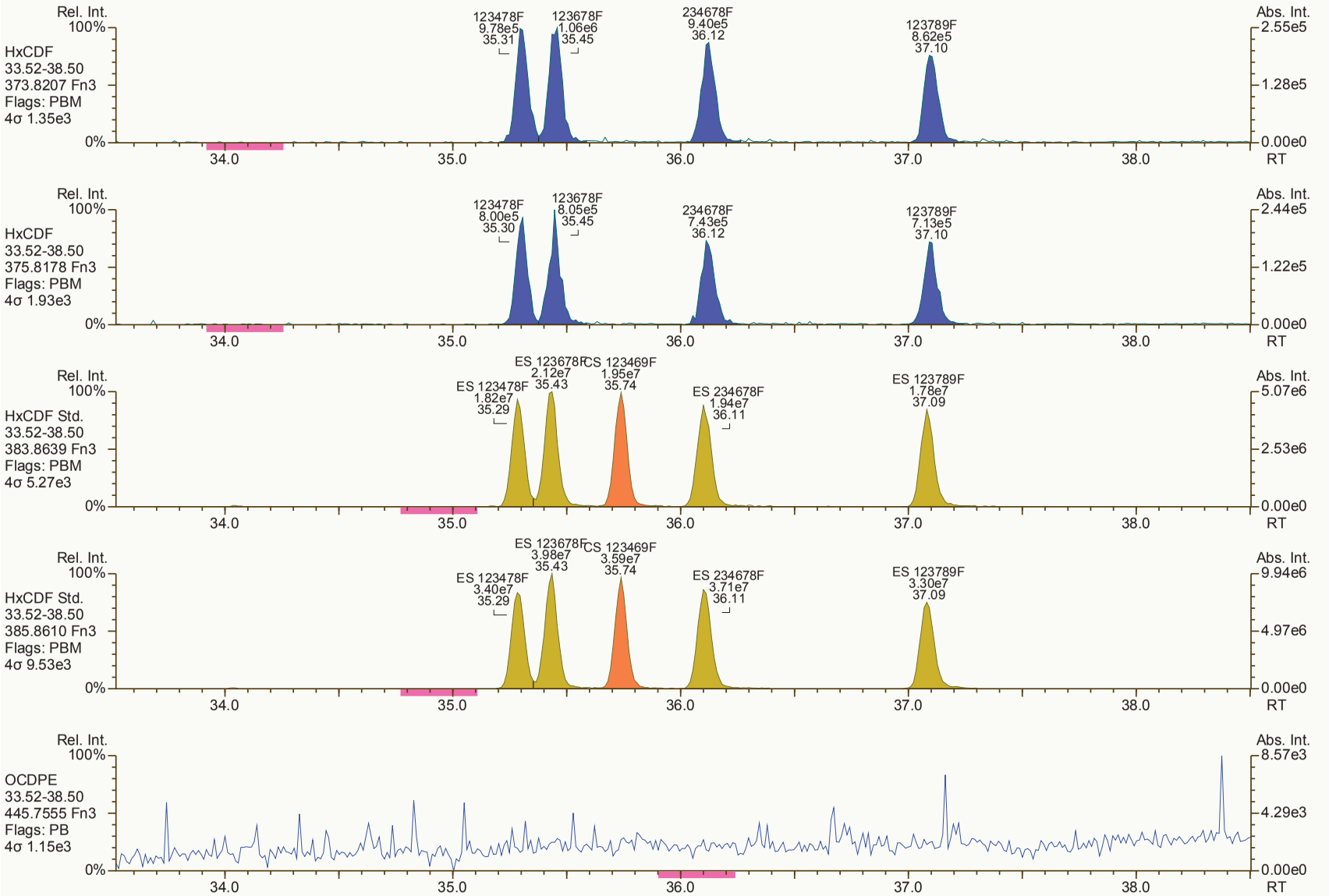
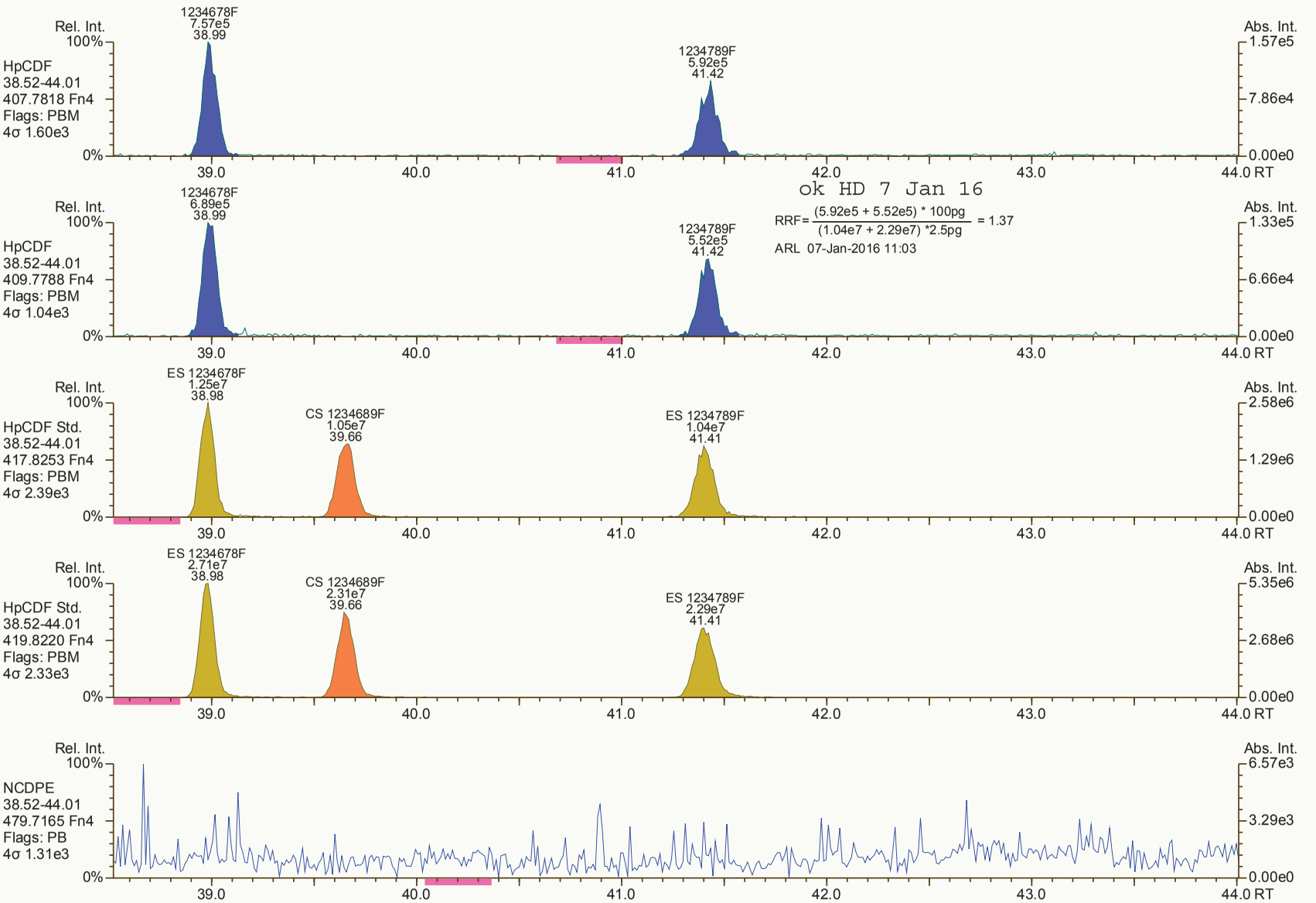
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1795, 7168, 2748 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1337, 1373, 7927 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 10 of 12*

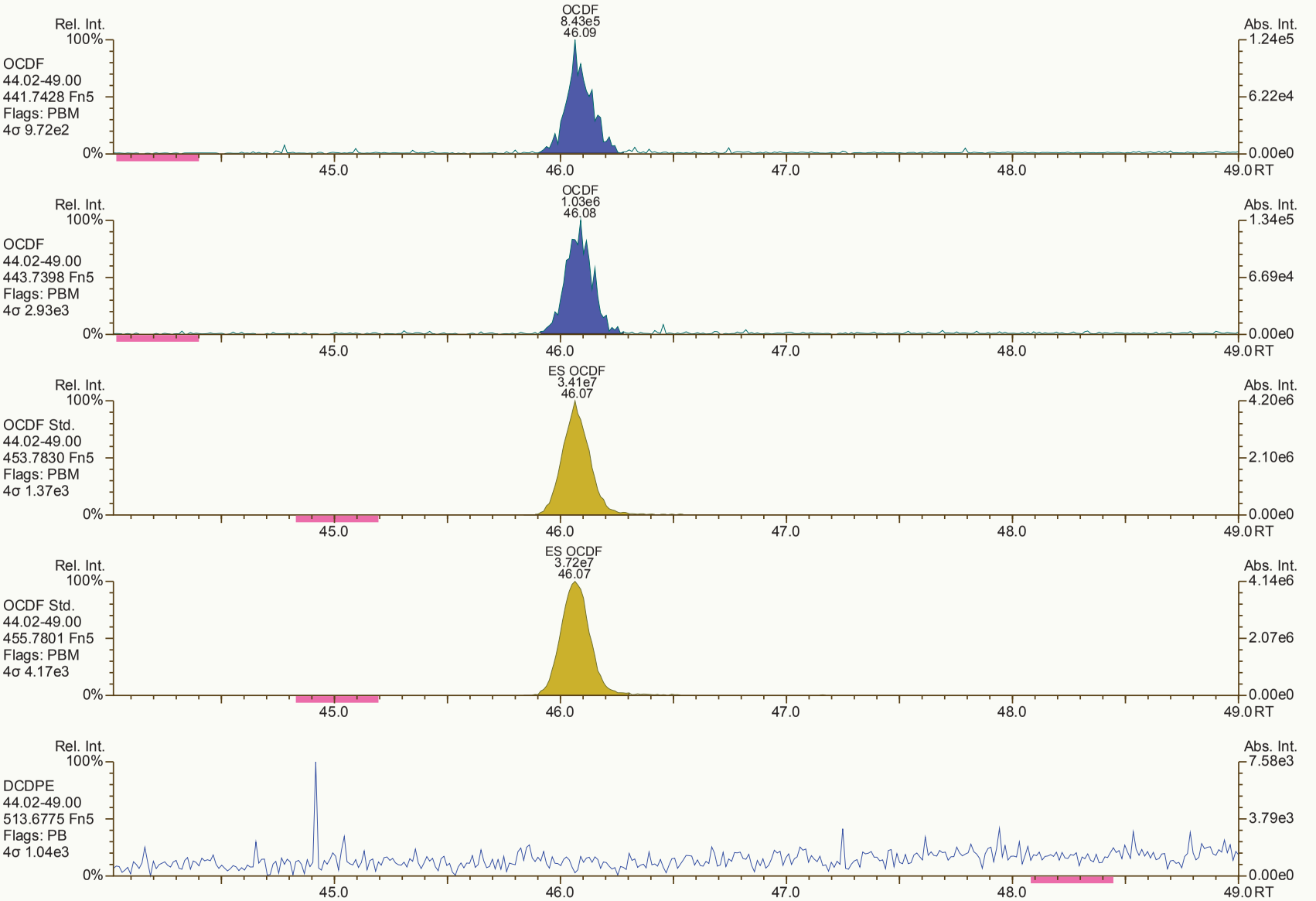
SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8583, 8013, 6835 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS1_160106_CA | **Sample ID: SIL 15-105-1** | **Acq: 06-Jan-2016 19:55:05**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 73** | **User: ARL Datafile: 160106C06**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS1_160106_CA.utp_res, saved 07-Jan-2016 11:04 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9724, 8001, 2356 scc: 311-800 *PKD: 07-Jan-2016 09:22 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 20:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS2_160106_CA | **UTP: 07-Jan-2016 10:52:23 ARL** | **Checkcode: 134-724-DJT**

Sample ID: SIL 15-104-3 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C07**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.43	1.45E+06	0.74	Y	1.19	1.18	0%
12378-PeCDD	32.23	6.24E+06	1.54	Y	1.02	1.06	4%
123478-HxCDD	36.32	5.05E+06	1.20	Y	1.08	1.11	2%
123678-HxCDD	36.43	5.31E+06	1.28	Y	1.05	1.13	8%
123789-HxCDD	36.73	5.46E+06	1.23	Y	0.99	1.07	8%
1234678-HpCDD	40.64	4.39E+06	1.01	Y	1.02	1.06	4%
OCDD	45.80	6.80E+06	0.94	Y	1.09	1.14	4%
2378-TCDF	25.47	2.14E+06	0.80	Y	1.09	1.17	8%
12378-PeCDF	30.66	9.16E+06	1.54	Y	1.03	1.06	3%
23478-PeCDF	31.85	9.38E+06	1.51	Y	1.02	1.09	6%
123478-HxCDF	35.30	7.63E+06	1.22	Y	1.29	1.33	3%
123678-HxCDF	35.44	7.85E+06	1.26	Y	1.17	1.22	4%
234678-HxCDF	36.13	7.20E+06	1.24	Y	1.18	1.20	2%
123789-HxCDF	37.10	6.62E+06	1.22	Y	1.18	1.25	6%
1234678-HpCDF	39.03	6.18E+06	1.00	Y	1.38	1.40	2%
1234789-HpCDF	41.37	5.24E+06	1.08	Y	1.30	1.39	7%
OCDF	46.12	8.51E+06	0.88	Y	1.03	1.12	8%
ES 2378-TCDD	26.41	6.12E+07	0.78	Y	1.06	1.03	-3%
ES 12378-PeCDD	32.21	5.91E+07	1.54	Y	0.99	1.00	0%
ES 123478-HxCDD	36.30	4.55E+07	1.29	Y	1.09	0.96	-12%
ES 123678-HxCDD	36.42	4.69E+07	1.26	Y	1.10	0.99	-10%
ES 123789-HxCDD	36.72	5.08E+07	1.25	Y	1.24	1.07	-14%
ES 1234678-HpCDD	40.62	4.15E+07	1.05	Y	0.93	0.87	-7%
ES OCDD	45.77	5.98E+07	0.91	Y	0.71	0.63	-11%
ES 2378-TCDF	25.45	9.13E+07	0.79	Y	1.02	0.97	-5%
ES 12378-PeCDF	30.65	8.64E+07	1.58	Y	0.96	0.92	-4%
ES 23478-PeCDF	31.83	8.63E+07	1.55	Y	0.95	0.92	-3%
ES 123478-HxCDF	35.28	5.75E+07	0.54	Y	1.32	1.21	-8%
ES 123678-HxCDF	35.42	6.45E+07	0.55	Y	1.51	1.36	-10%
ES 234678-HxCDF	36.11	5.99E+07	0.53	Y	1.38	1.26	-9%
ES 123789-HxCDF	37.09	5.28E+07	0.54	Y	1.25	1.11	-11%
ES 1234678-HpCDF	39.01	4.41E+07	0.47	Y	1.03	0.93	-9%
ES 1234789-HpCDF	41.35	3.76E+07	0.45	Y	0.87	0.79	-9%
ES OCDF	46.10	7.58E+07	0.90	Y	0.92	0.80	-13%

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 20:47 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS2_160106_CA | **UTP: 07-Jan-2016 10:52:23 ARL** | **Checkcode: 134-724**

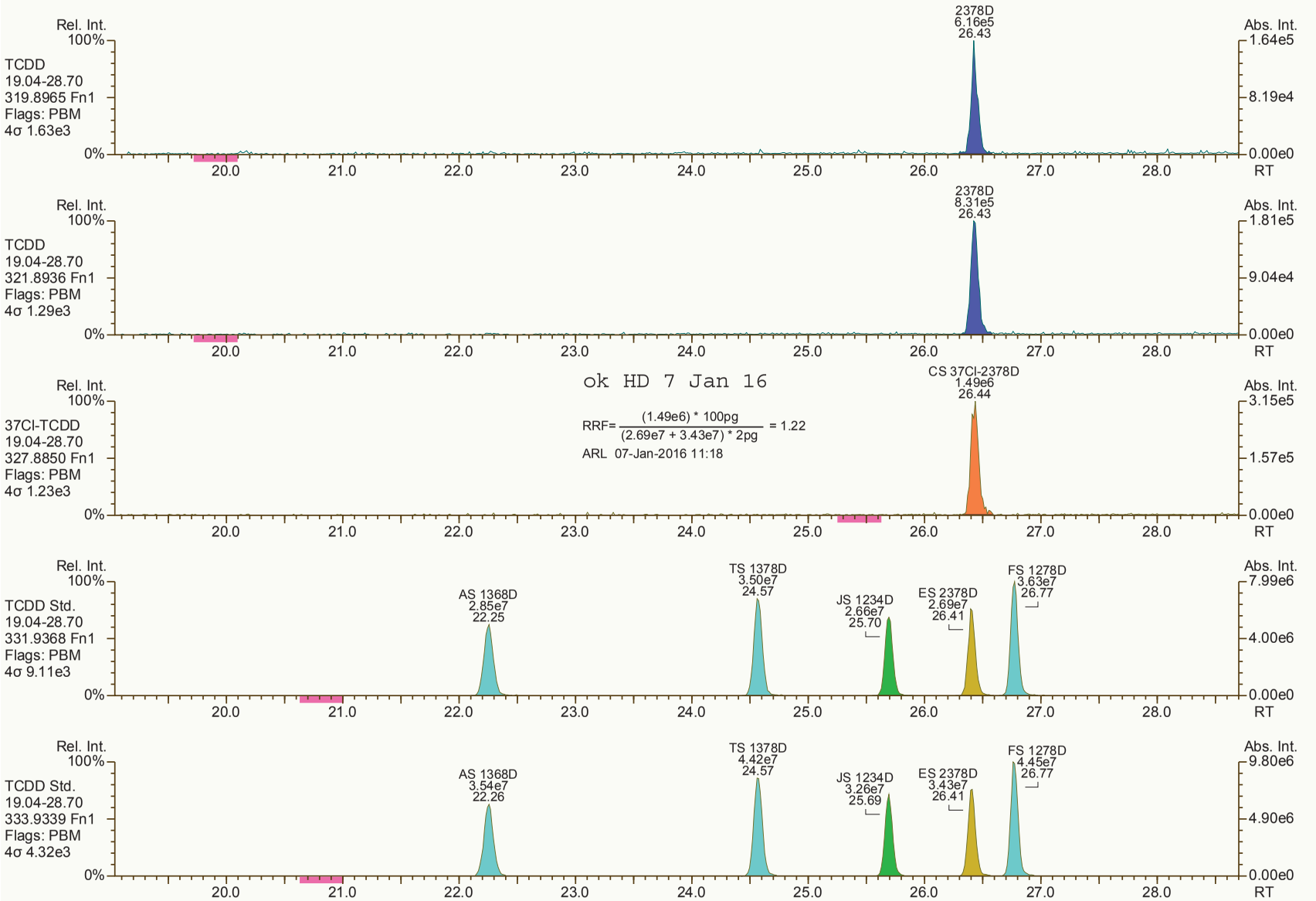
Sample ID: SIL 15-104-3 | **Report: 07 Jan 2016 11:07 AL** | **Datafile: 160106C07**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.92E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.93	9.37E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.62	2.37E+07	1.29	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	1.49E+06	n/a	-	1.24	1.25	1%
CS 12347-PeCDD	31.68	5.83E+07	1.58	Y	0.94	0.98	5%
CS 12346-PeCDF	30.08	8.49E+07	1.58	Y	0.92	0.91	-2%
CS 123469-HxCDF	35.74	6.30E+07	0.53	Y	1.38	1.33	-4%
CS 1234689-HpCDF	39.67	4.00E+07	0.46	Y	0.88	0.84	-4%
SS 37Cl-2378-TCDD	26.44	1.49E+06	n/a	-	1.18	1.21	3%
SS 12347-PeCDD	31.68	5.83E+07	1.58	Y	0.94	0.99	4%
SS 12346-PeCDF	30.08	8.49E+07	1.58	Y	0.96	0.98	2%
SS 123469-HxCDF	35.74	6.30E+07	0.53	Y	0.92	0.98	7%
SS 1234689-HpCDF	39.67	4.00E+07	0.46	Y	0.86	0.91	6%
AS 1368-TCDD	22.25	6.39E+07	0.80	Y	1.05	1.08	3%
AS 1368-TCDF	20.14	1.25E+08	0.79	Y	1.40	1.33	-5%
FS 1278-TCDD	26.77	8.08E+07	0.81	Y	1.28	1.32	3%
FS 12478-PeCDD	30.90	6.65E+07	1.55	Y	1.11	1.13	1%
FS 123468-HxCDD	35.21	6.76E+07	1.23	Y	1.36	1.48	9%
FS 1234679-HpCDD	39.45	5.43E+07	1.06	Y	1.30	1.31	1%
TS 1378-TCDD	24.57	7.91E+07	0.79	Y	1.21	1.29	7%
OCDD-a	45.78	3.74E+05	2.29	Y	0.07	0.06	-7%
OCDF-a	46.11	4.27E+05	2.12	Y	0.06	0.06	-12%

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**

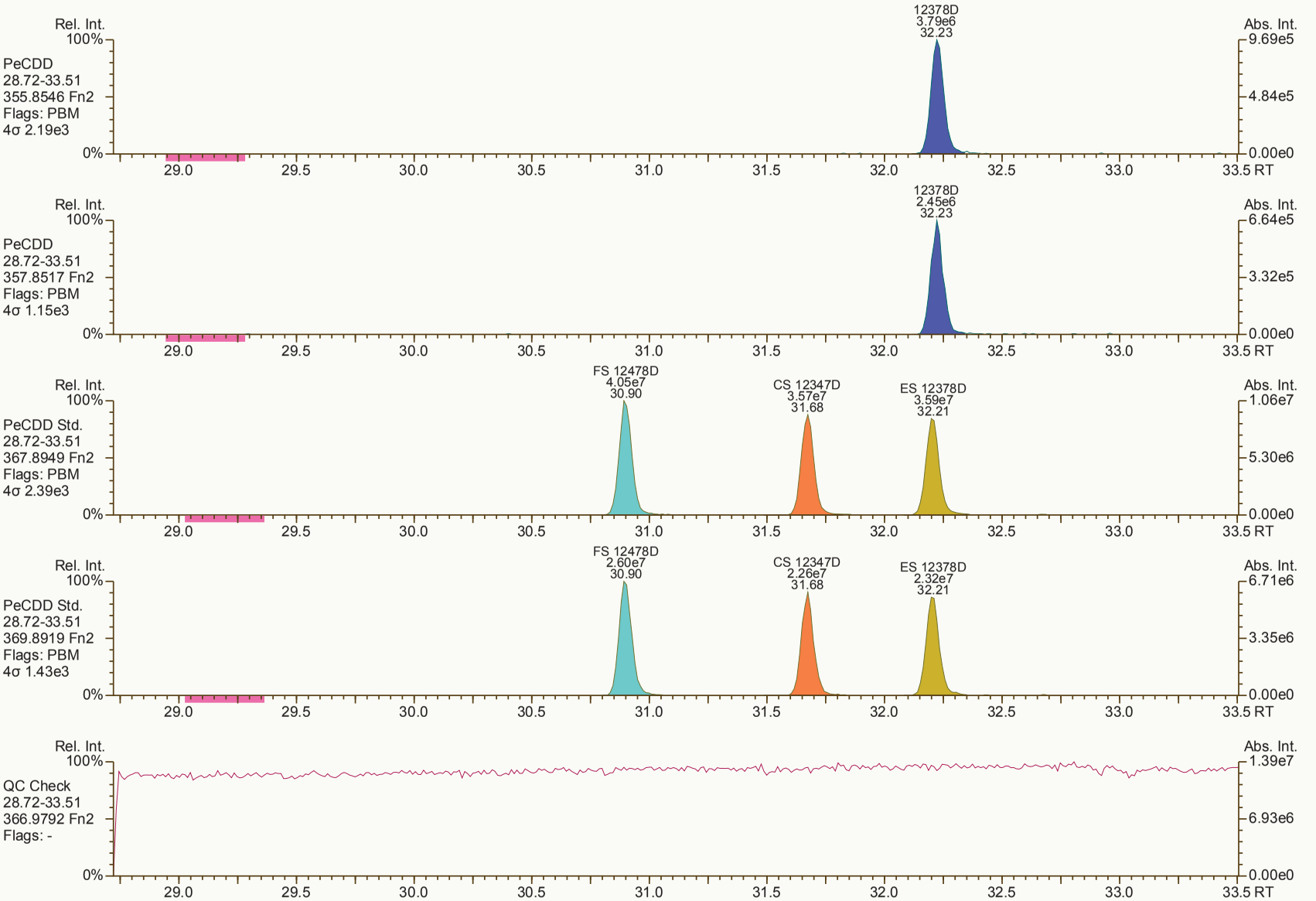
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 134-724 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2905, 4759, 5715 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 2 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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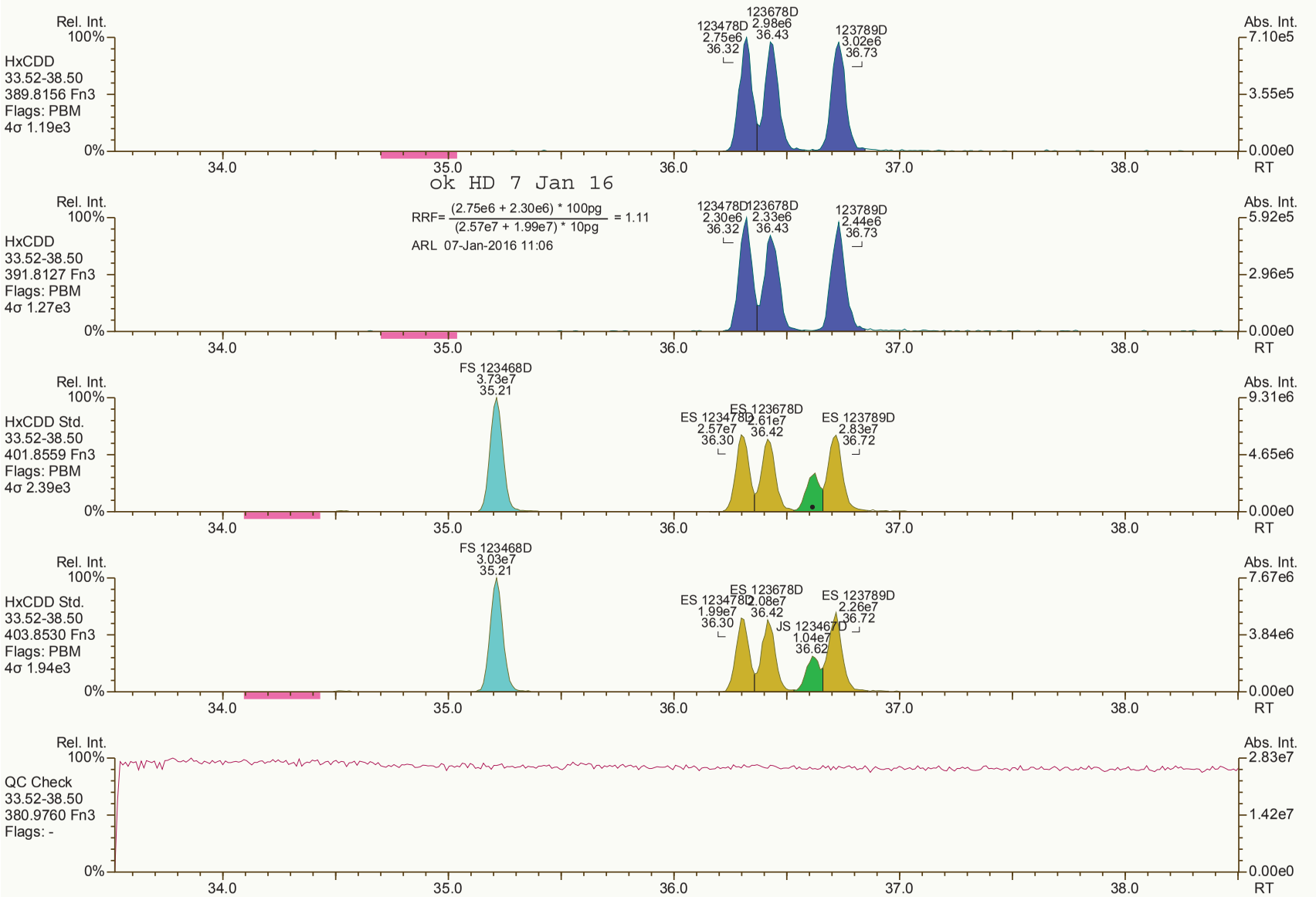
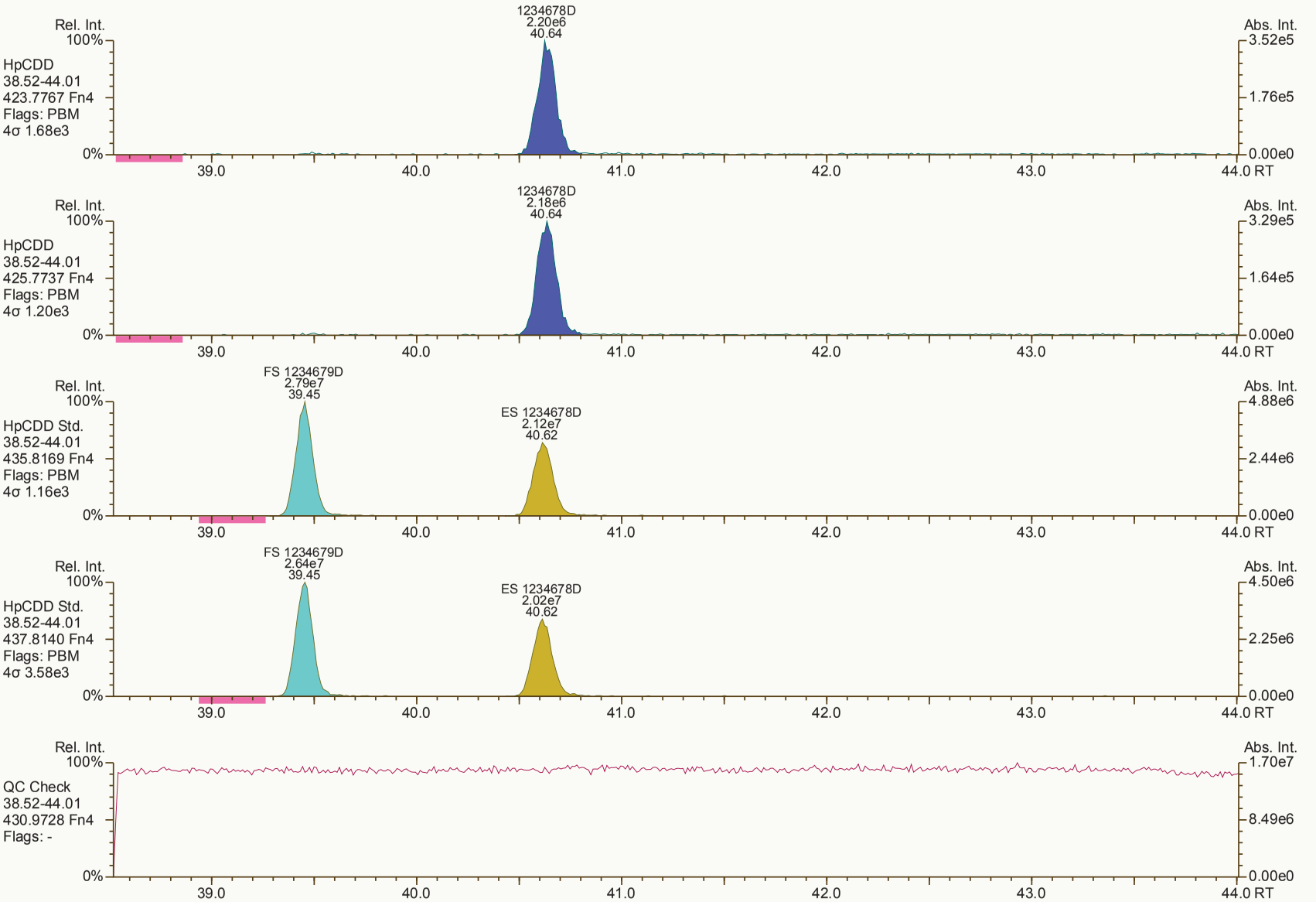
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5718, 9709 scc: 134-724 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0386, 5612 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 4 of 12*

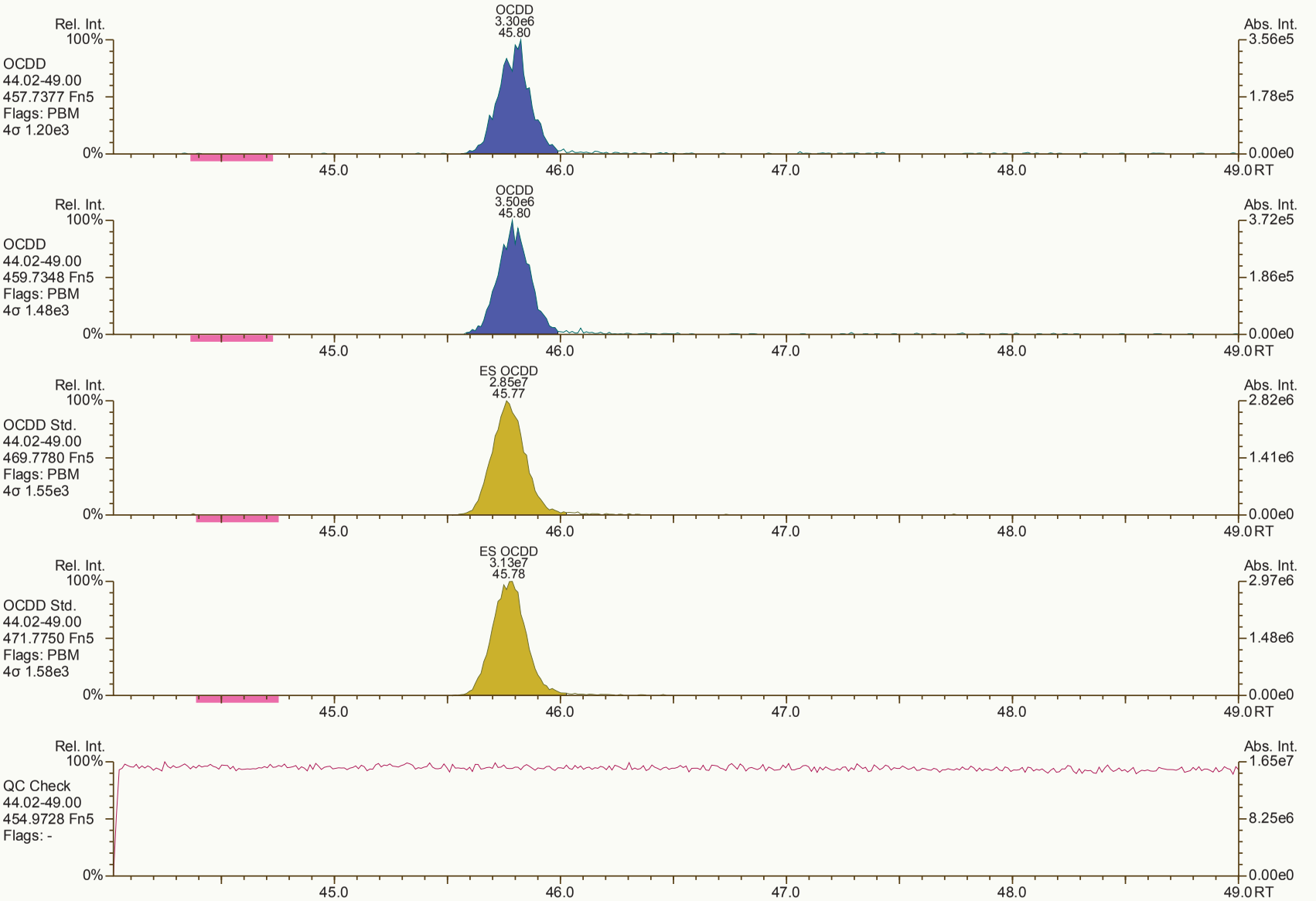
SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3640, 4235 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 5 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



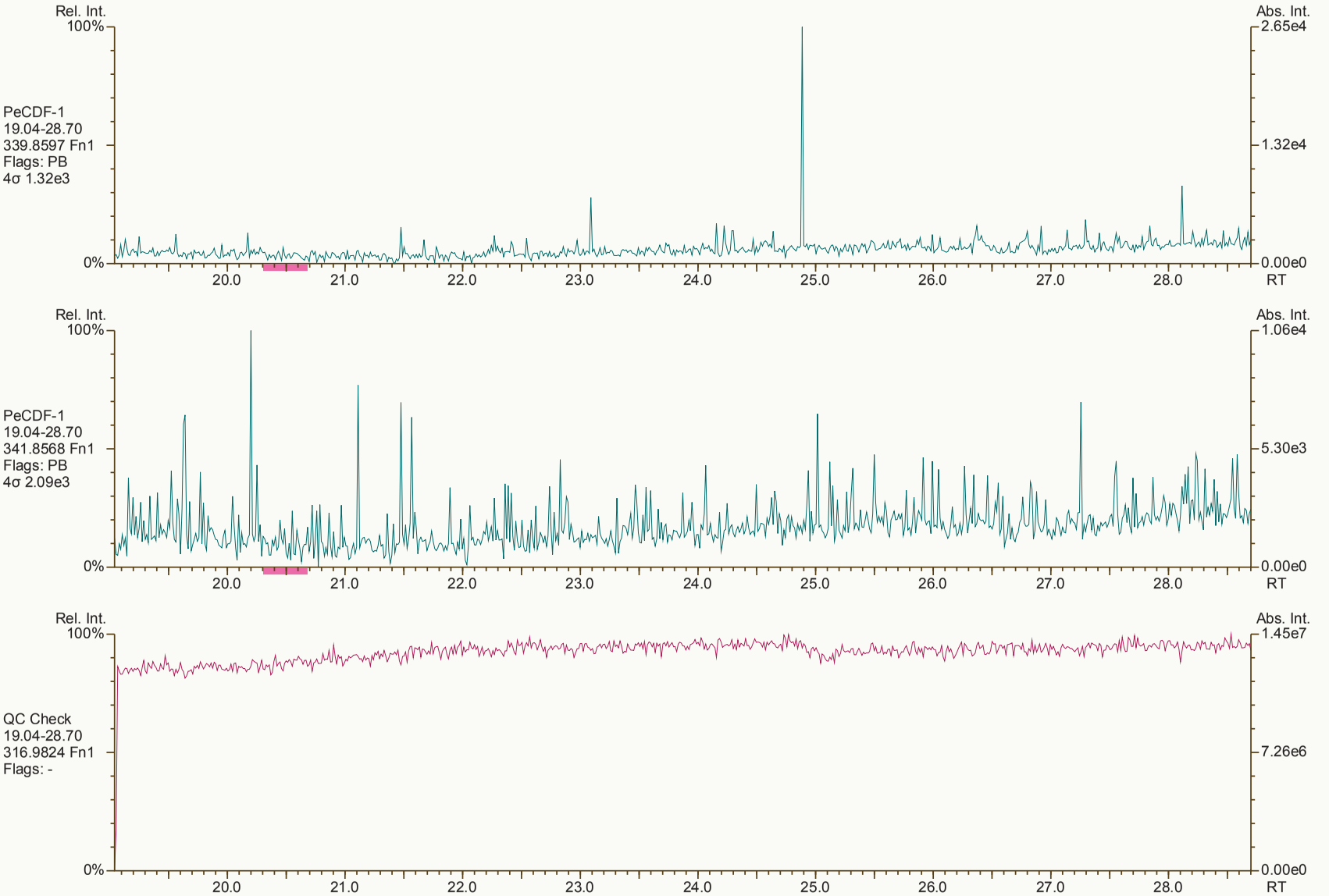
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7725, 5852 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 6 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7287, 2325, 5562 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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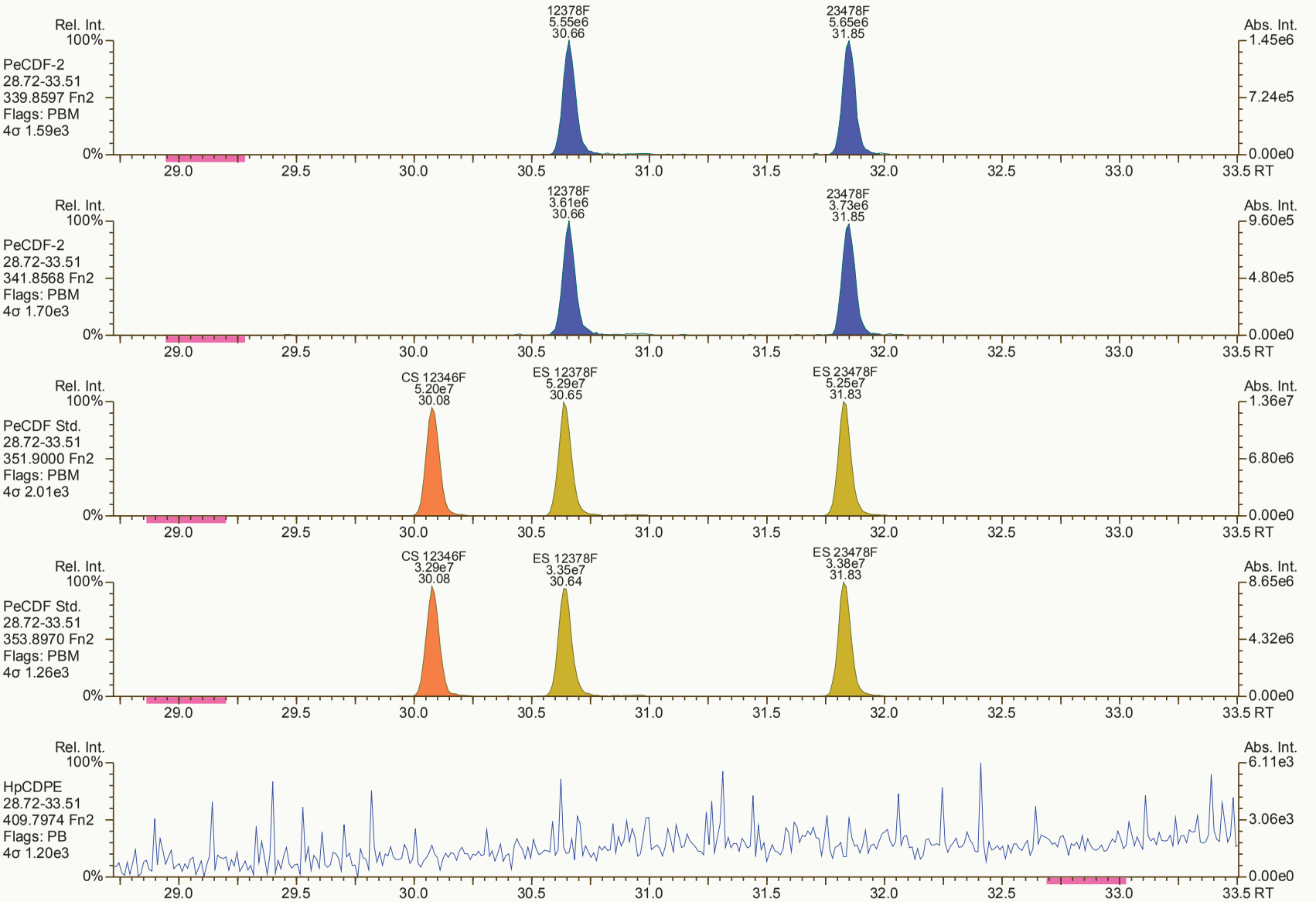
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1476 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 8 of 12*

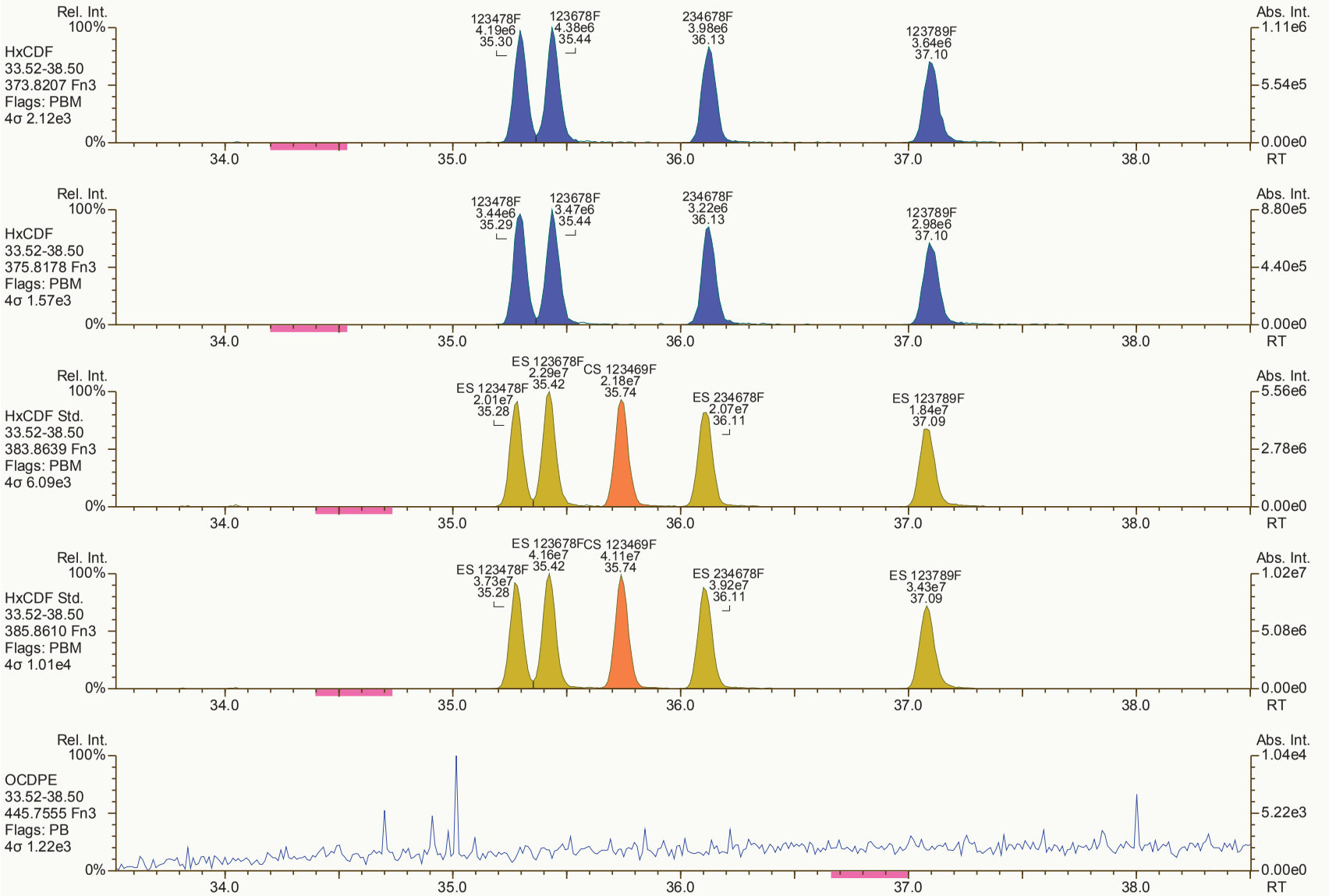
SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3679, 9082, 0535 scc: 134-724 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**

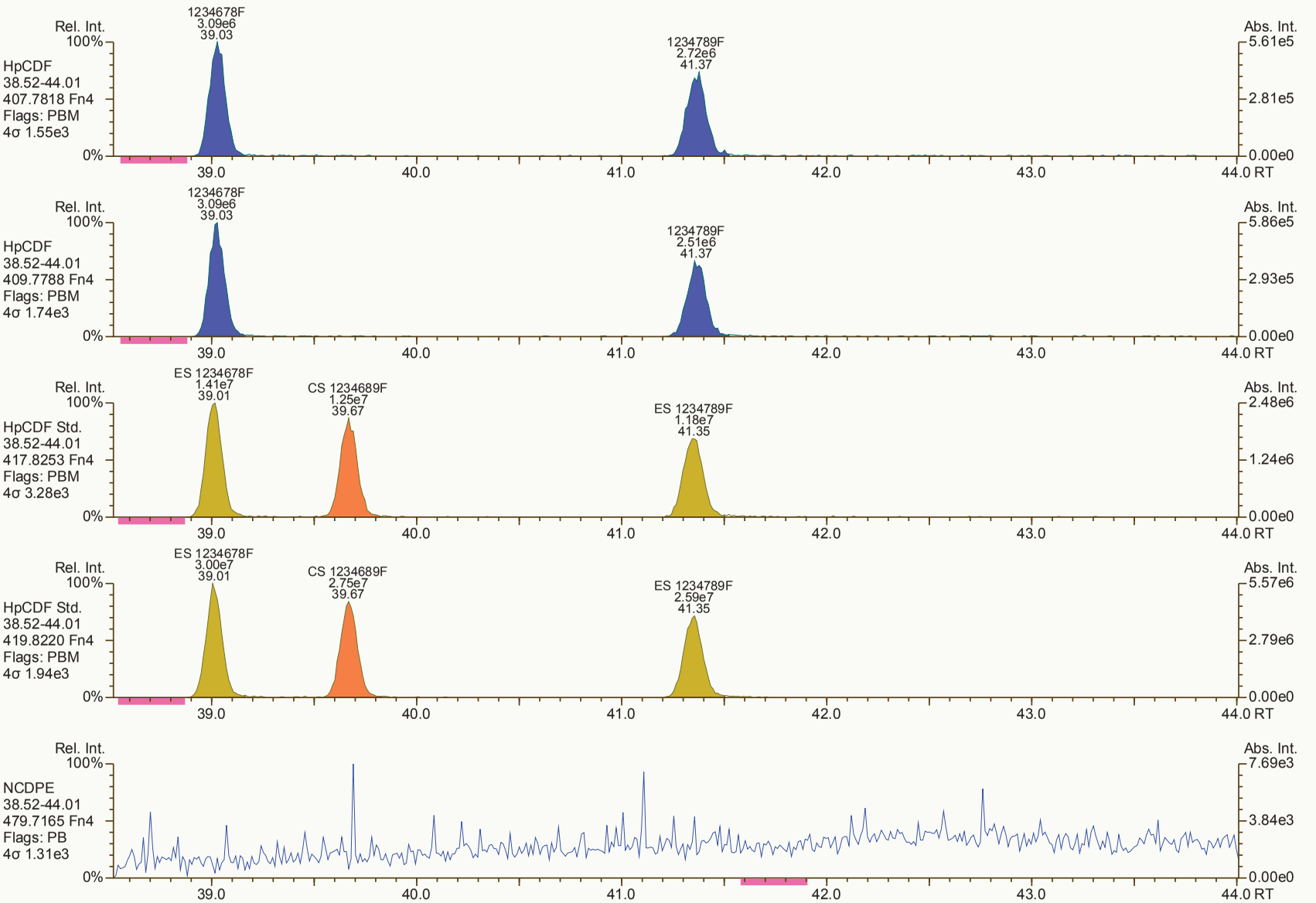
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3517, 7109, 3684 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



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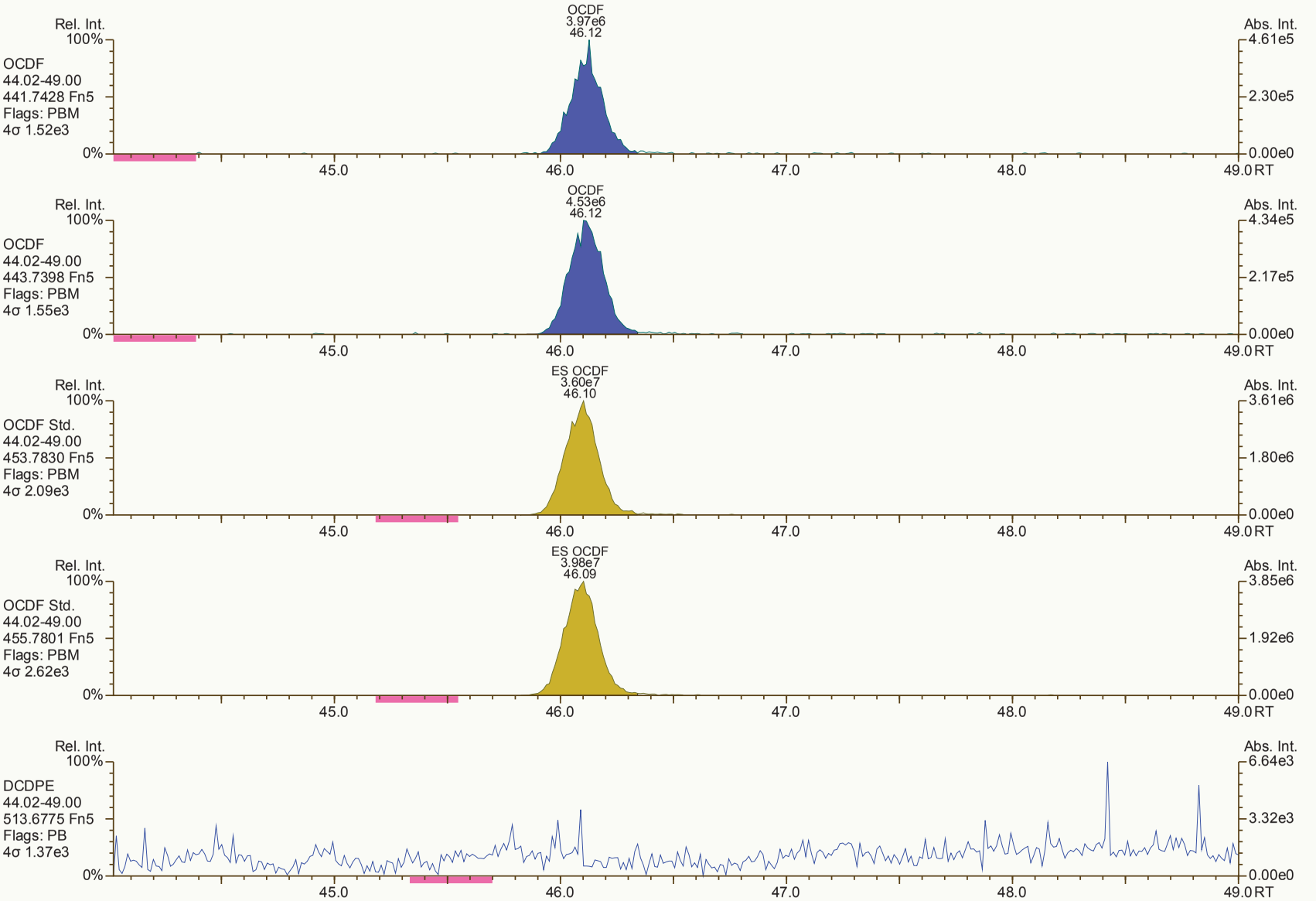
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4548, 1451, 0200 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS2_160106_CA | **Sample ID: SIL 15-104-3** | **Acq: 06-Jan-2016 20:47:39**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 74** | **User: ARL Datafile: 160106C07**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS2_160106_CA.utp_res, saved 07-Jan-2016 11:19 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5710, 8759, 1968 scc: 134-724 *PKD: 07-Jan-2016 09:25 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 21:40 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_160106_CA | **UTP: 07-Jan-2016 10:52:24 ARL** | **Checkcode: 110-238-BKZ**

Sample ID: SIL 15-104-2 | **Report: 07 Jan 2016 11:22 AL** | **Datafile: 160106C08**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	7.19E+06	0.79	Y	1.19	1.16	-2%
12378-PeCDD	32.23	2.70E+07	1.57	Y	1.02	0.97	-4%
123478-HxCDD	36.32	2.58E+07	1.28	Y	1.08	1.05	-3%
123678-HxCDD	36.44	2.57E+07	1.27	Y	1.05	1.00	-4%
123789-HxCDD	36.73	2.67E+07	1.25	Y	0.99	0.93	-7%
1234678-HpCDD	40.60	1.99E+07	1.05	Y	1.02	1.00	-2%
OCDD	45.89	3.31E+07	0.88	Y	1.09	1.05	-4%
2378-TCDF	25.47	9.32E+06	0.81	Y	1.09	1.03	-5%
12378-PeCDF	30.67	4.07E+07	1.54	Y	1.03	0.98	-5%
23478-PeCDF	31.86	3.94E+07	1.54	Y	1.02	0.97	-5%
123478-HxCDF	35.31	3.58E+07	1.22	Y	1.29	1.21	-7%
123678-HxCDF	35.46	3.77E+07	1.22	Y	1.17	1.12	-5%
234678-HxCDF	36.13	3.50E+07	1.24	Y	1.18	1.11	-6%
123789-HxCDF	37.10	3.19E+07	1.25	Y	1.18	1.10	-7%
1234678-HpCDF	39.02	3.06E+07	1.06	Y	1.38	1.34	-3%
1234789-HpCDF	41.40	2.35E+07	1.00	Y	1.30	1.26	-3%
OCDF	46.18	4.06E+07	0.92	Y	1.03	1.01	-2%
ES 2378-TCDD	26.41	6.19E+07	0.80	Y	1.06	1.07	1%
ES 12378-PeCDD	32.21	5.55E+07	1.59	Y	0.99	0.96	-3%
ES 123478-HxCDD	36.31	4.91E+07	1.25	Y	1.09	1.11	2%
ES 123678-HxCDD	36.42	5.12E+07	1.27	Y	1.10	1.16	6%
ES 123789-HxCDD	36.72	5.78E+07	1.30	Y	1.24	1.31	5%
ES 1234678-HpCDD	40.58	4.00E+07	1.05	Y	0.93	0.91	-3%
ES OCDD	45.87	6.33E+07	0.93	Y	0.71	0.72	1%
ES 2378-TCDF	25.45	9.07E+07	0.81	Y	1.02	1.04	1%
ES 12378-PeCDF	30.65	8.29E+07	1.59	Y	0.96	0.95	-2%
ES 23478-PeCDF	31.84	8.11E+07	1.58	Y	0.95	0.93	-2%
ES 123478-HxCDF	35.30	5.91E+07	0.54	Y	1.32	1.34	1%
ES 123678-HxCDF	35.44	6.74E+07	0.54	Y	1.51	1.53	1%
ES 234678-HxCDF	36.11	6.33E+07	0.54	Y	1.38	1.43	4%
ES 123789-HxCDF	37.09	5.79E+07	0.55	Y	1.25	1.31	5%
ES 1234678-HpCDF	39.00	4.57E+07	0.45	Y	1.03	1.04	1%
ES 1234789-HpCDF	41.38	3.74E+07	0.45	Y	0.87	0.85	-3%
ES OCDF	46.16	8.04E+07	0.92	Y	0.92	0.91	-1%

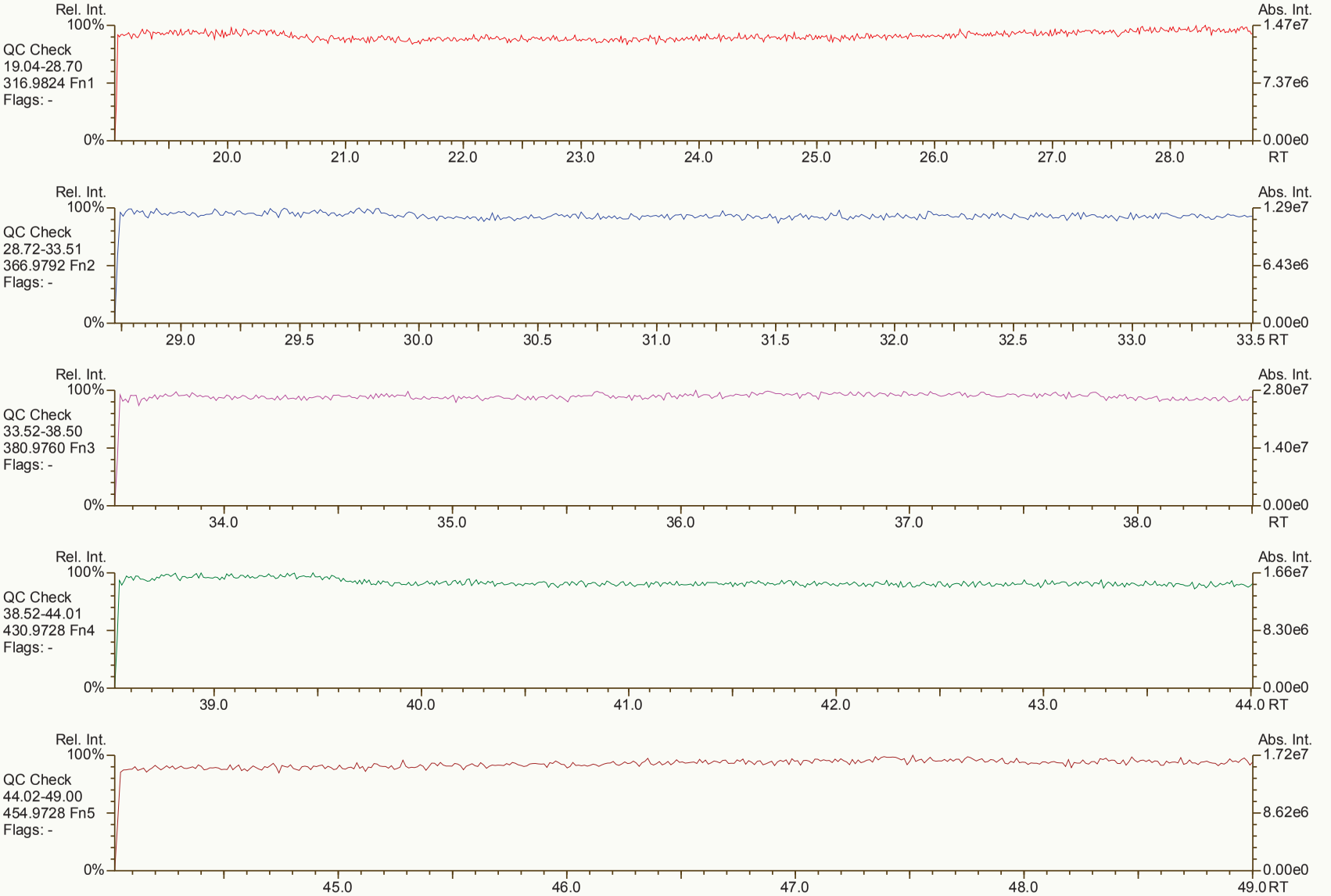
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 21:40 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS3_160106_CA | **UTP: 07-Jan-2016 10:52:24 ARL** | **Checkcode: 110-238**

Sample ID: SIL 15-104-2 | **Report: 07 Jan 2016 11:22 AL** | **Datafile: 160106C08**

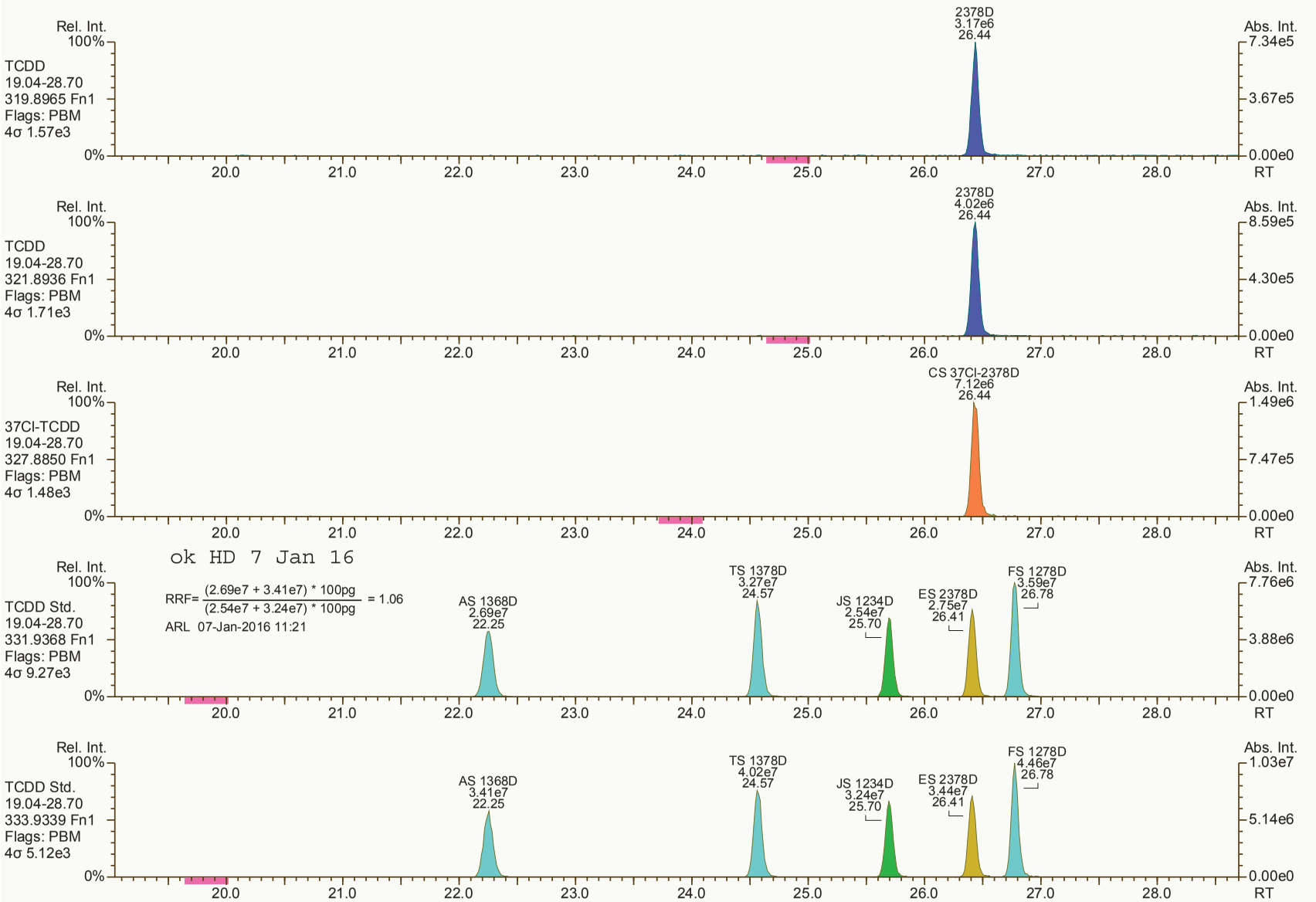
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.78E+07	0.79	Y	-	-	-
JS 1234-TCDF	23.93	8.74E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.61	2.21E+07	1.23	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	7.12E+06	n/a	-	1.24	1.23	-1%
CS 12347-PeCDD	31.68	5.29E+07	1.60	Y	0.94	0.92	-2%
CS 12346-PeCDF	30.09	7.96E+07	1.58	Y	0.92	0.91	-1%
CS 123469-HxCDF	35.76	6.30E+07	0.52	Y	1.38	1.43	3%
CS 1234689-HpCDF	39.65	3.98E+07	0.47	Y	0.88	0.90	2%
SS 37Cl-2378-TCDD	26.44	7.12E+06	n/a	-	1.18	1.15	-2%
SS 12347-PeCDD	31.68	5.29E+07	1.60	Y	0.94	0.95	1%
SS 12346-PeCDF	30.09	7.96E+07	1.58	Y	0.96	0.96	0%
SS 123469-HxCDF	35.76	6.30E+07	0.52	Y	0.92	0.93	2%
SS 1234689-HpCDF	39.65	3.98E+07	0.47	Y	0.86	0.87	1%
AS 1368-TCDD	22.25	6.10E+07	0.79	Y	1.05	1.06	1%
AS 1368-TCDF	20.15	1.32E+08	0.80	Y	1.40	1.50	7%
FS 1278-TCDD	26.78	8.05E+07	0.80	Y	1.28	1.30	1%
FS 12478-PeCDD	30.91	6.20E+07	1.57	Y	1.11	1.12	1%
FS 123468-HxCDD	35.23	6.78E+07	1.27	Y	1.36	1.38	2%
FS 1234679-HpCDD	39.42	5.67E+07	1.05	Y	1.30	1.42	9%
TS 1378-TCDD	24.57	7.29E+07	0.81	Y	1.21	1.18	-2%
OCDD-a	45.88	2.14E+06	2.17	Y	0.07	0.07	1%
OCDF-a	46.18	2.74E+06	2.65	Y	0.06	0.07	7%

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



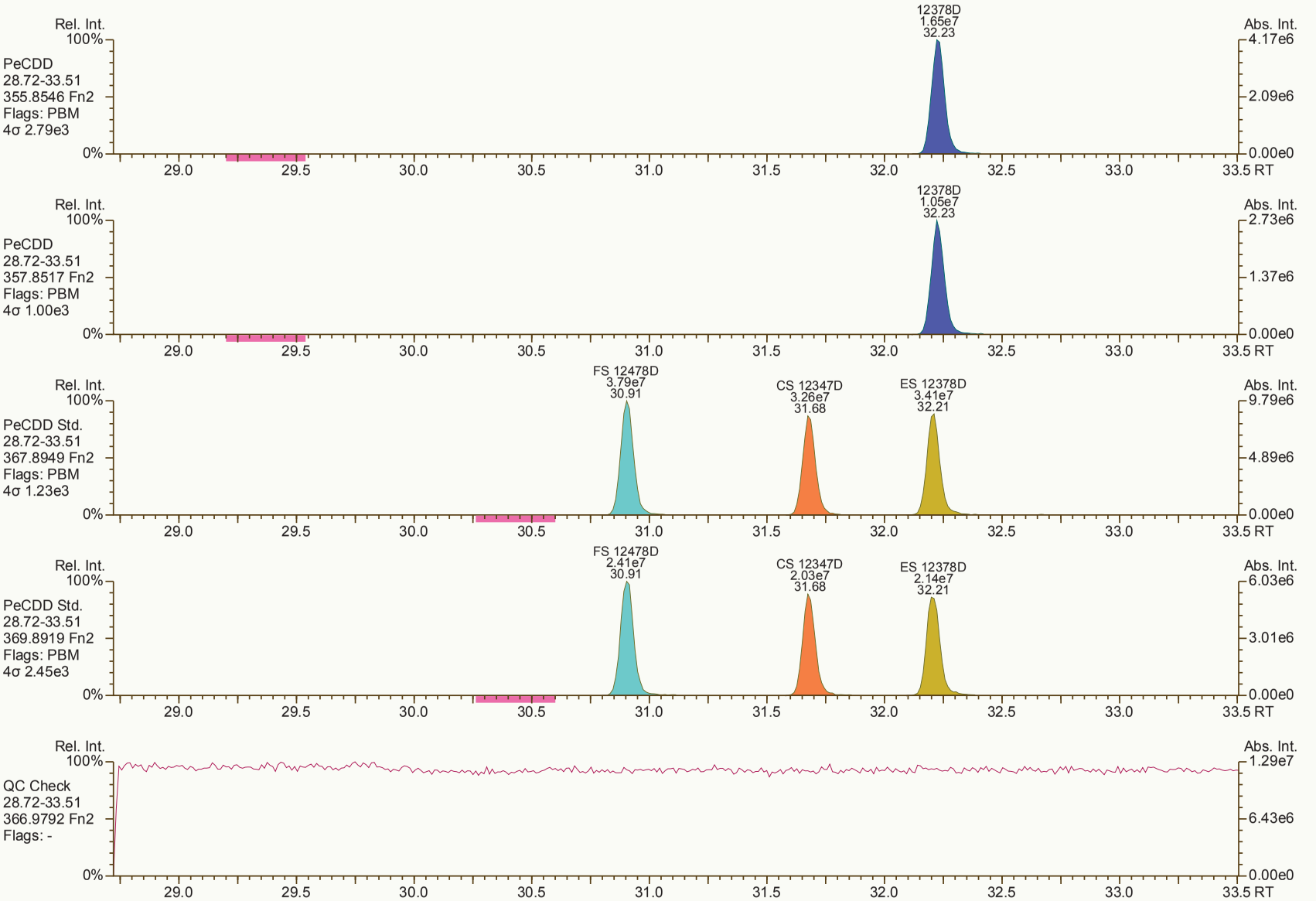
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 110-238 *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6355, 3403, 7389 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 2 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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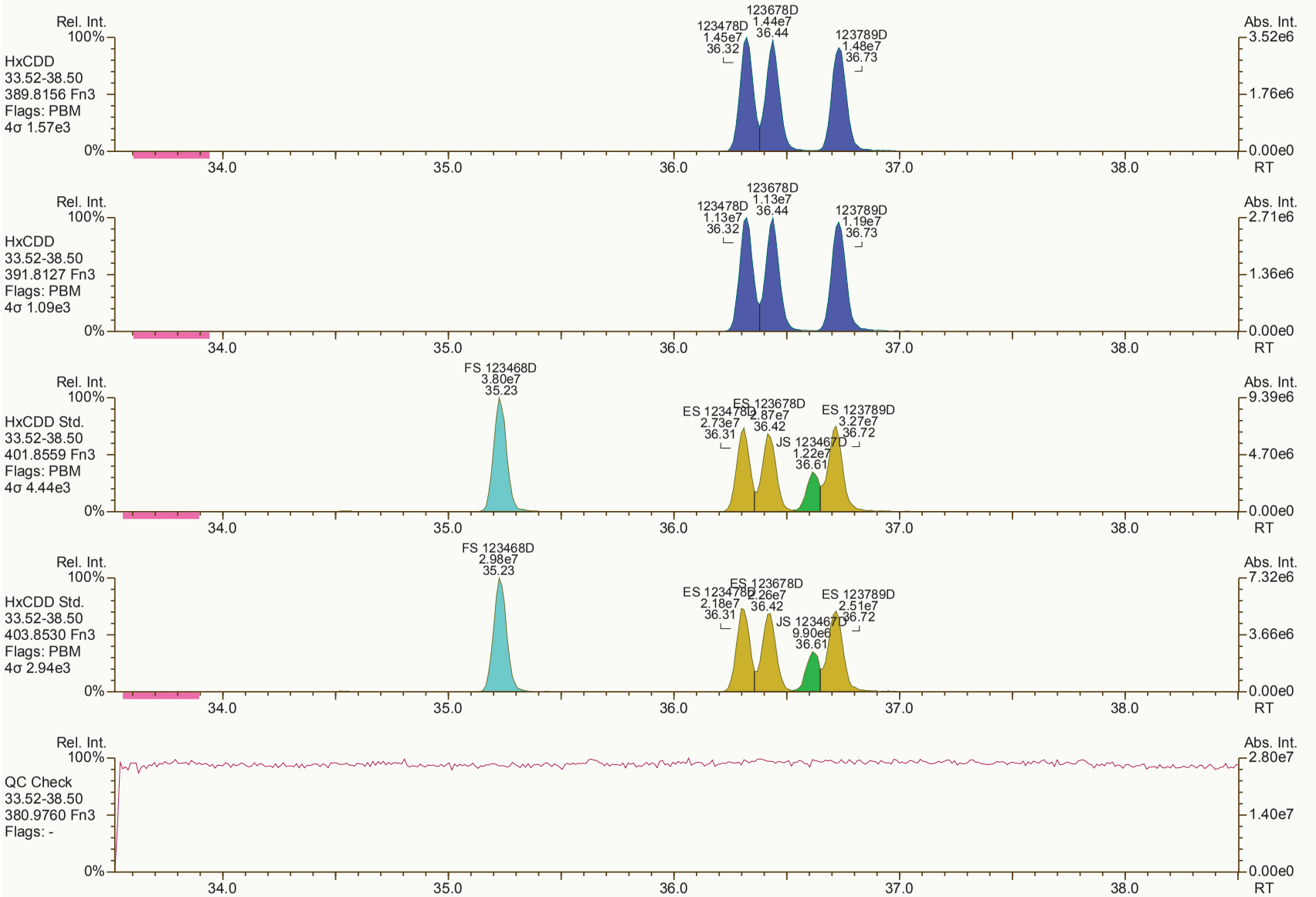
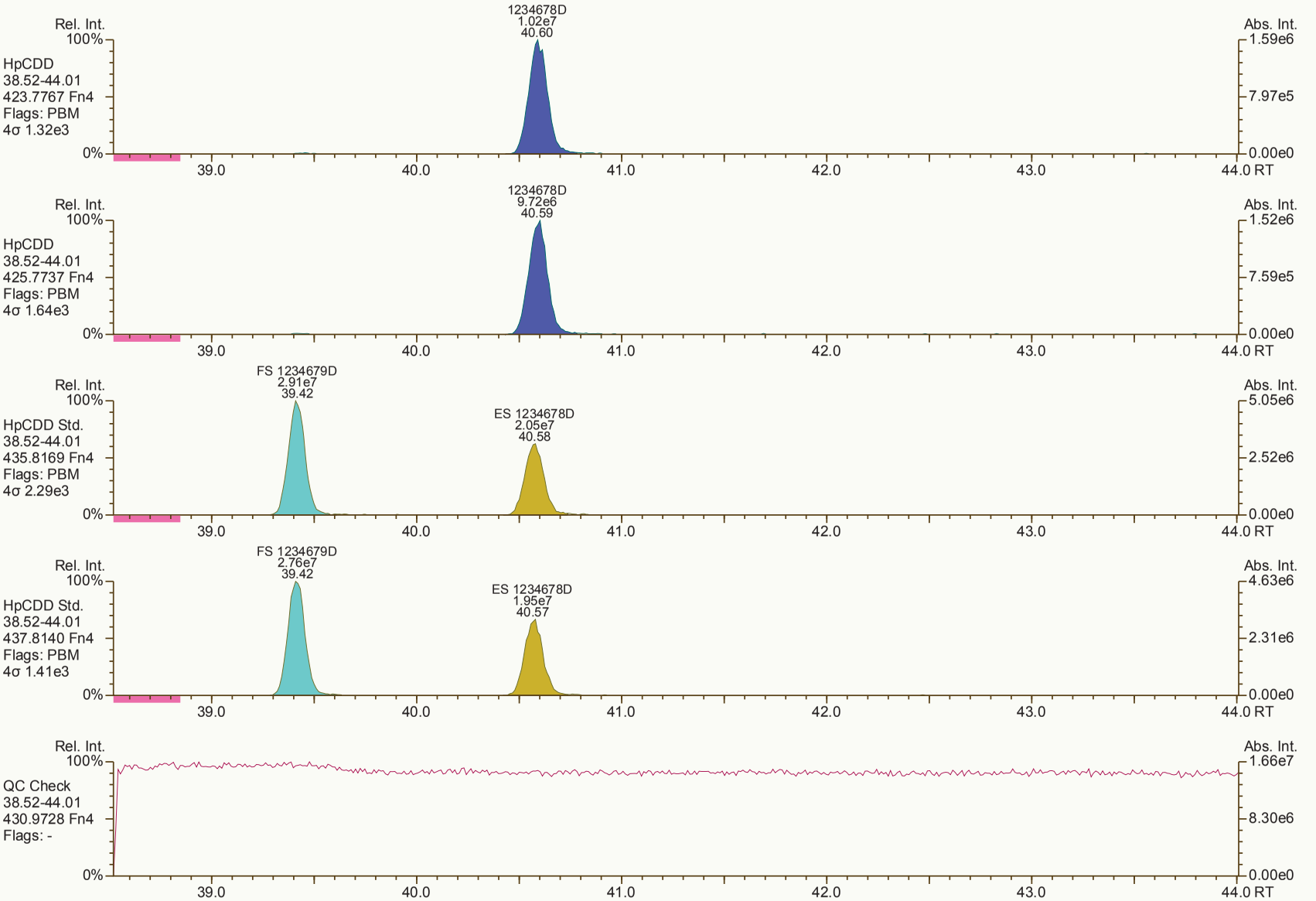
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7745, 0881 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6261, 9404 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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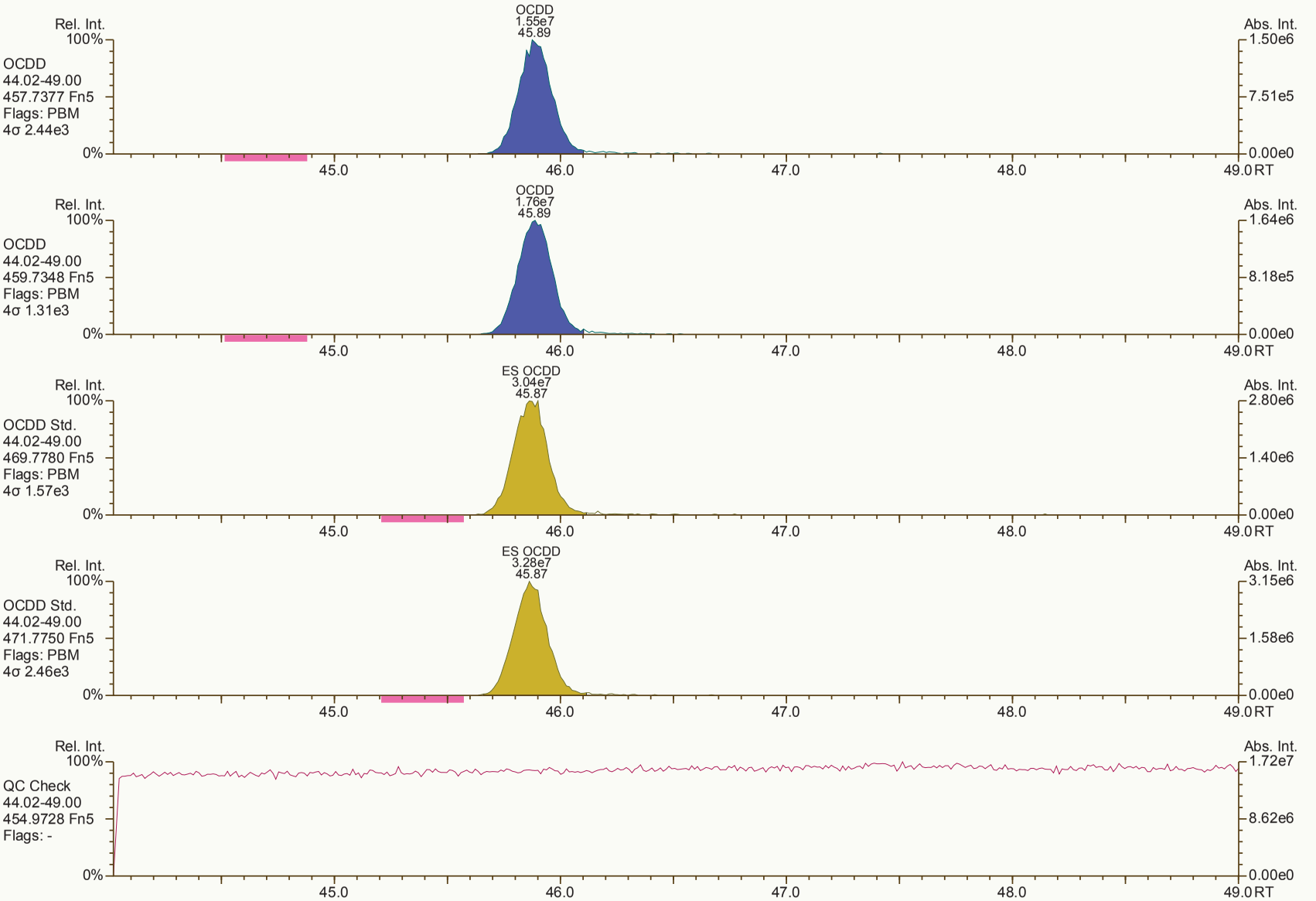
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5290, 8113 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 5 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



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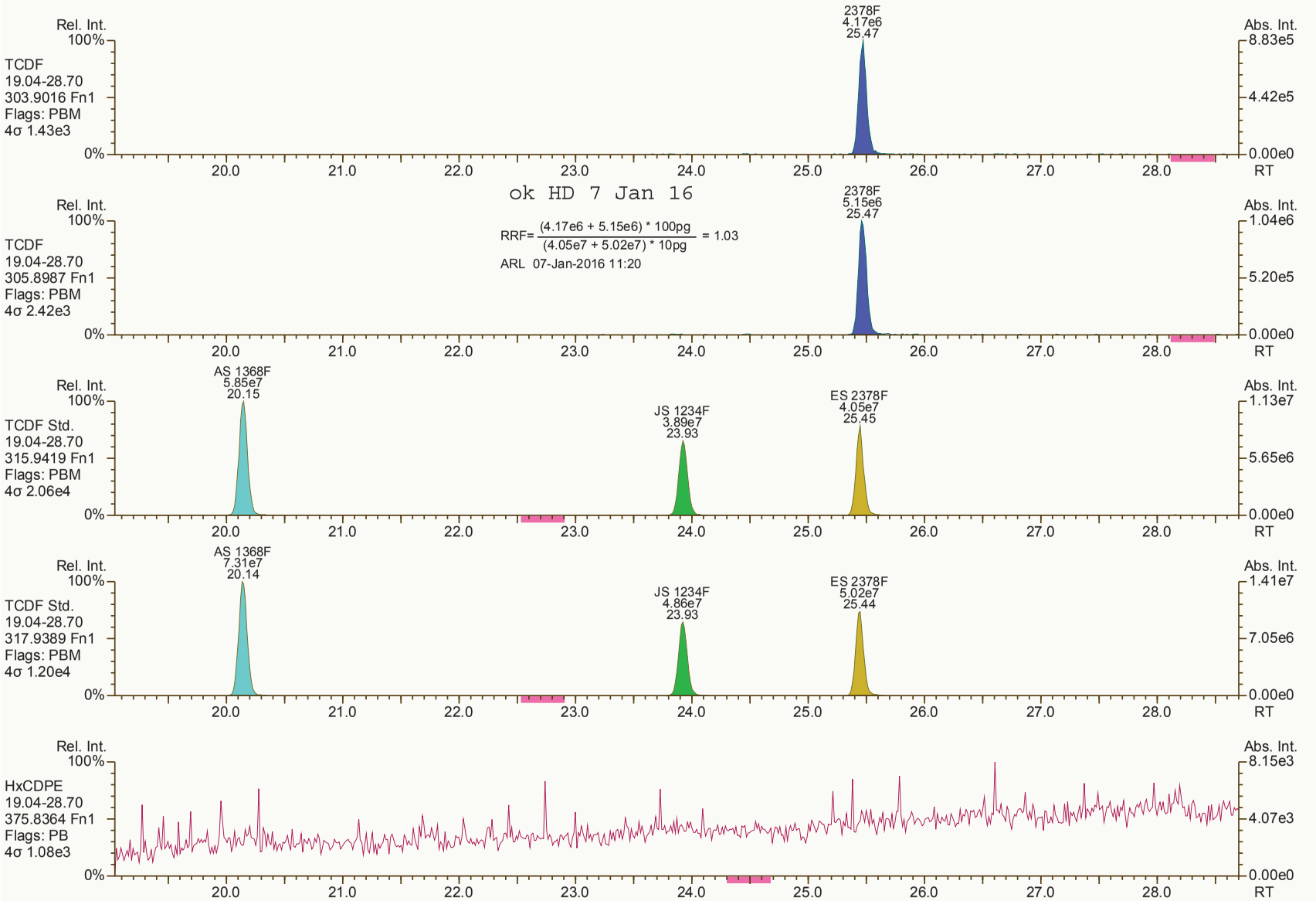
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6352, 8501 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 6 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6792, 0670, 2415 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 7 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2060 scc: 110-238 *Revised: 07-Jan-2016 09:29 (ARL) Printed: 07-Jan-2016 11:30 Page 8 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**

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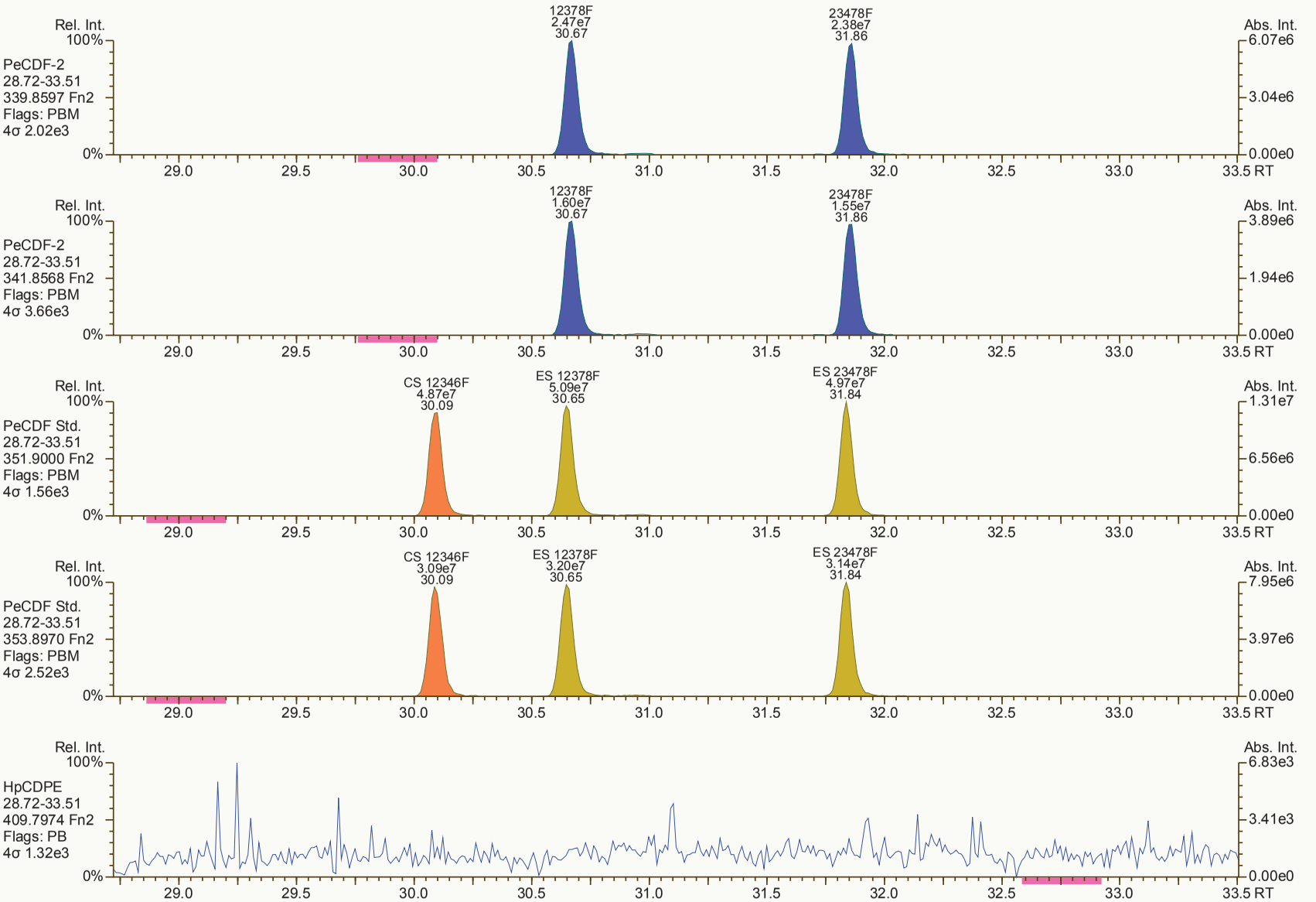
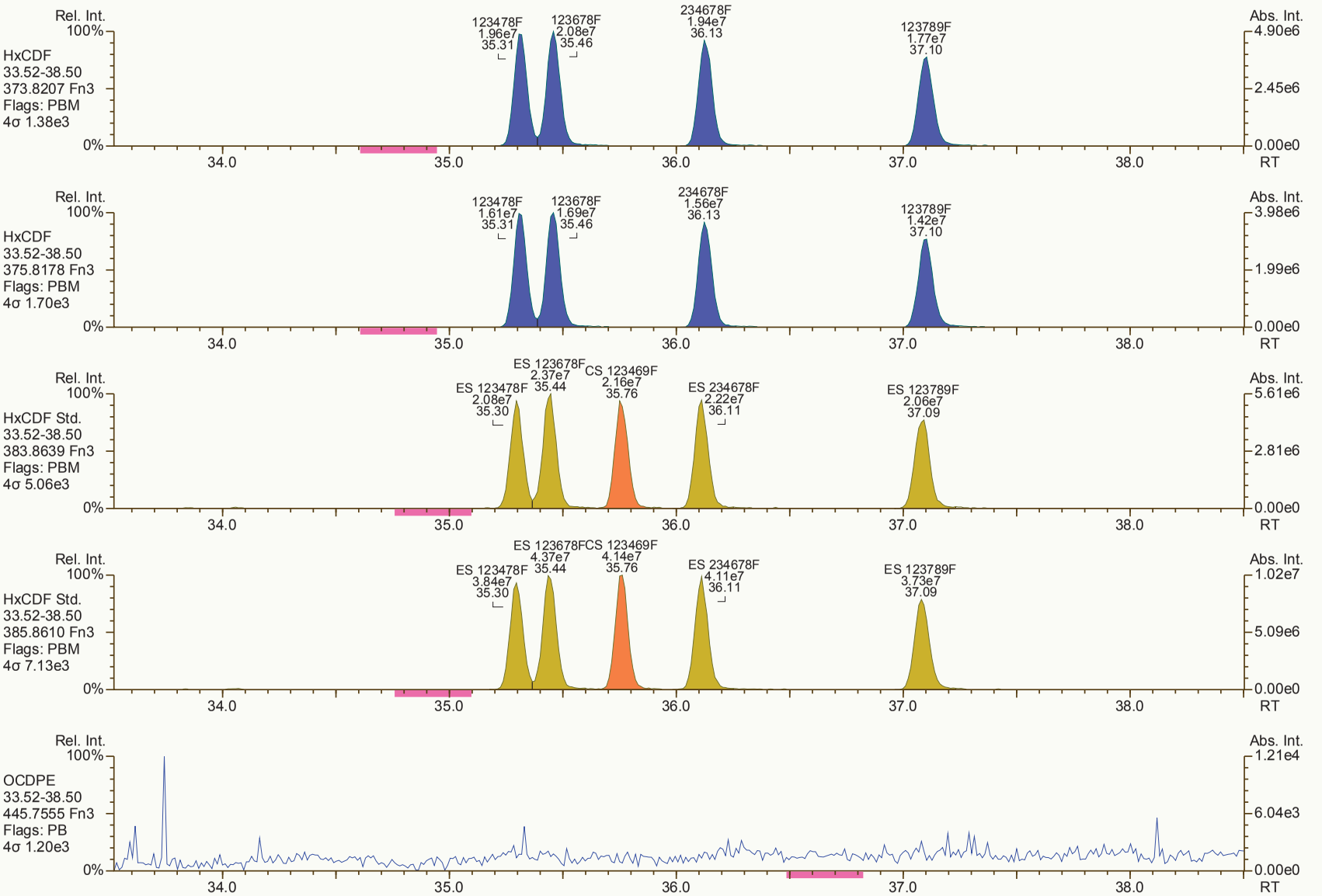


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*

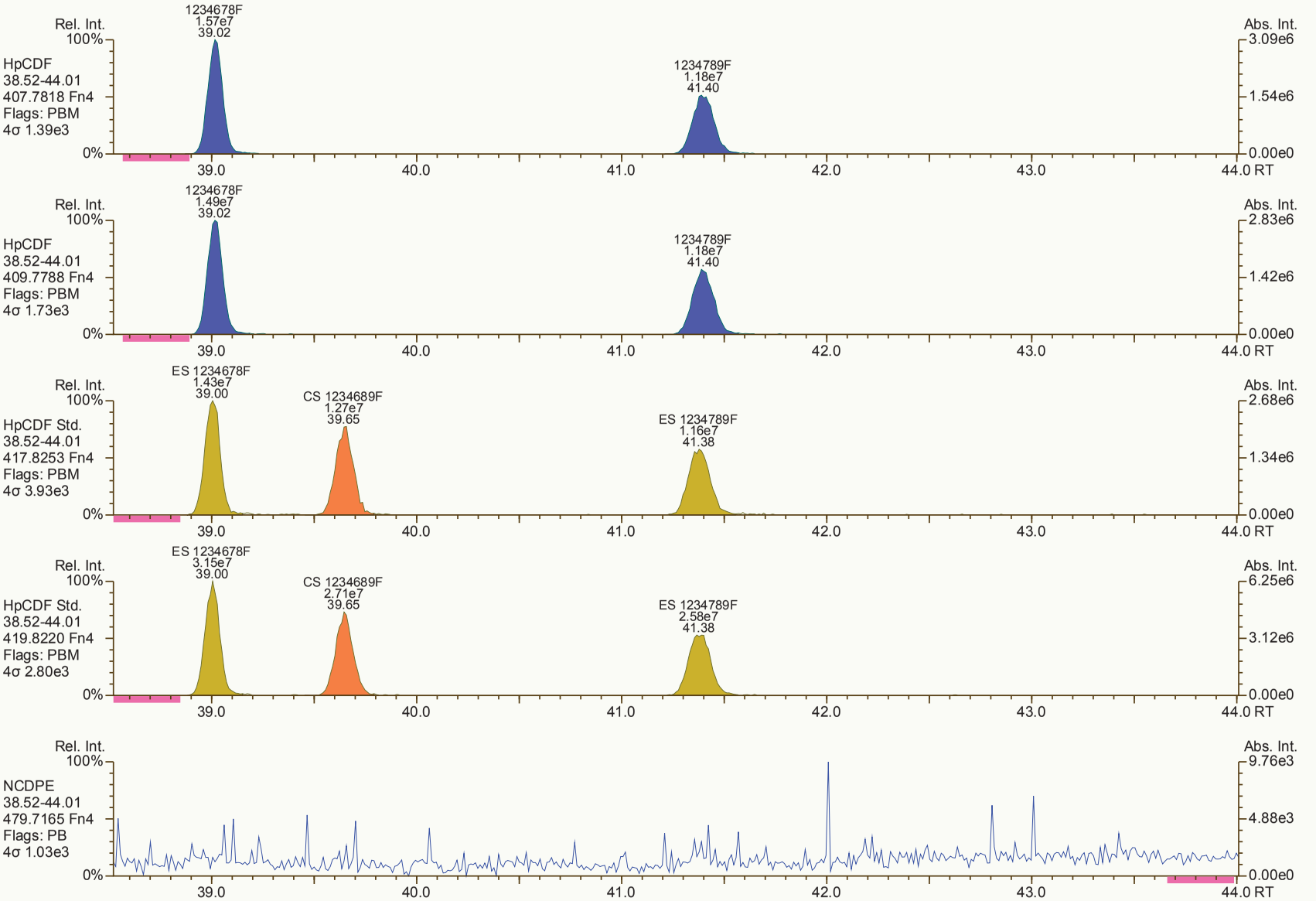
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7362, 7353, 8782 scc: 110-238 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 9 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



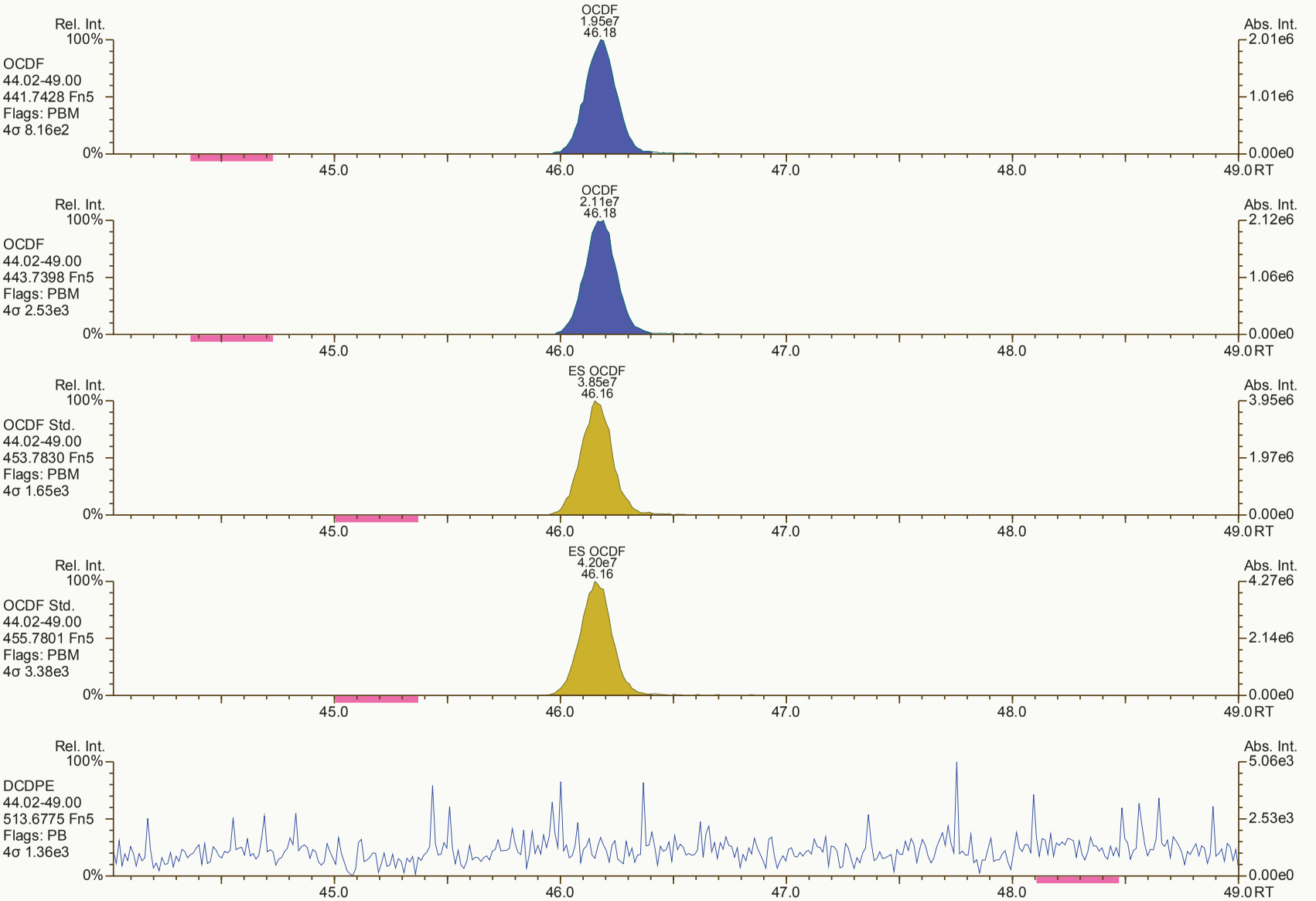
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0195, 7140, 9629 scc: 110-238 *Revised: 07-Jan-2016 09:41 (ARL) Printed: 07-Jan-2016 11:30 Page 10 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8215, 3907, 3506 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 11 of 12*

SGS ID: CS3_160106_CA | **Sample ID: SIL 15-104-2** | **Acq: 06-Jan-2016 21:40:12**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 75** | **User: ARL Datafile: 160106C08**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS3_160106_CA.utp_res, saved 07-Jan-2016 11:22 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5518, 5754, 7823 scc: 110-238 *PKD: 07-Jan-2016 09:34 Printed: 07-Jan-2016 11:30 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 22:32 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS4_160106_CA | **UTP: 07-Jan-2016 10:52:25 ARL** | **Checkcode: 873-132-BRL**

Sample ID: SIL 15-104-1 | **Report: 07 Jan 2016 11:23 AL** | **Datafile: 160106C09**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	2.79E+07	0.78	Y	1.19	1.19	0%
12378-PeCDD	32.23	1.15E+08	1.59	Y	1.02	1.02	1%
123478-HxCDD	36.32	9.79E+07	1.26	Y	1.08	1.07	-1%
123678-HxCDD	36.44	9.89E+07	1.26	Y	1.05	1.09	4%
123789-HxCDD	36.74	1.02E+08	1.25	Y	0.99	0.98	-1%
1234678-HpCDD	40.66	8.10E+07	1.06	Y	1.02	1.03	1%
OCDD	45.78	1.32E+08	0.90	Y	1.09	1.10	1%
2378-TCDF	25.48	3.93E+07	0.79	Y	1.09	1.11	2%
12378-PeCDF	30.67	1.69E+08	1.56	Y	1.03	1.05	1%
23478-PeCDF	31.86	1.69E+08	1.55	Y	1.02	1.03	1%
123478-HxCDF	35.30	1.45E+08	1.23	Y	1.29	1.28	-1%
123678-HxCDF	35.46	1.53E+08	1.24	Y	1.17	1.19	2%
234678-HxCDF	36.13	1.36E+08	1.26	Y	1.18	1.18	0%
123789-HxCDF	37.12	1.21E+08	1.25	Y	1.18	1.15	-2%
1234678-HpCDF	39.04	1.18E+08	1.00	Y	1.38	1.37	0%
1234789-HpCDF	41.42	9.88E+07	1.01	Y	1.30	1.30	0%
OCDF	46.08	1.64E+08	0.92	Y	1.03	1.05	1%
ES 2378-TCDD	26.41	5.86E+07	0.81	Y	1.06	1.02	-4%
ES 12378-PeCDD	32.21	5.63E+07	1.59	Y	0.99	0.98	-1%
ES 123478-HxCDD	36.31	4.58E+07	1.25	Y	1.09	1.08	-1%
ES 123678-HxCDD	36.43	4.52E+07	1.26	Y	1.10	1.06	-3%
ES 123789-HxCDD	36.73	5.19E+07	1.26	Y	1.24	1.22	-2%
ES 1234678-HpCDD	40.64	3.92E+07	1.07	Y	0.93	0.92	-1%
ES OCDD	45.77	6.00E+07	0.93	Y	0.71	0.70	-1%
ES 2378-TCDF	25.45	8.88E+07	0.80	Y	1.02	1.00	-2%
ES 12378-PeCDF	30.65	8.07E+07	1.56	Y	0.96	0.91	-6%
ES 23478-PeCDF	31.84	8.18E+07	1.57	Y	0.95	0.92	-3%
ES 123478-HxCDF	35.29	5.66E+07	0.53	Y	1.32	1.33	1%
ES 123678-HxCDF	35.44	6.40E+07	0.53	Y	1.51	1.50	0%
ES 234678-HxCDF	36.11	5.77E+07	0.52	Y	1.38	1.35	-2%
ES 123789-HxCDF	37.10	5.24E+07	0.54	Y	1.25	1.23	-2%
ES 1234678-HpCDF	39.03	4.31E+07	0.46	Y	1.03	1.01	-1%
ES 1234789-HpCDF	41.40	3.80E+07	0.47	Y	0.87	0.89	2%
ES OCDF	46.06	7.85E+07	0.91	Y	0.92	0.92	0%

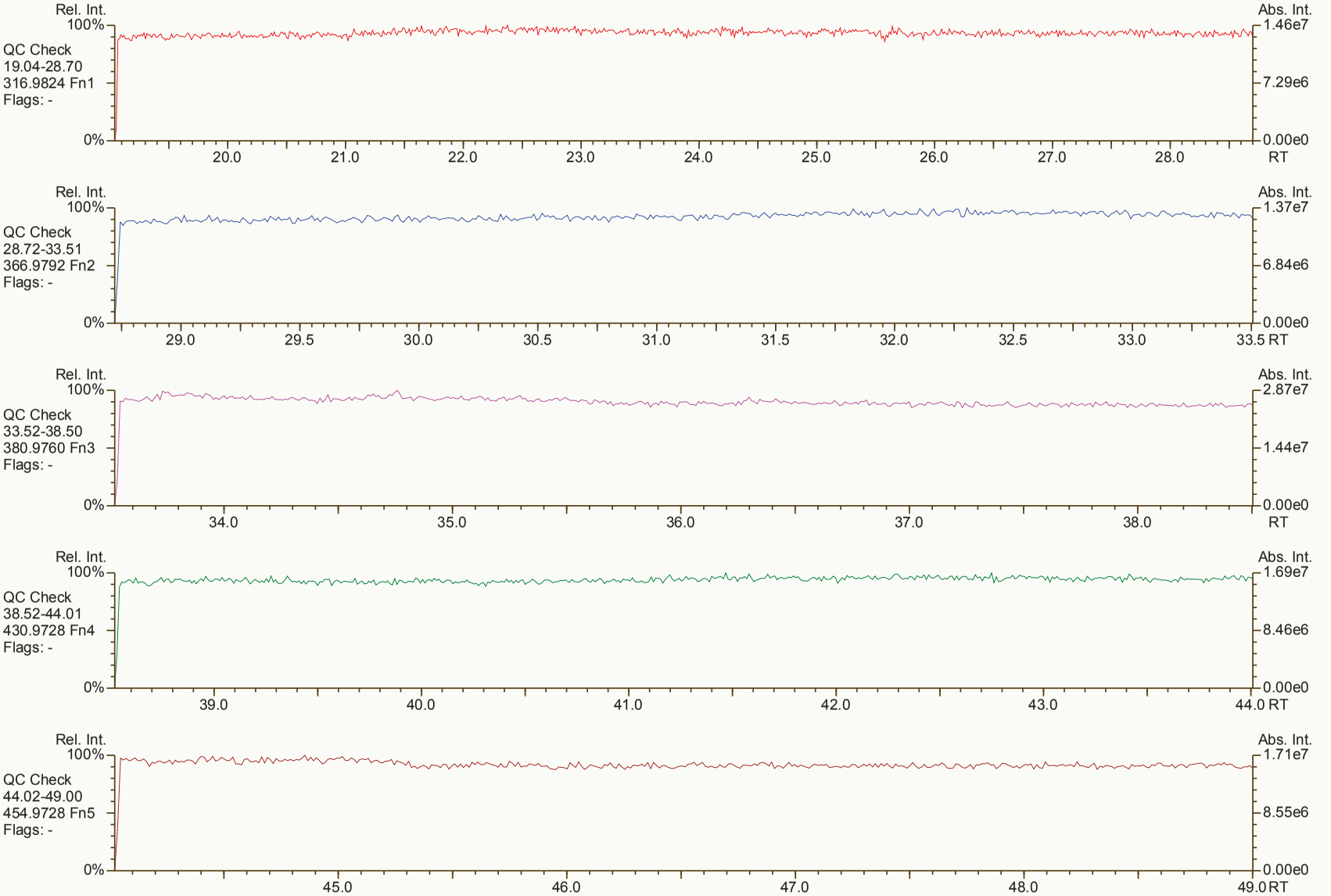
Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 22:32 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS4_160106_CA | **UTP: 07-Jan-2016 10:52:25 ARL** | **Checkcode: 873-132**

Sample ID: SIL 15-104-1 | **Report: 07 Jan 2016 11:23 AL** | **Datafile: 160106C09**

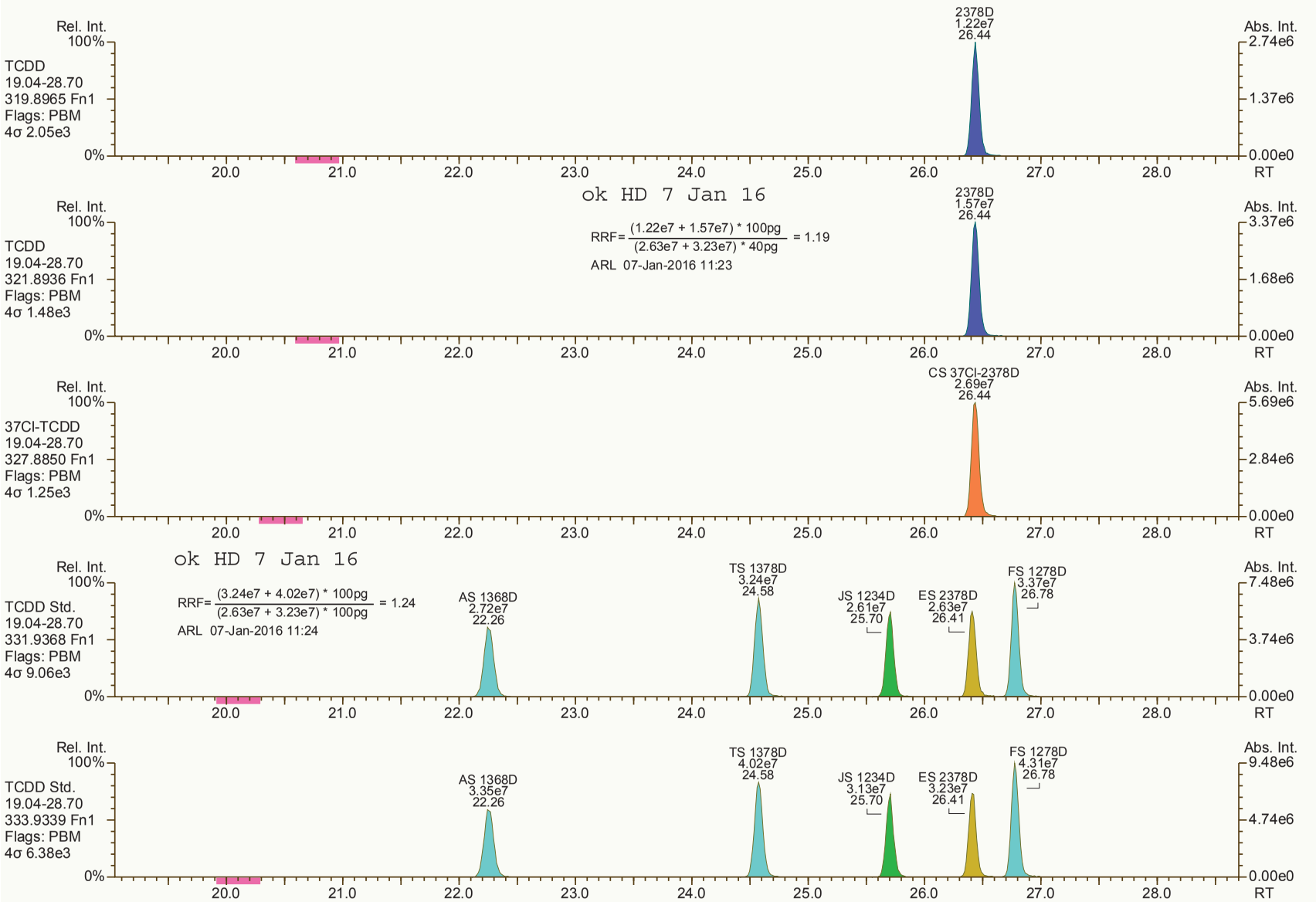
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.74E+07	0.83	Y	-	-	-
JS 1234-TCDF	23.93	8.88E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.62	2.13E+07	1.25	Y	-	-	-
CS 37Cl-2378-TCDD	26.44	2.69E+07	n/a	-	1.24	1.17	-6%
CS 12347-PeCDD	31.68	5.30E+07	1.61	Y	0.94	0.92	-2%
CS 12346-PeCDF	30.09	8.00E+07	1.58	Y	0.92	0.90	-2%
CS 123469-HxCDF	35.76	5.82E+07	0.53	Y	1.38	1.37	-1%
CS 1234689-HpCDF	39.69	3.84E+07	0.46	Y	0.88	0.90	2%
SS 37Cl-2378-TCDD	26.44	2.69E+07	n/a	-	1.18	1.15	-3%
SS 12347-PeCDD	31.68	5.30E+07	1.61	Y	0.94	0.94	0%
SS 12346-PeCDF	30.09	8.00E+07	1.58	Y	0.96	0.99	3%
SS 123469-HxCDF	35.76	5.82E+07	0.53	Y	0.92	0.91	-1%
SS 1234689-HpCDF	39.69	3.84E+07	0.46	Y	0.86	0.89	3%
AS 1368-TCDD	22.26	6.07E+07	0.81	Y	1.05	1.06	1%
AS 1368-TCDF	20.14	1.21E+08	0.80	Y	1.40	1.36	-3%
FS 1278-TCDD	26.78	7.68E+07	0.78	Y	1.28	1.31	2%
FS 12478-PeCDD	30.91	6.08E+07	1.61	Y	1.11	1.08	-3%
FS 123468-HxCDD	35.22	6.37E+07	1.27	Y	1.36	1.39	2%
FS 1234679-HpCDD	39.47	5.30E+07	1.04	Y	1.30	1.35	4%
TS 1378-TCDD	24.58	7.26E+07	0.81	Y	1.21	1.24	3%
OCDD-a	45.78	8.42E+06	2.50	Y	0.07	0.07	4%
OCDF-a	46.08	1.07E+07	2.45	Y	0.06	0.07	7%

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



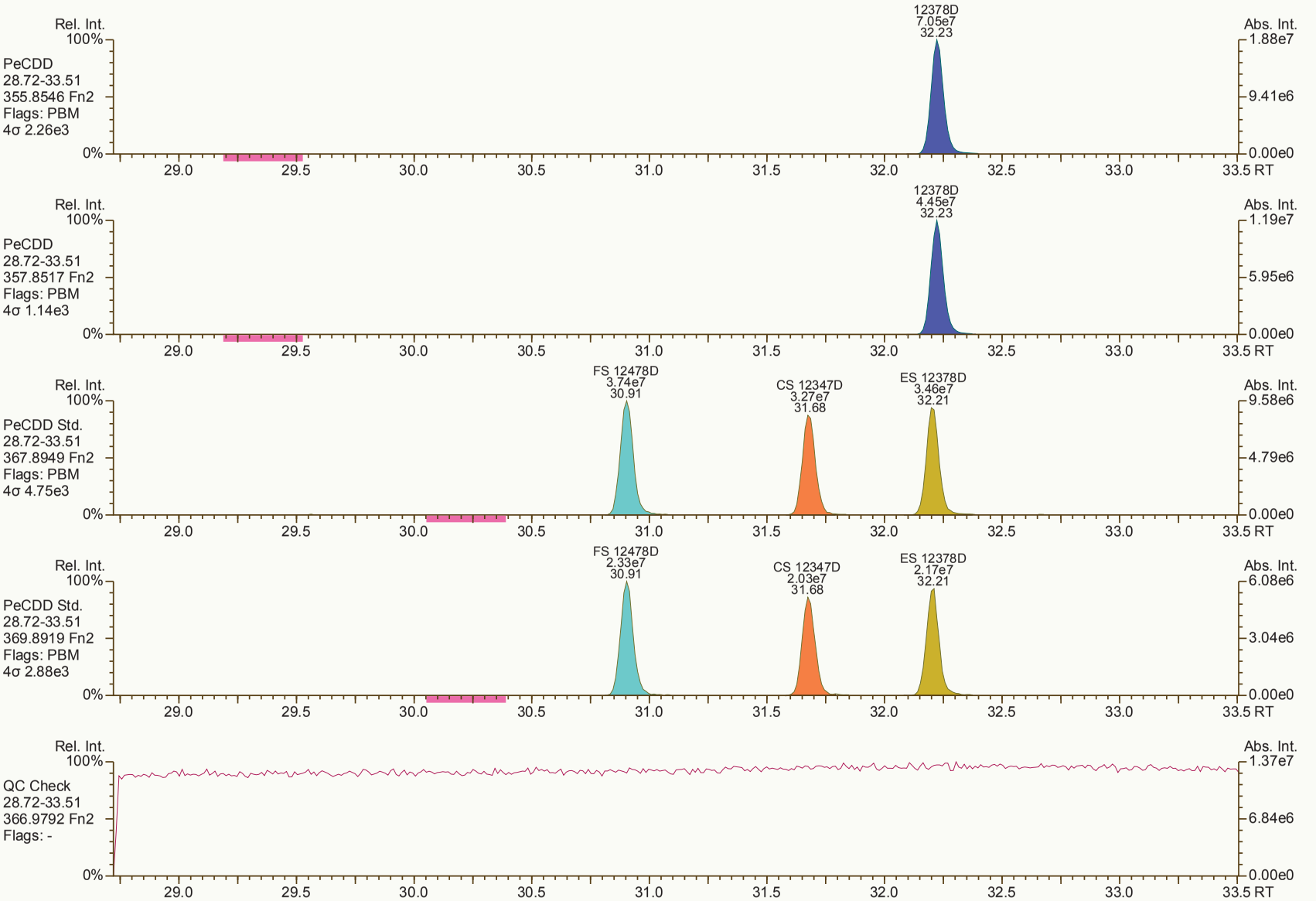
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 873-132 | *PKD: n/a Printed: 07-Jan-2016 11:30 Page 1 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



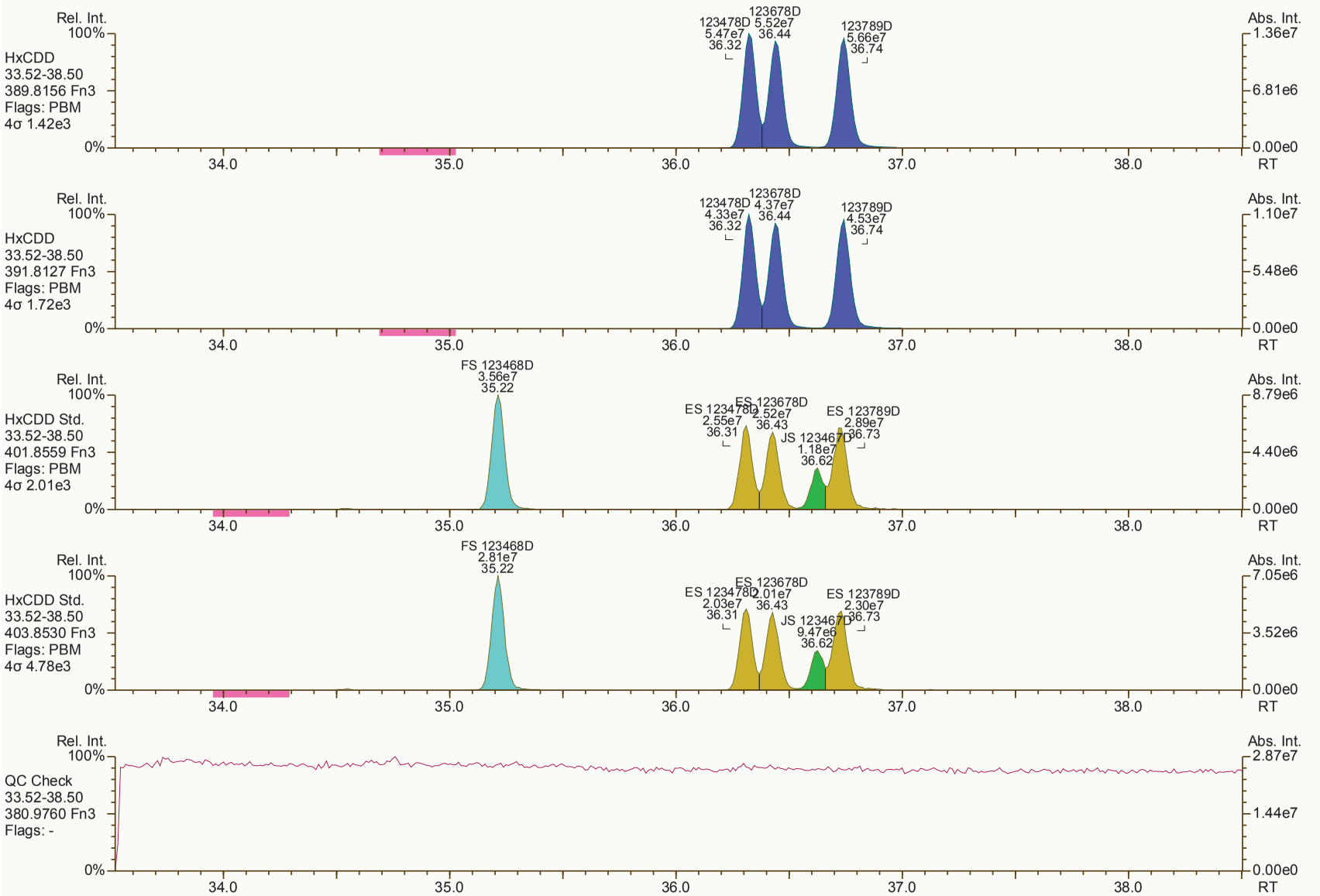
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4974, 4312, 2969 scc: 873-132 *PKD: 07-Jan-2016 09:36 Printed: 07-Jan-2016 11:30 Page 2 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



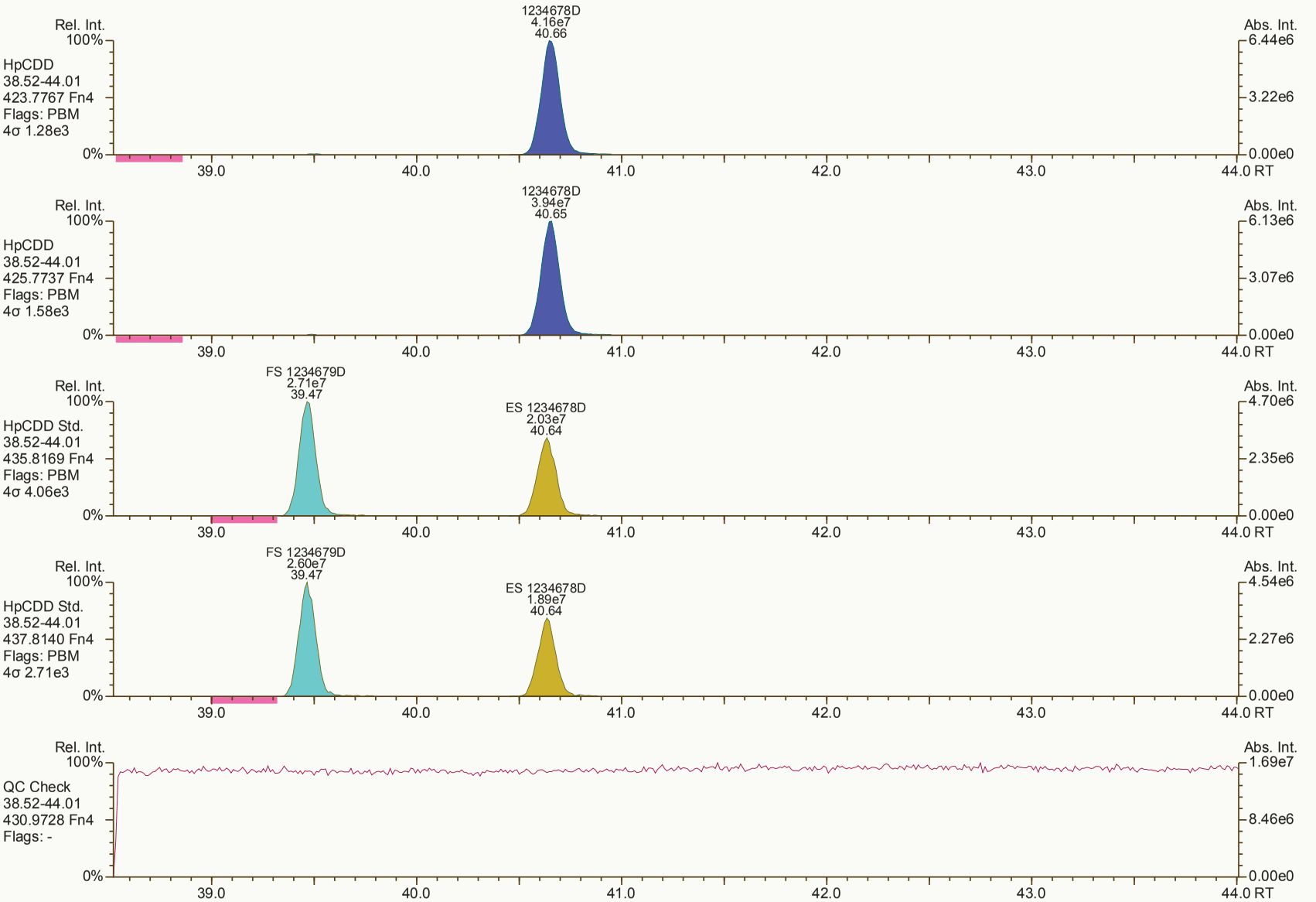
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5648, 4512 scc: 873-132 *Revised: 07-Jan-2016 09:40 (ARL) Printed: 07-Jan-2016 11:30 Page 3 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



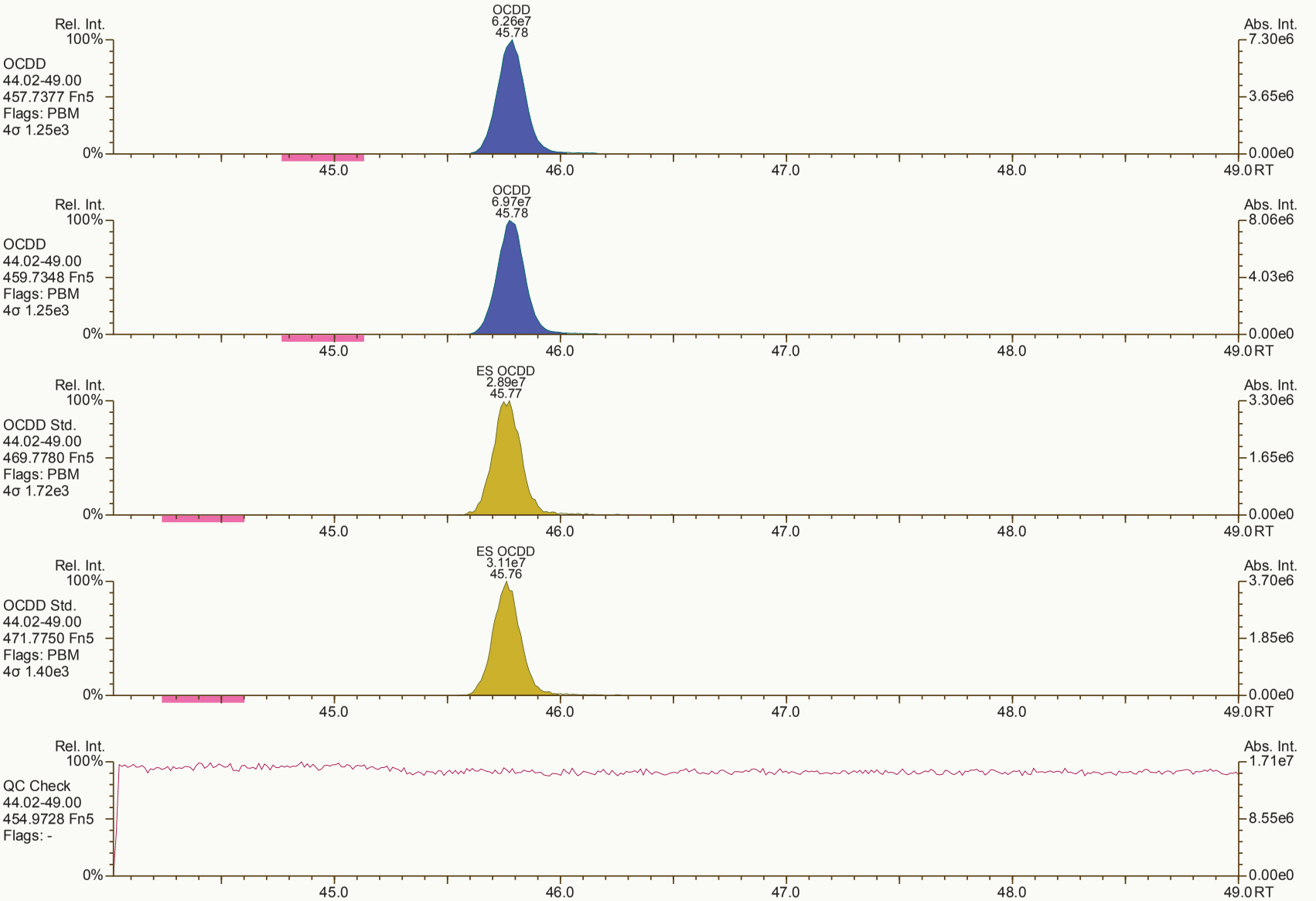
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5713, 9953 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:30 Page 4 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3763, 2808 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0583, 3746 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 6 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

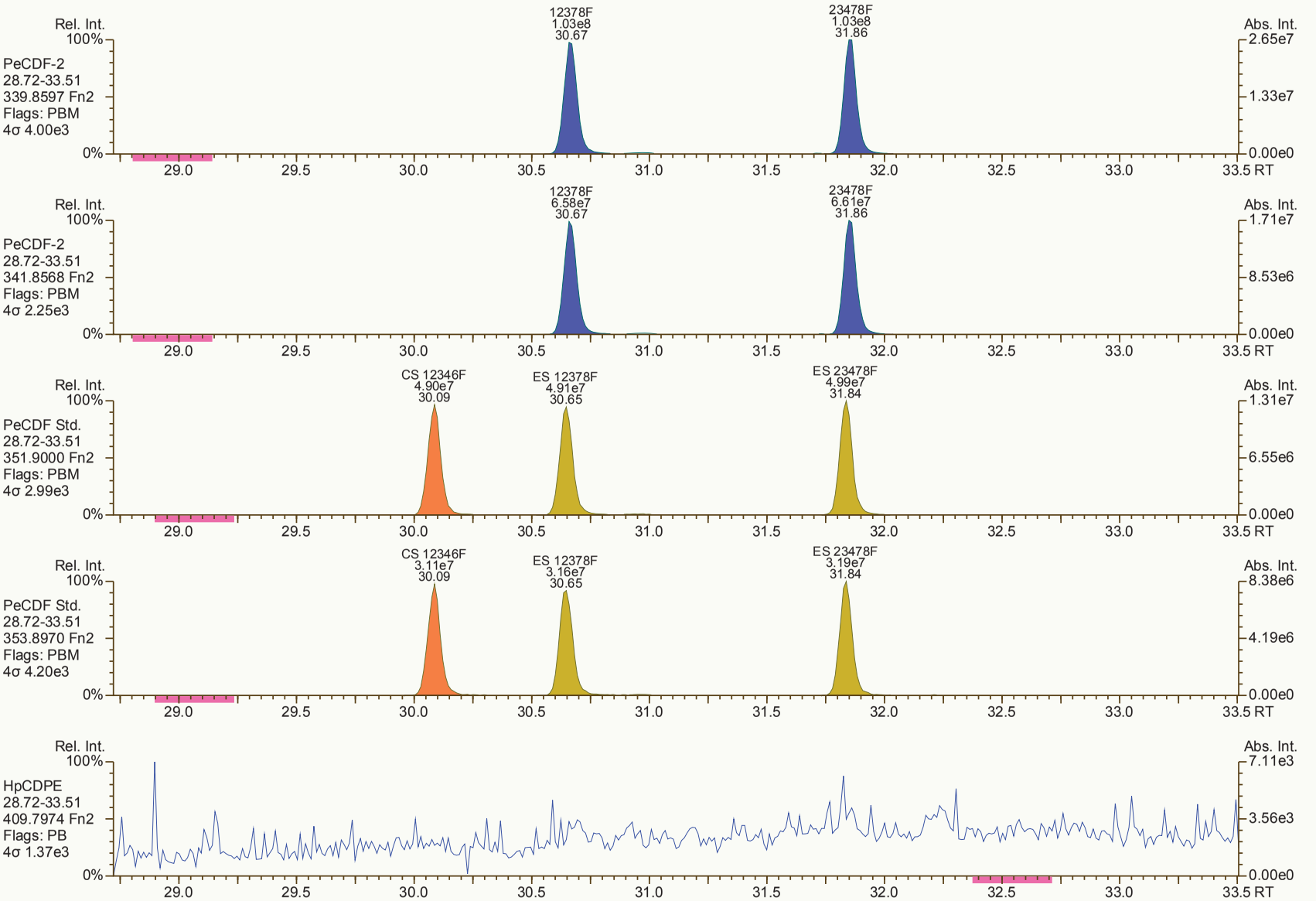
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2776, 2467, 2654 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS4_160106_CA **Sample ID: SIL 15-104-1** **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2116 scc: 873-132 *PKD: 07-Jan-2016 09:36 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**

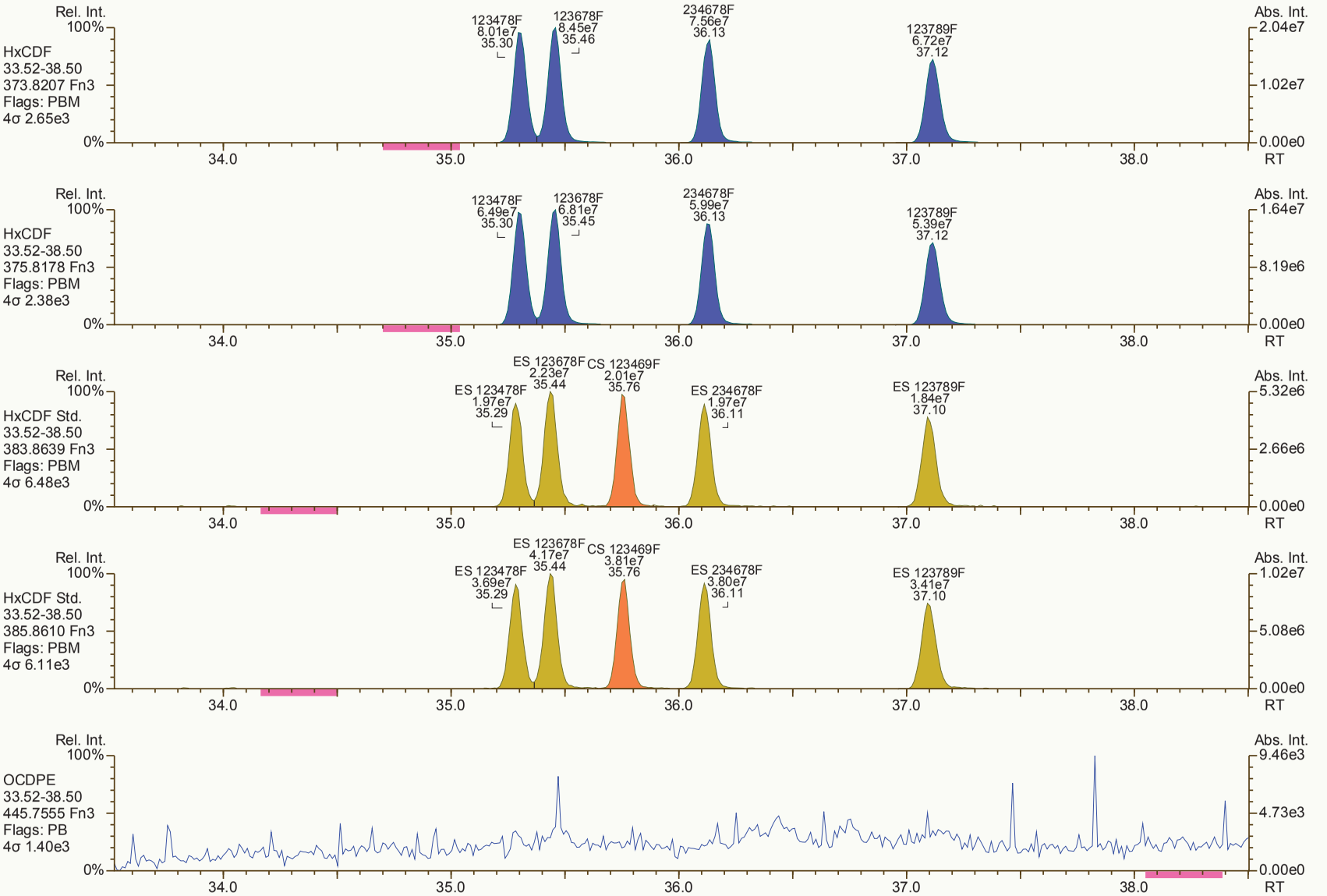
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9921, 7318, 4281 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5270, 5250, 6447 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3940, 2762, 8020 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS4_160106_CA | **Sample ID: SIL 15-104-1** | **Acq: 06-Jan-2016 22:32:46**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 76** | **User: ARL Datafile: 160106C09**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS4_160106_CA.utp_res, saved 07-Jan-2016 11:25 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3228, 4168, 6984 scc: 873-132 *PKD: 07-Jan-2016 09:40 Printed: 07-Jan-2016 11:31 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 23:25 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS5_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 040-020-RVJ**

Sample ID: SIL 15-103-4 | **Report: 07 Jan 2016 11:27 AL** | **Datafile: 160106C10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.42	1.23E+08	0.78	Y	1.19	1.17	-2%
12378-PeCDD	32.22	5.01E+08	1.57	Y	1.02	1.01	-1%
123478-HxCDD	36.34	4.58E+08	1.27	Y	1.08	1.08	0%
123678-HxCDD	36.46	4.50E+08	1.26	Y	1.05	1.02	-3%
123789-HxCDD	36.75	4.78E+08	1.25	Y	0.99	0.96	-3%
1234678-HpCDD	40.59	3.82E+08	1.04	Y	1.02	1.00	-2%
OCDD	45.82	6.20E+08	0.89	Y	1.09	1.08	-1%
2378-TCDF	25.45	1.63E+08	0.79	Y	1.09	1.06	-2%
12378-PeCDF	30.66	8.00E+08	1.57	Y	1.03	1.03	0%
23478-PeCDF	31.85	7.46E+08	1.55	Y	1.02	1.02	0%
123478-HxCDF	35.31	6.53E+08	1.24	Y	1.29	1.24	-4%
123678-HxCDF	35.46	6.94E+08	1.24	Y	1.17	1.14	-3%
234678-HxCDF	36.15	6.38E+08	1.24	Y	1.18	1.19	0%
123789-HxCDF	37.12	5.91E+08	1.25	Y	1.18	1.16	-2%
1234678-HpCDF	39.00	5.71E+08	1.03	Y	1.38	1.36	-1%
1234789-HpCDF	41.36	4.45E+08	1.02	Y	1.30	1.26	-3%
OCDF	46.12	7.85E+08	0.90	Y	1.03	1.03	-1%
ES 2378-TCDD	26.40	5.27E+07	0.83	Y	1.06	1.07	1%
ES 12378-PeCDD	32.20	4.97E+07	1.60	Y	0.99	1.01	2%
ES 123478-HxCDD	36.33	4.24E+07	1.23	Y	1.09	1.08	-1%
ES 123678-HxCDD	36.44	4.42E+07	1.26	Y	1.10	1.12	3%
ES 123789-HxCDD	36.74	4.95E+07	1.25	Y	1.24	1.26	1%
ES 1234678-HpCDD	40.57	3.82E+07	1.04	Y	0.93	0.97	4%
ES OCDD	45.80	5.76E+07	0.92	Y	0.71	0.73	3%
ES 2378-TCDF	25.43	7.68E+07	0.81	Y	1.02	1.02	0%
ES 12378-PeCDF	30.64	7.76E+07	1.56	Y	0.96	1.03	7%
ES 23478-PeCDF	31.83	7.33E+07	1.57	Y	0.95	0.98	3%
ES 123478-HxCDF	35.29	5.26E+07	0.54	Y	1.32	1.34	1%
ES 123678-HxCDF	35.44	6.08E+07	0.53	Y	1.51	1.55	2%
ES 234678-HxCDF	36.13	5.38E+07	0.55	Y	1.38	1.37	-1%
ES 123789-HxCDF	37.10	5.08E+07	0.55	Y	1.25	1.29	3%
ES 1234678-HpCDF	38.98	4.21E+07	0.46	Y	1.03	1.07	4%
ES 1234789-HpCDF	41.34	3.53E+07	0.47	Y	0.87	0.90	3%
ES OCDF	46.10	7.64E+07	0.91	Y	0.92	0.97	5%

Dioxin/Furan QC Summary | **Acq'd: 06 Jan 2016 23:25 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS5_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 040-020**

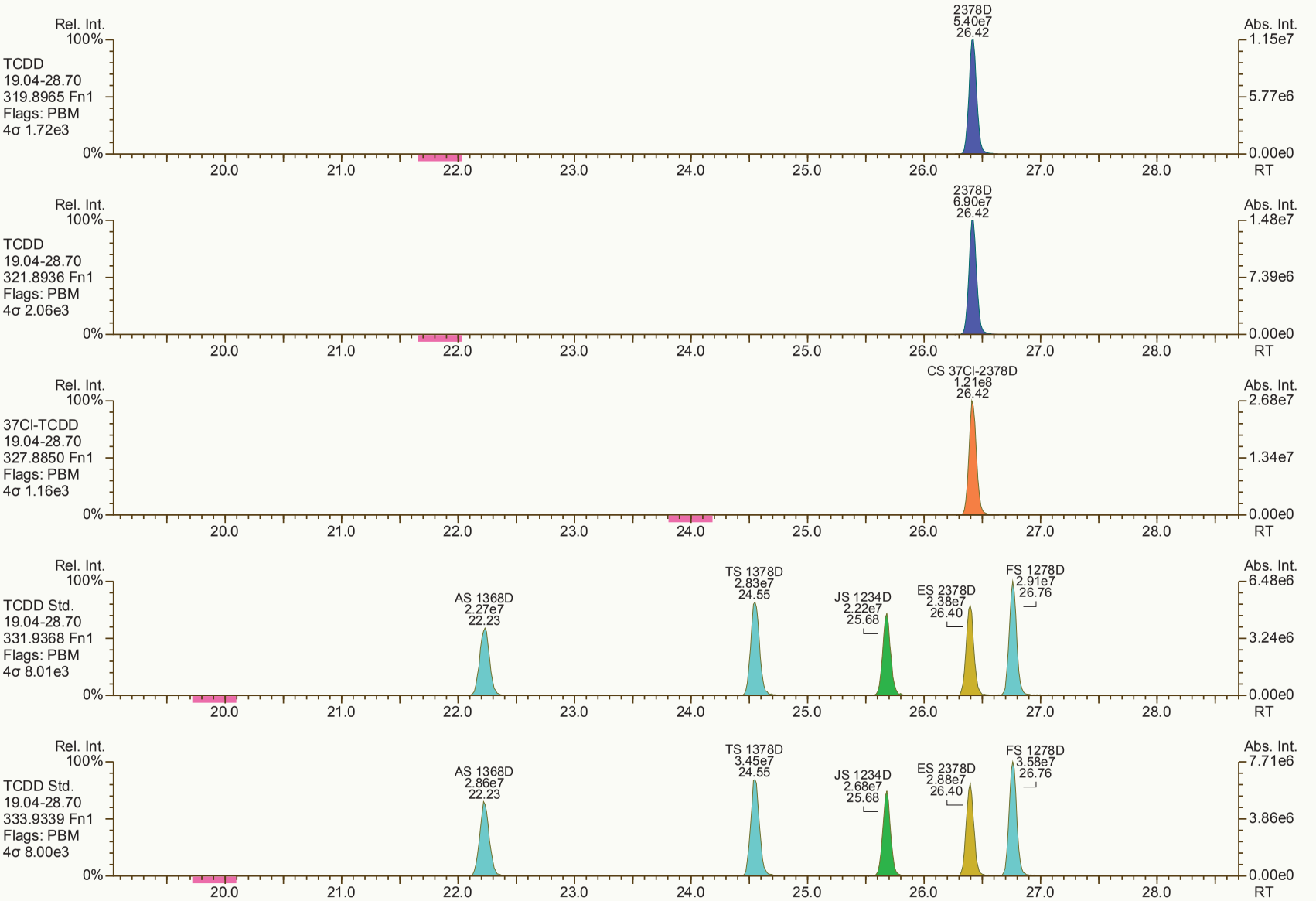
Sample ID: SIL 15-103-4 | **Report: 07 Jan 2016 11:27 AL** | **Datafile: 160106C10**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.68	4.90E+07	0.83	Y	-	-	-
JS 1234-TCDF	23.91	7.50E+07	0.78	Y	-	-	-
JS 123467-HxCDD	36.63	1.97E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	26.42	1.21E+08	n/a	-	1.24	1.23	-1%
CS 12347-PeCDD	31.68	4.54E+07	1.61	Y	0.94	0.93	-1%
CS 12346-PeCDF	30.08	7.36E+07	1.63	Y	0.92	0.98	6%
CS 123469-HxCDF	35.76	5.35E+07	0.53	Y	1.38	1.36	-1%
CS 1234689-HpCDF	39.64	3.47E+07	0.46	Y	0.88	0.88	0%
SS 37Cl-2378-TCDD	26.42	1.21E+08	n/a	-	1.18	1.15	-3%
SS 12347-PeCDD	31.68	4.54E+07	1.61	Y	0.94	0.91	-3%
SS 12346-PeCDF	30.08	7.36E+07	1.63	Y	0.96	0.95	-1%
SS 123469-HxCDF	35.76	5.35E+07	0.53	Y	0.92	0.88	-4%
SS 1234689-HpCDF	39.64	3.47E+07	0.46	Y	0.86	0.82	-4%
AS 1368-TCDD	22.23	5.14E+07	0.79	Y	1.05	1.05	0%
AS 1368-TCDF	20.12	1.08E+08	0.79	Y	1.40	1.44	3%
FS 1278-TCDD	26.76	6.48E+07	0.81	Y	1.28	1.23	-4%
FS 12478-PeCDD	30.90	5.51E+07	1.59	Y	1.11	1.11	0%
FS 123468-HxCDD	35.23	5.38E+07	1.24	Y	1.36	1.27	-6%
FS 1234679-HpCDD	39.42	4.63E+07	1.05	Y	1.30	1.21	-7%
TS 1378-TCDD	24.55	6.28E+07	0.82	Y	1.21	1.19	-1%
OCDD-a	45.82	4.01E+07	2.42	Y	0.07	0.07	3%
OCDF-a	46.12	4.90E+07	2.51	Y	0.06	0.06	1%

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

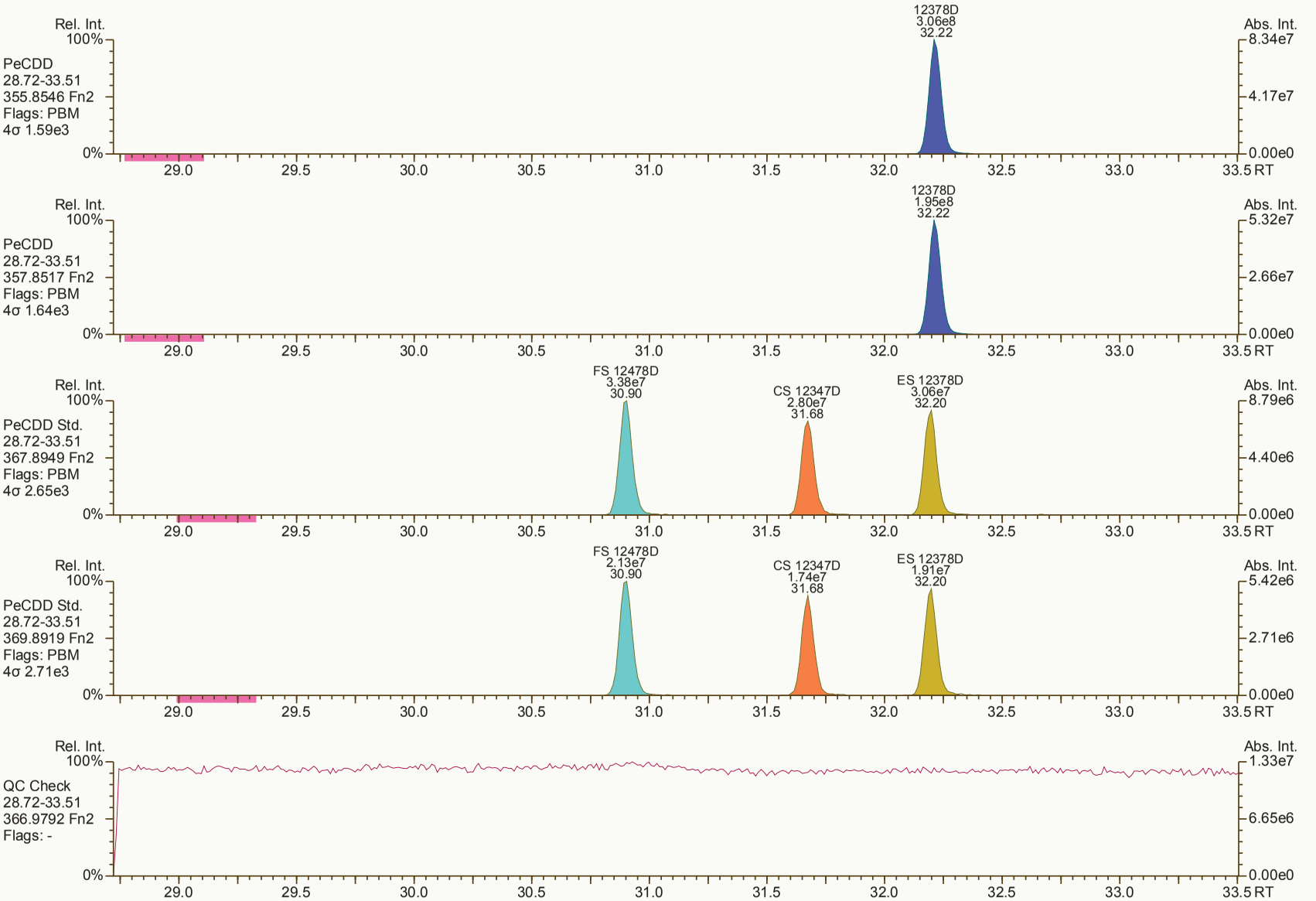
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 040-020 | *PKD: n/a Printed: 07-Jan-2016 11:31 Page 1 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



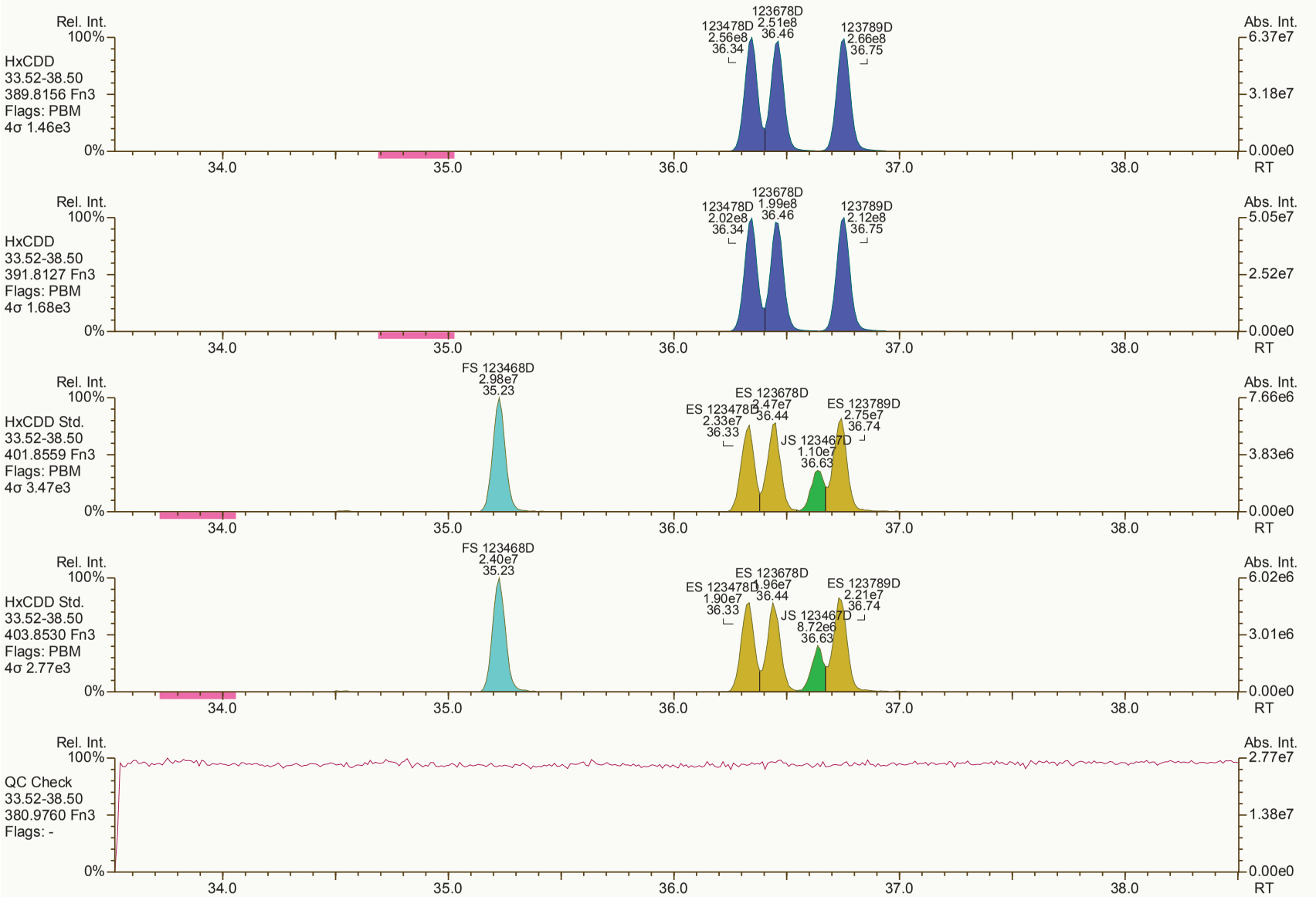
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5427, 8924, 7983 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 2 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2838, 1278 scc: 040-020 *PKD: 07-Jan-2016 09:47 Printed: 07-Jan-2016 11:31 Page 3 of 12*

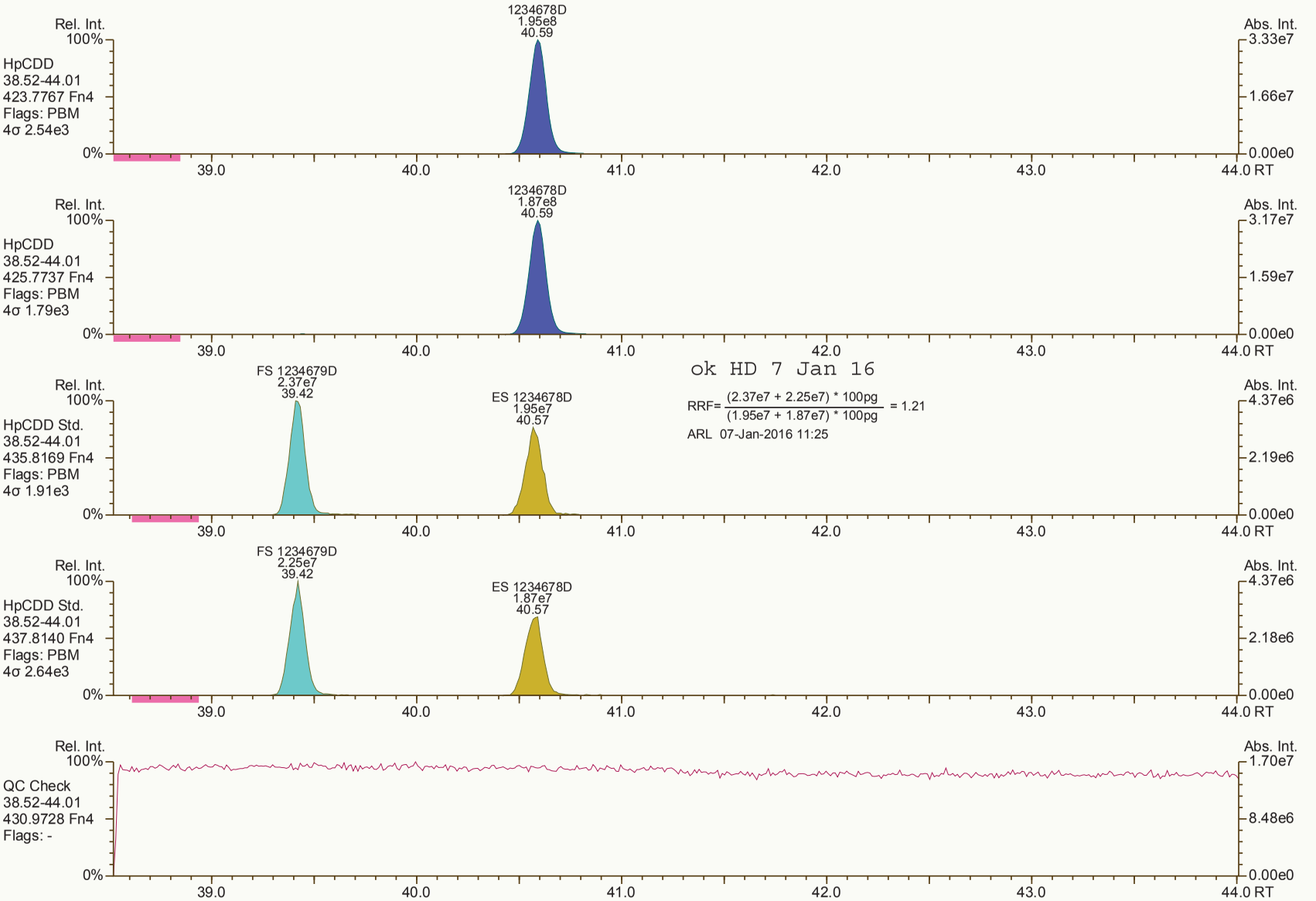
SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4507, 2451 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 4 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**

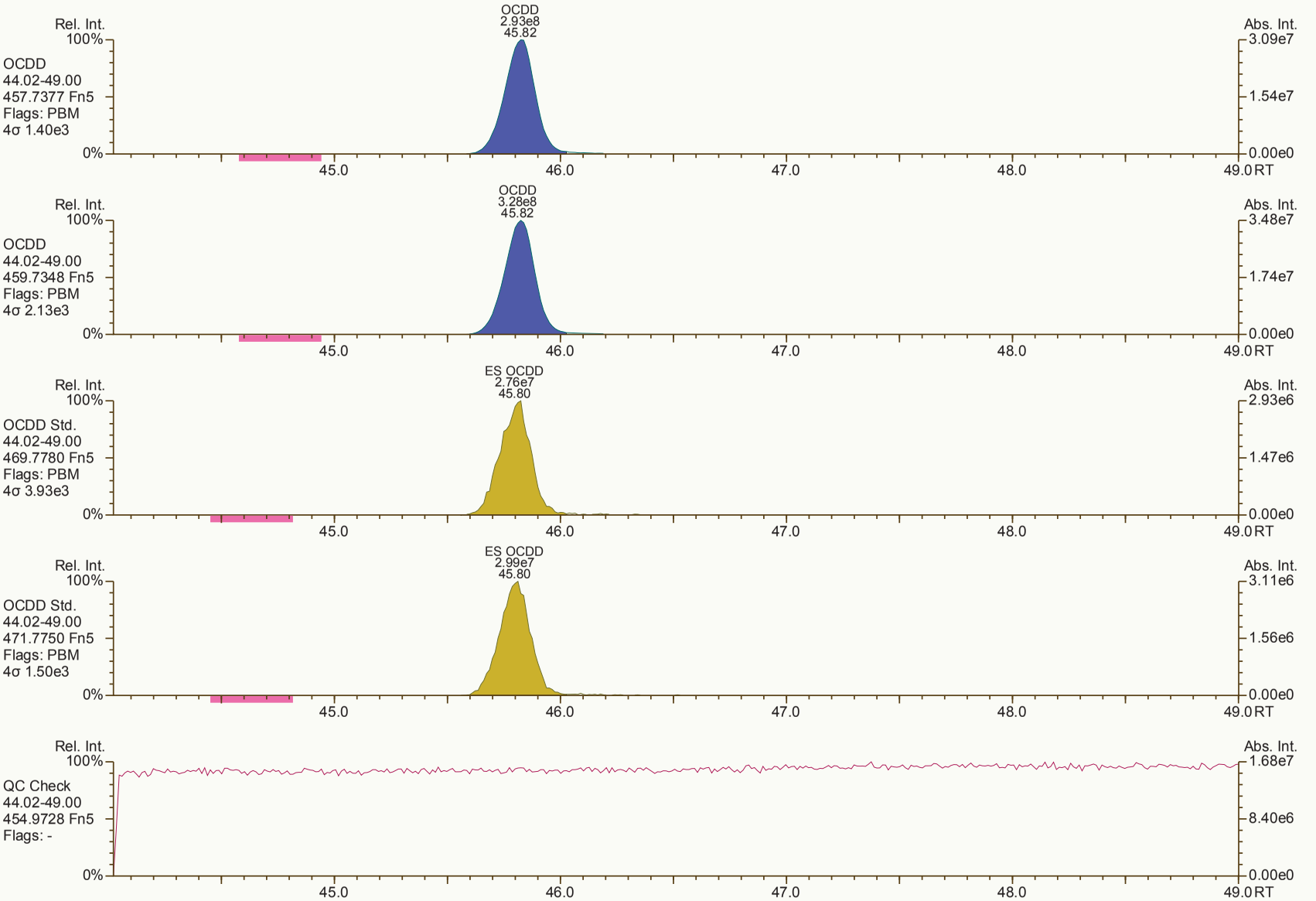
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) — *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1409, 3882 scc: 040-020 — *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2106, 9637 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 6 of 12*

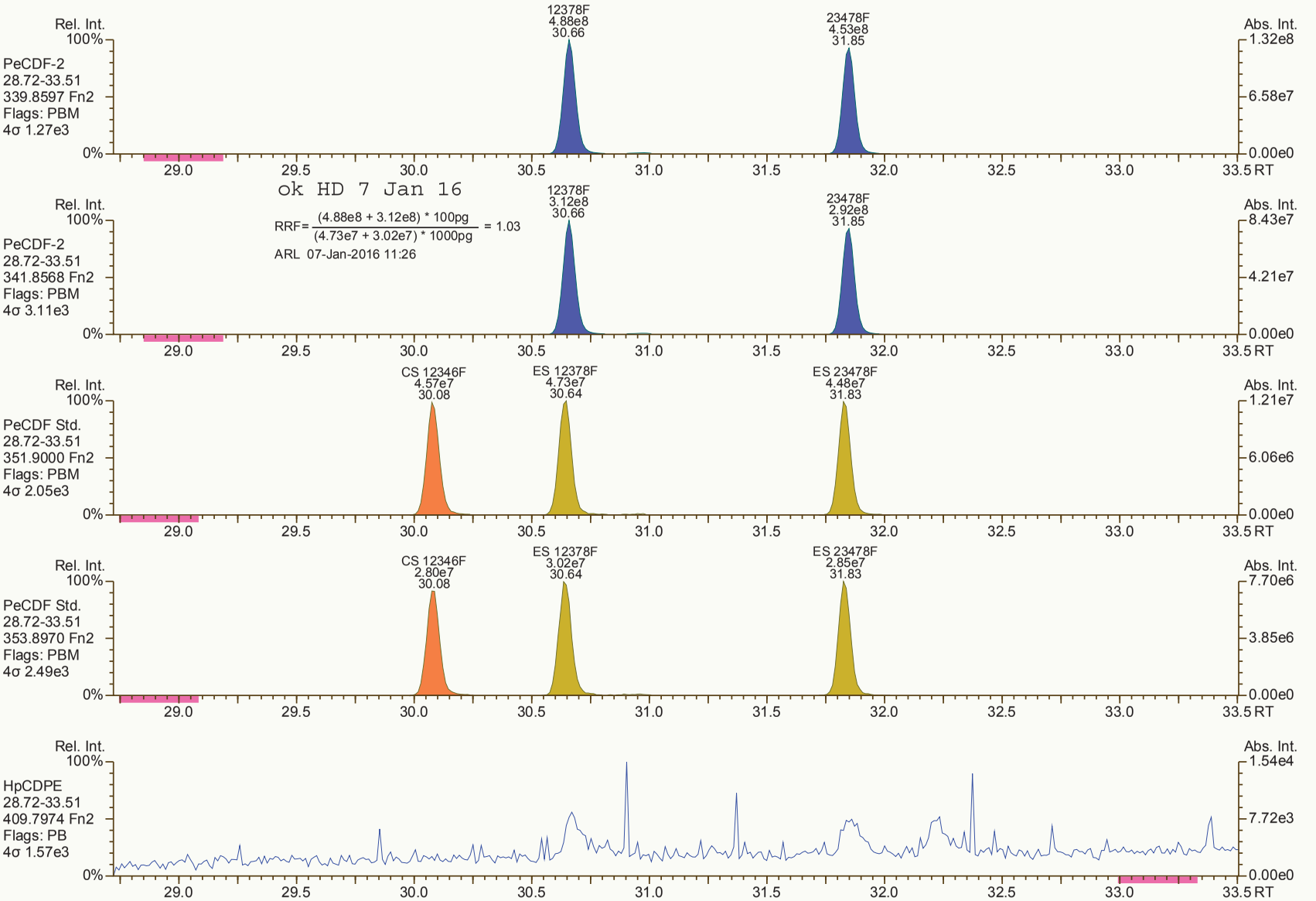
SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9430, 7299, 8804 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**

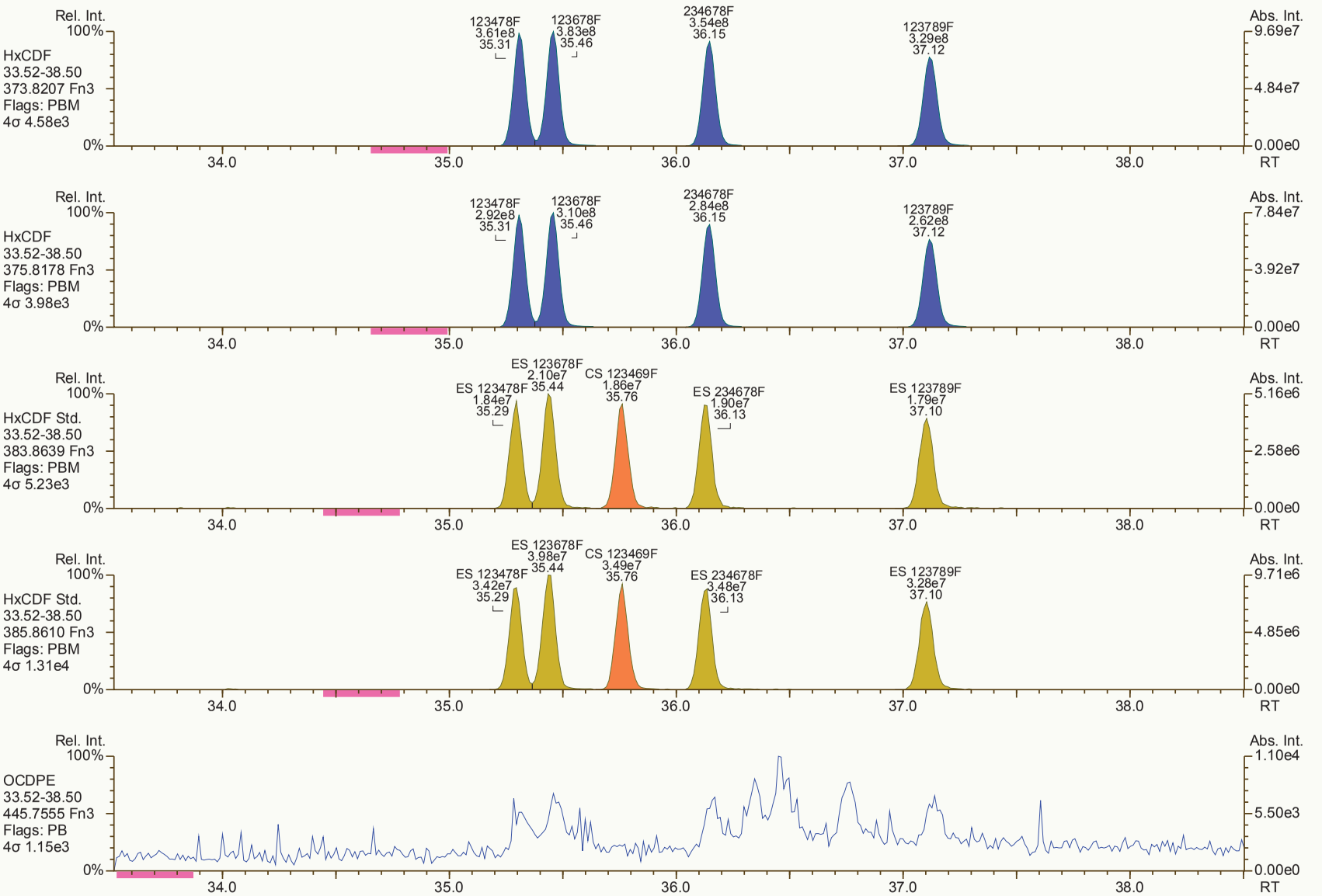
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0948 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



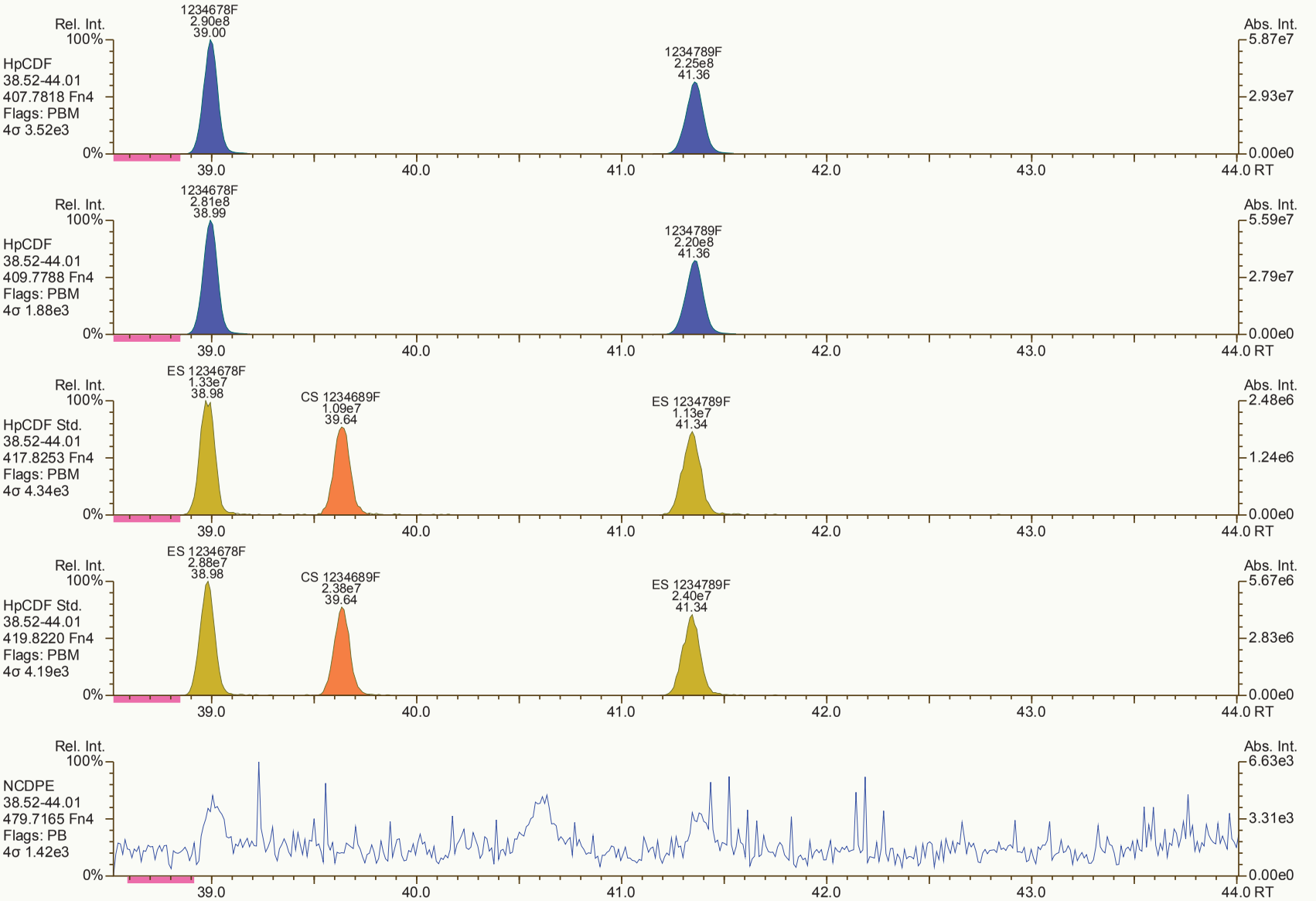
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8836, 2270, 2550 scc: 040-020 *PKD: 07-Jan-2016 09:44 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



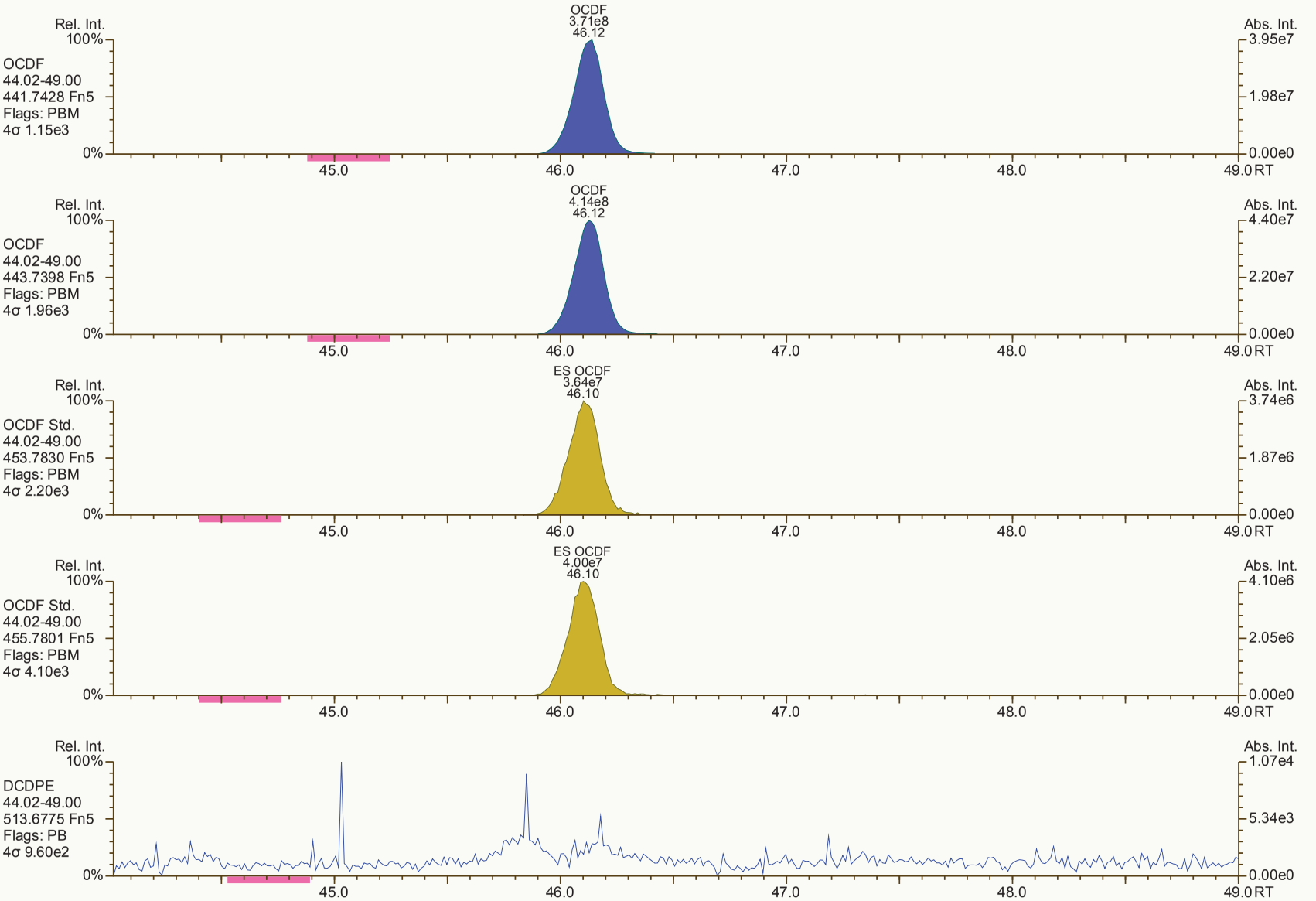
Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6694, 6788, 6587 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1082, 0140, 0980 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS5_160106_CA | **Sample ID: SIL 15-103-4** | **Acq: 06-Jan-2016 23:25:20**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 77** | **User: ARL Datafile: 160106C10**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS5_160106_CA.utp_res, saved 07-Jan-2016 11:27 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0695, 7442, 7846 scc: 040-020 *PKD: 07-Jan-2016 09:45 Printed: 07-Jan-2016 11:31 Page 12 of 12*

Dioxin/Furan QC Summary | **Acq'd: 07 Jan 2016 00:17 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS6_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 804-666-MVB**

Sample ID: SIL 15-105-3 | **Report: 07 Jan 2016 11:29 AL** | **Datafile: 160106C11**

Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
2378-TCDD	26.44	3.67E+08	0.78	Y	1.19	1.13	-5%
12378-PeCDD	32.23	1.58E+09	1.58	Y	1.02	0.99	-2%
123478-HxCDD	36.34	1.51E+09	1.26	Y	1.08	1.04	-4%
123678-HxCDD	36.45	1.48E+09	1.27	Y	1.05	1.05	0%
123789-HxCDD	36.74	1.57E+09	1.26	Y	0.99	0.96	-3%
1234678-HpCDD	40.64	1.17E+09	1.05	Y	1.02	0.97	-5%
OCDD	45.91	2.08E+09	0.89	Y	1.09	1.06	-3%
2378-TCDF	25.47	5.14E+08	0.79	Y	1.09	1.05	-3%
12378-PeCDF	30.67	2.34E+09	1.56	Y	1.03	1.03	0%
23478-PeCDF	31.86	2.32E+09	1.57	Y	1.02	1.02	0%
123478-HxCDF	35.30	2.20E+09	1.25	Y	1.29	1.27	-2%
123678-HxCDF	35.45	2.29E+09	1.25	Y	1.17	1.15	-2%
234678-HxCDF	36.14	2.12E+09	1.24	Y	1.18	1.18	0%
123789-HxCDF	37.11	1.90E+09	1.25	Y	1.18	1.16	-2%
1234678-HpCDF	39.03	1.77E+09	1.03	Y	1.38	1.33	-3%
1234789-HpCDF	41.40	1.42E+09	1.02	Y	1.30	1.27	-2%
OCDF	46.20	2.65E+09	0.91	Y	1.03	1.01	-2%
ES 2378-TCDD	26.41	6.49E+07	0.80	Y	1.06	1.15	8%
ES 12378-PeCDD	32.21	6.33E+07	1.61	Y	0.99	1.12	13%
ES 123478-HxCDD	36.32	5.79E+07	1.28	Y	1.09	1.17	8%
ES 123678-HxCDD	36.44	5.66E+07	1.26	Y	1.10	1.14	5%
ES 123789-HxCDD	36.73	6.53E+07	1.27	Y	1.24	1.32	6%
ES 1234678-HpCDD	40.62	4.81E+07	1.06	Y	0.93	0.97	4%
ES OCDD	45.89	7.83E+07	0.91	Y	0.71	0.79	11%
ES 2378-TCDF	25.45	9.77E+07	0.80	Y	1.02	1.07	5%
ES 12378-PeCDF	30.65	9.11E+07	1.57	Y	0.96	1.00	4%
ES 23478-PeCDF	31.84	9.10E+07	1.57	Y	0.95	1.00	5%
ES 123478-HxCDF	35.28	6.93E+07	0.53	Y	1.32	1.40	6%
ES 123678-HxCDF	35.43	7.97E+07	0.54	Y	1.51	1.61	7%
ES 234678-HxCDF	36.12	7.22E+07	0.52	Y	1.38	1.46	6%
ES 123789-HxCDF	37.09	6.57E+07	0.53	Y	1.25	1.33	6%
ES 1234678-HpCDF	39.01	5.31E+07	0.47	Y	1.03	1.07	5%
ES 1234789-HpCDF	41.39	4.48E+07	0.47	Y	0.87	0.91	4%
ES OCDF	46.18	1.05E+08	0.91	Y	0.92	1.06	15%

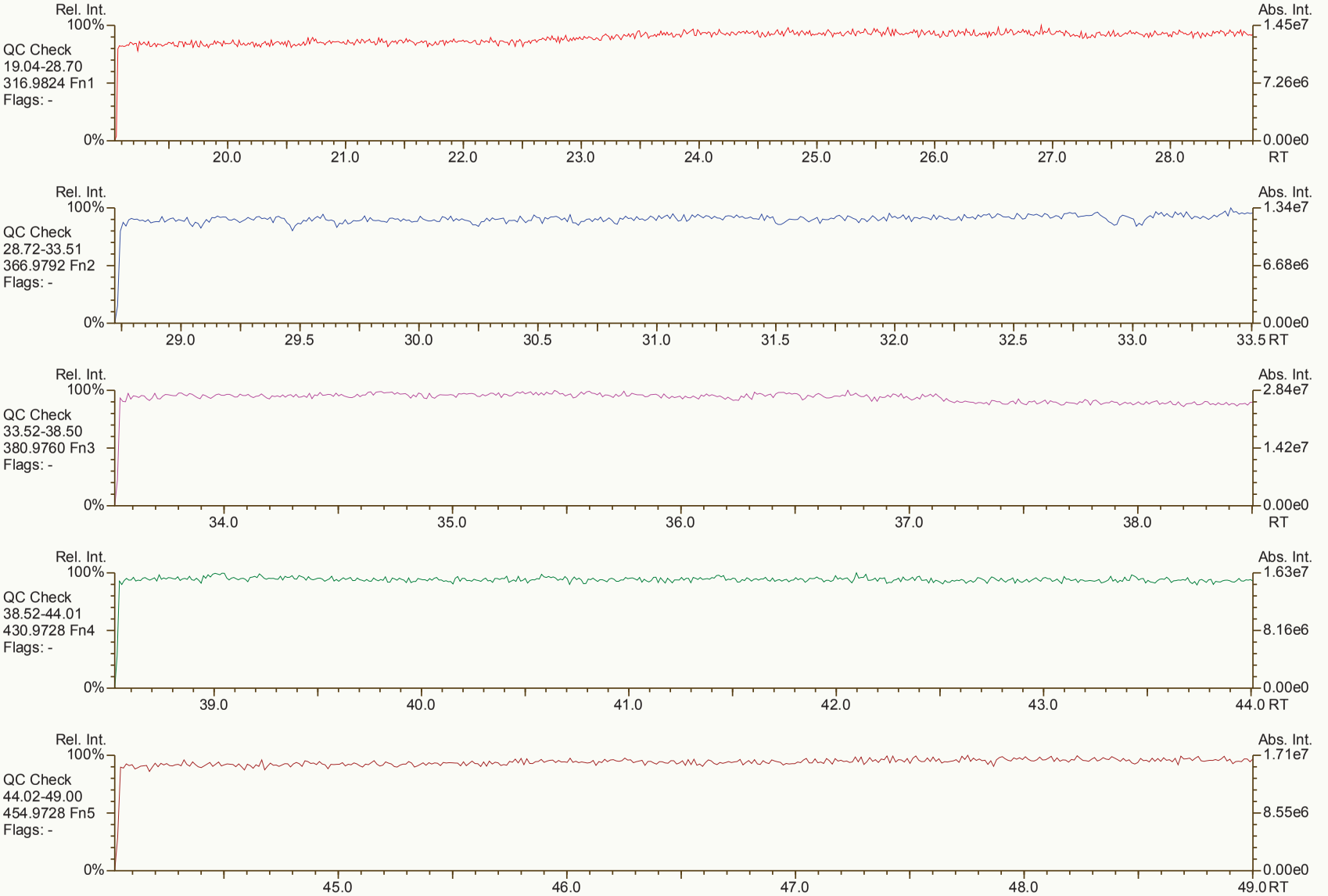
Dioxin/Furan QC Summary | **Acq'd: 07 Jan 2016 00:17 ARL** | **ICAL: HRMS3_DF_12212015_06JAN2016**

Lab ID: CS6_160106_CA | **UTP: 07-Jan-2016 10:52:26 ARL** | **Checkcode: 804-666**

Sample ID: SIL 15-105-3 | **Report: 07 Jan 2016 11:29 AL** | **Datafile: 160106C11**

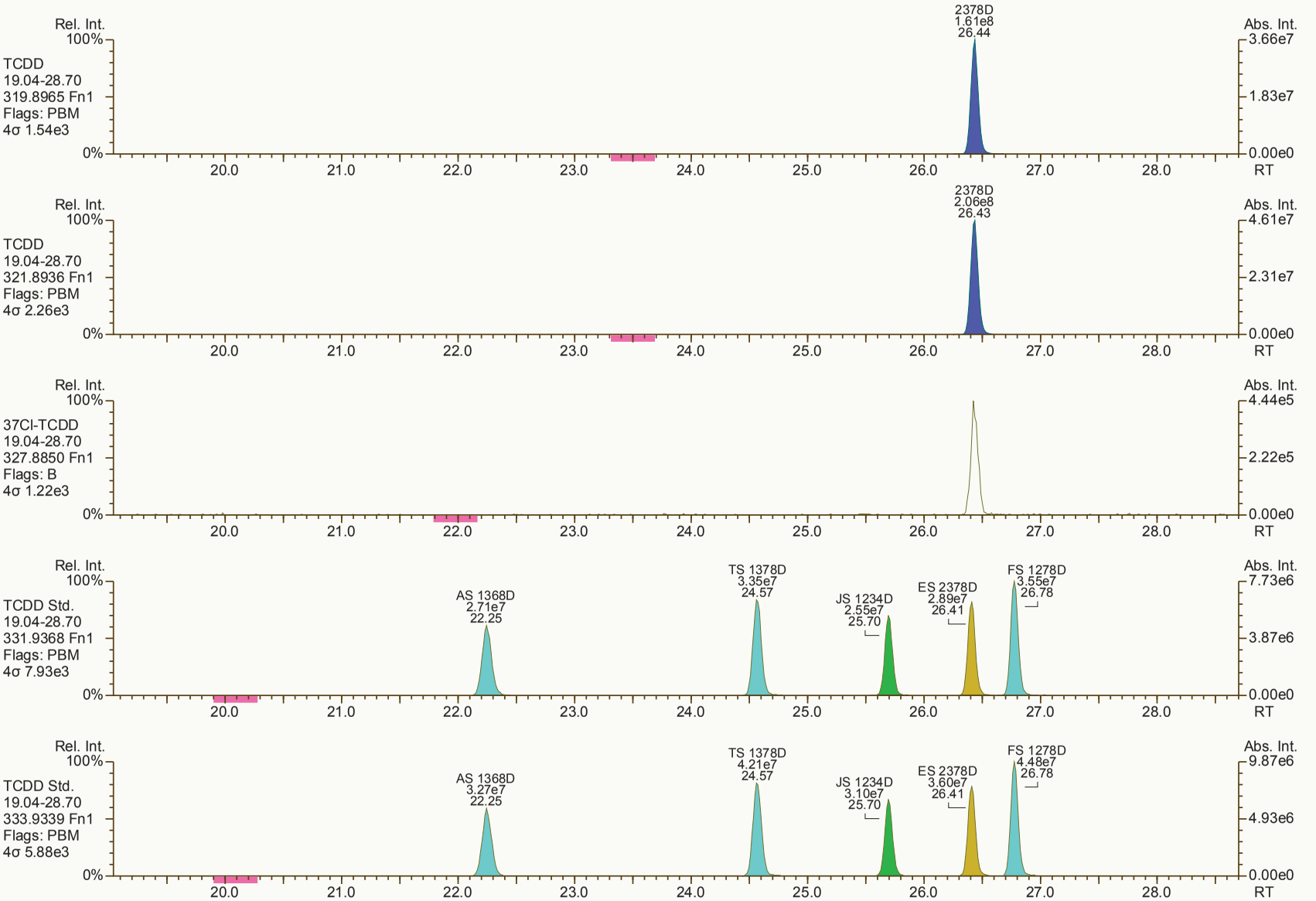
Name	RT	Response	RA	OK	Ref. RRFs	Calc. RRFs	Dev'n
JS 1234-TCDD	25.70	5.64E+07	0.82	Y	-	-	-
JS 1234-TCDF	23.92	9.11E+07	0.80	Y	-	-	-
JS 123467-HxCDD	36.63	2.47E+07	1.26	Y	-	-	-
CS 37Cl-2378-TCDD	Not Fnd		n/a	-			
CS 12347-PeCDD	31.68	5.50E+07	1.55	Y	0.94	0.97	4%
CS 12346-PeCDF	30.09	8.37E+07	1.56	Y	0.92	0.92	-1%
CS 123469-HxCDF	35.75	6.66E+07	0.55	Y	1.38	1.35	-2%
CS 1234689-HpCDF	39.67	4.04E+07	0.46	Y	0.88	0.82	-7%
SS 37Cl-2378-TCDD	Not Fnd		n/a	-			
SS 12347-PeCDD	31.68	5.50E+07	1.55	Y	0.94	0.87	-8%
SS 12346-PeCDF	30.09	8.37E+07	1.56	Y	0.96	0.92	-4%
SS 123469-HxCDF	35.75	6.66E+07	0.55	Y	0.92	0.84	-9%
SS 1234689-HpCDF	39.67	4.04E+07	0.46	Y	0.86	0.76	-12%
AS 1368-TCDD	22.25	5.98E+07	0.83	Y	1.05	1.06	1%
AS 1368-TCDF	20.14	1.25E+08	0.80	Y	1.40	1.37	-2%
FS 1278-TCDD	26.78	8.03E+07	0.79	Y	1.28	1.24	-4%
FS 12478-PeCDD	30.91	6.35E+07	1.63	Y	1.11	1.00	-10%
FS 123468-HxCDD	35.22	7.07E+07	1.26	Y	1.36	1.22	-10%
FS 1234679-HpCDD	39.45	5.52E+07	1.09	Y	1.30	1.15	-12%
TS 1378-TCDD	24.57	7.56E+07	0.80	Y	1.21	1.17	-4%
OCDD-a	45.90	1.30E+08	2.42	Y	0.07	0.07	-1%
OCDF-a	46.20	1.61E+08	2.51	Y	0.06	0.06	-3%

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 804-666 | *PKD: n/a Printed: 07-Jan-2016 11:31 Page 1 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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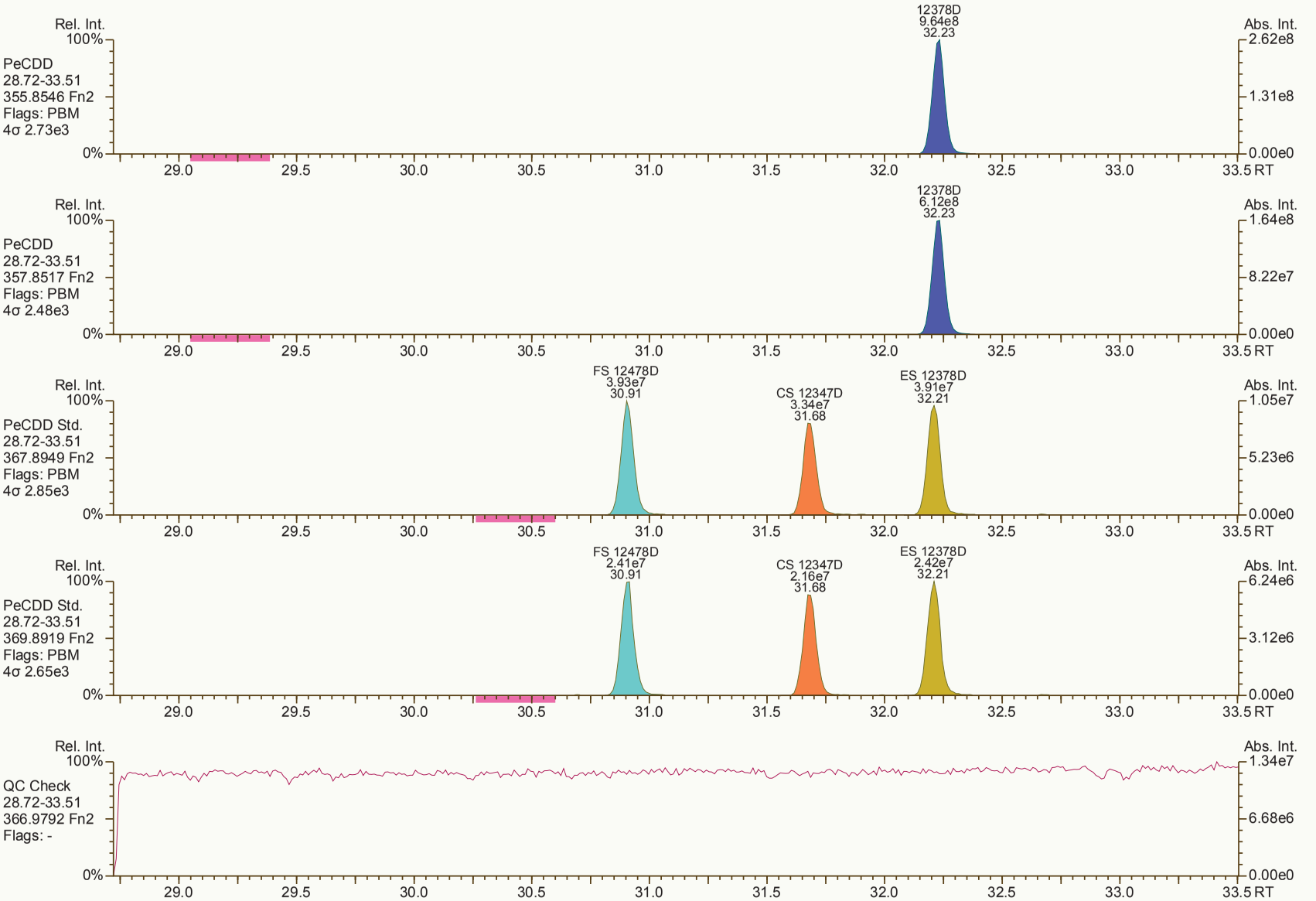
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 3030, 7612, 7241 scc: 804-666 *Revised: 07-Jan-2016 10:40 (ARL) Printed: 07-Jan-2016 11:31 Page 2 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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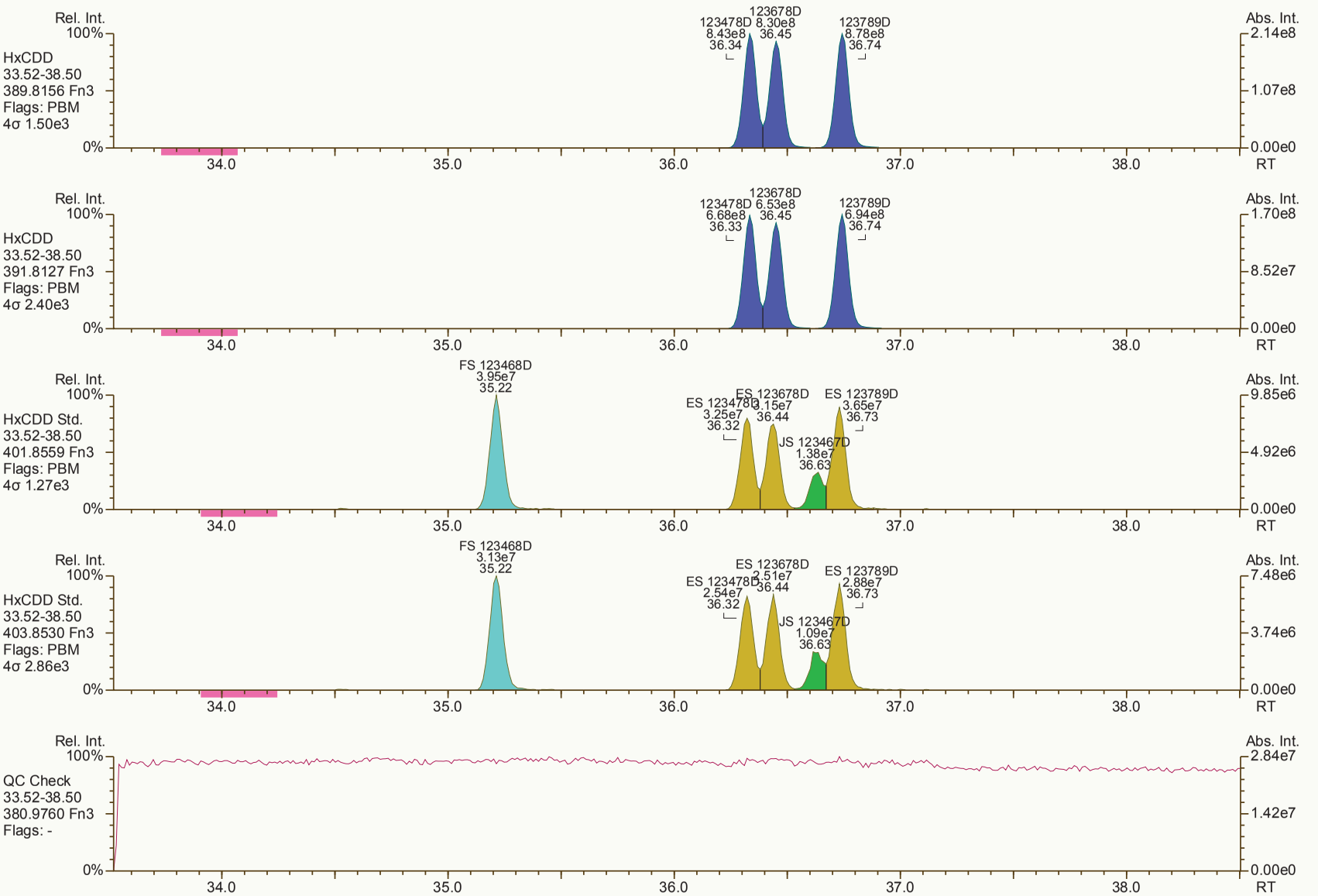
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2994, 3437 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 3 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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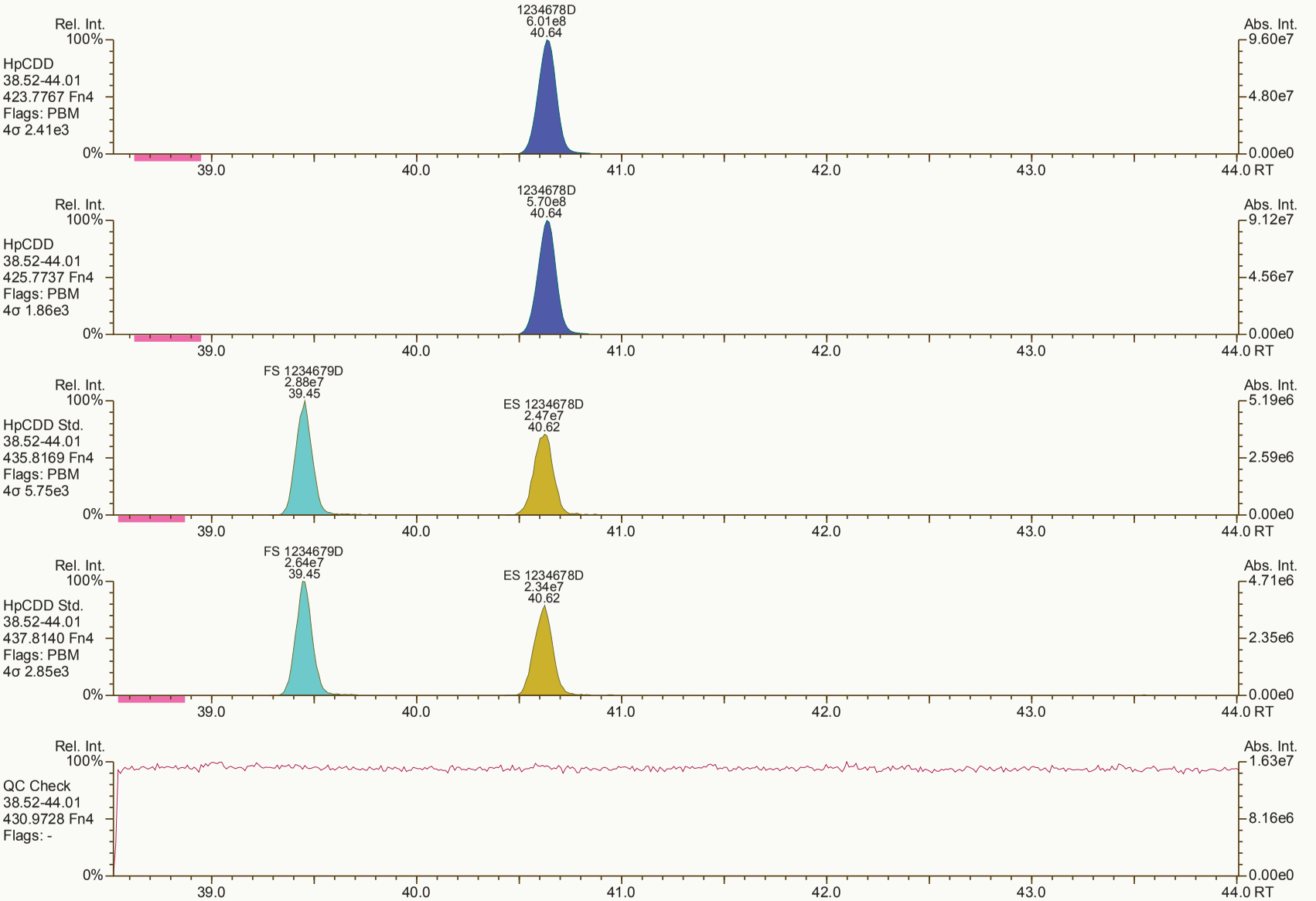
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1368, 6040 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 4 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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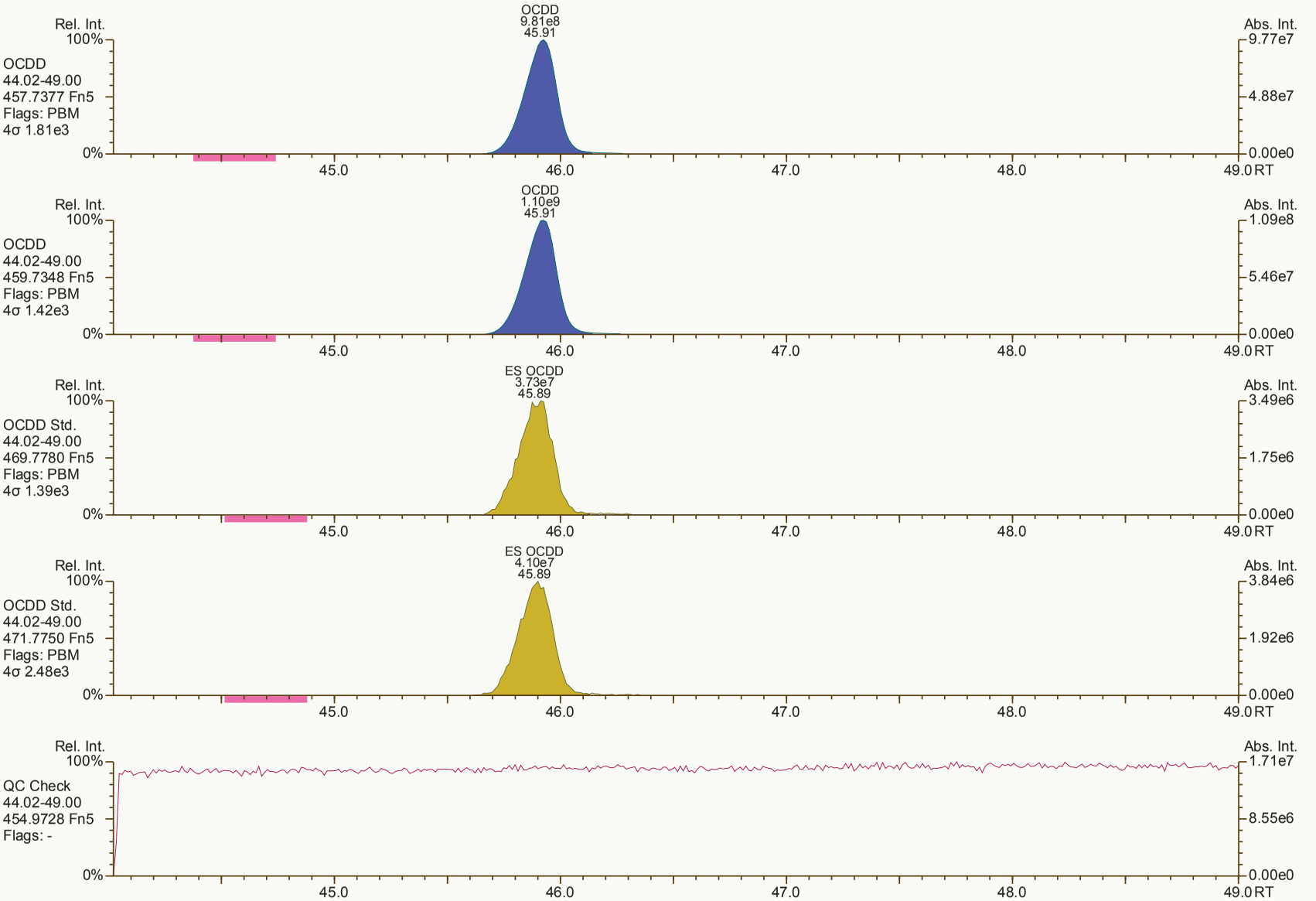
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1811, 2285 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 5 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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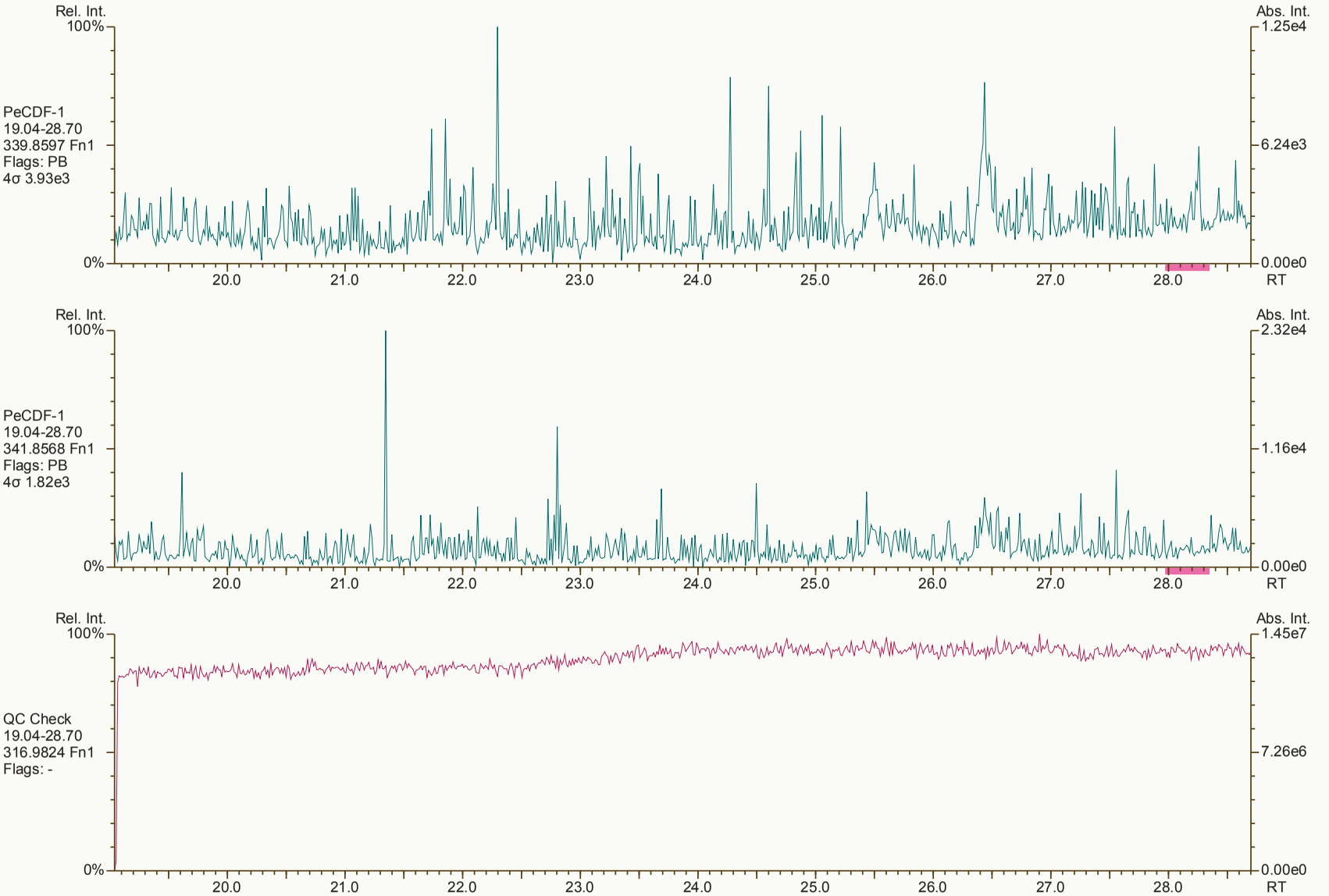
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7359, 5704 scc: 804-666 *Revised: 07-Jan-2016 09:55 (ARL) Printed: 07-Jan-2016 11:31 Page 6 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\CS6_160106_CA.utp_res, saved 07-Jan-2016 11:28 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5584, 6848, 2304 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 7 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 78** | **User: ARL Datafile: 160106C11**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8676 scc: 804-666 *PKD: 07-Jan-2016 09:49 Printed: 07-Jan-2016 11:31 Page 8 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

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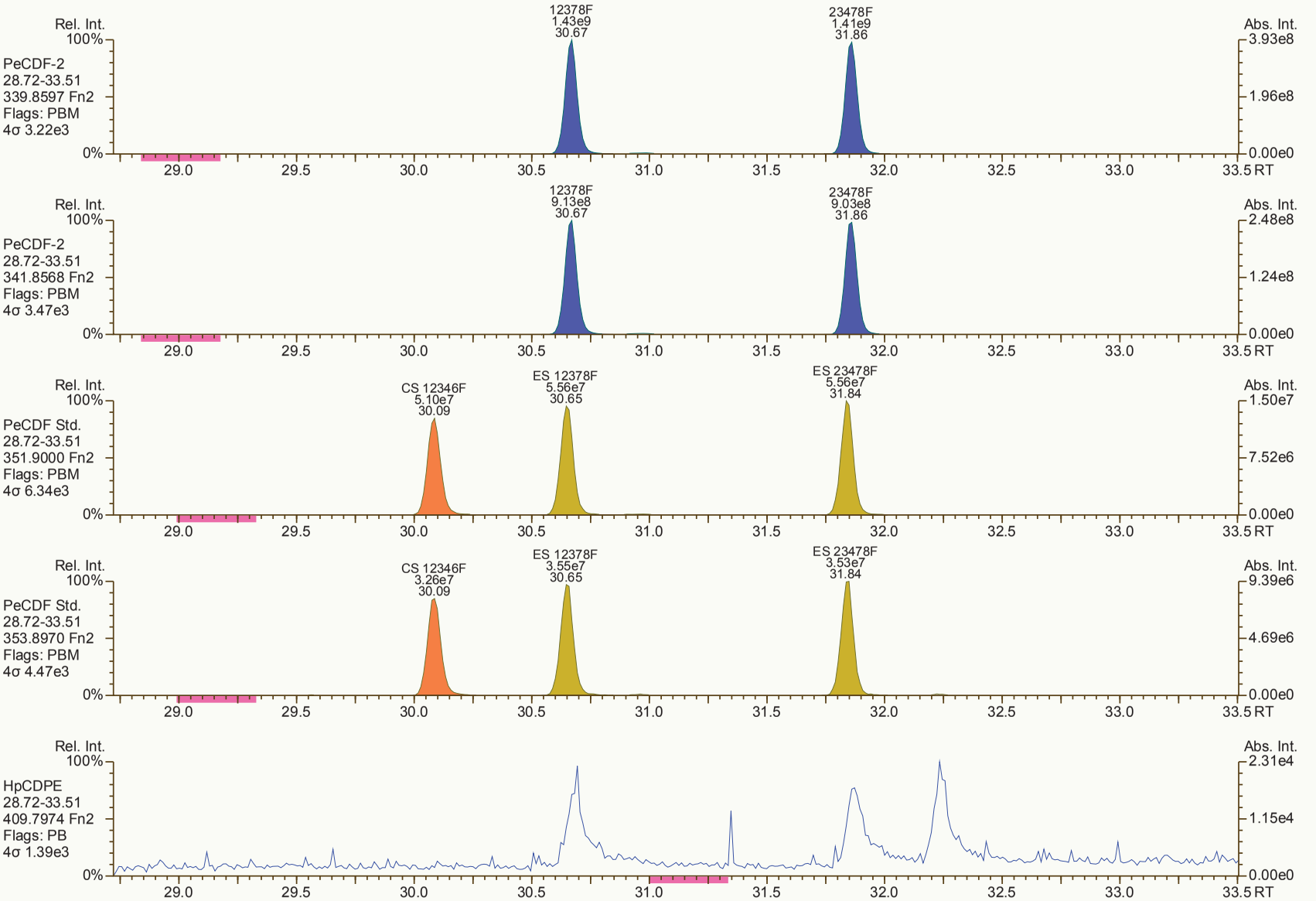

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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7759, 6904, 7407 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 9 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
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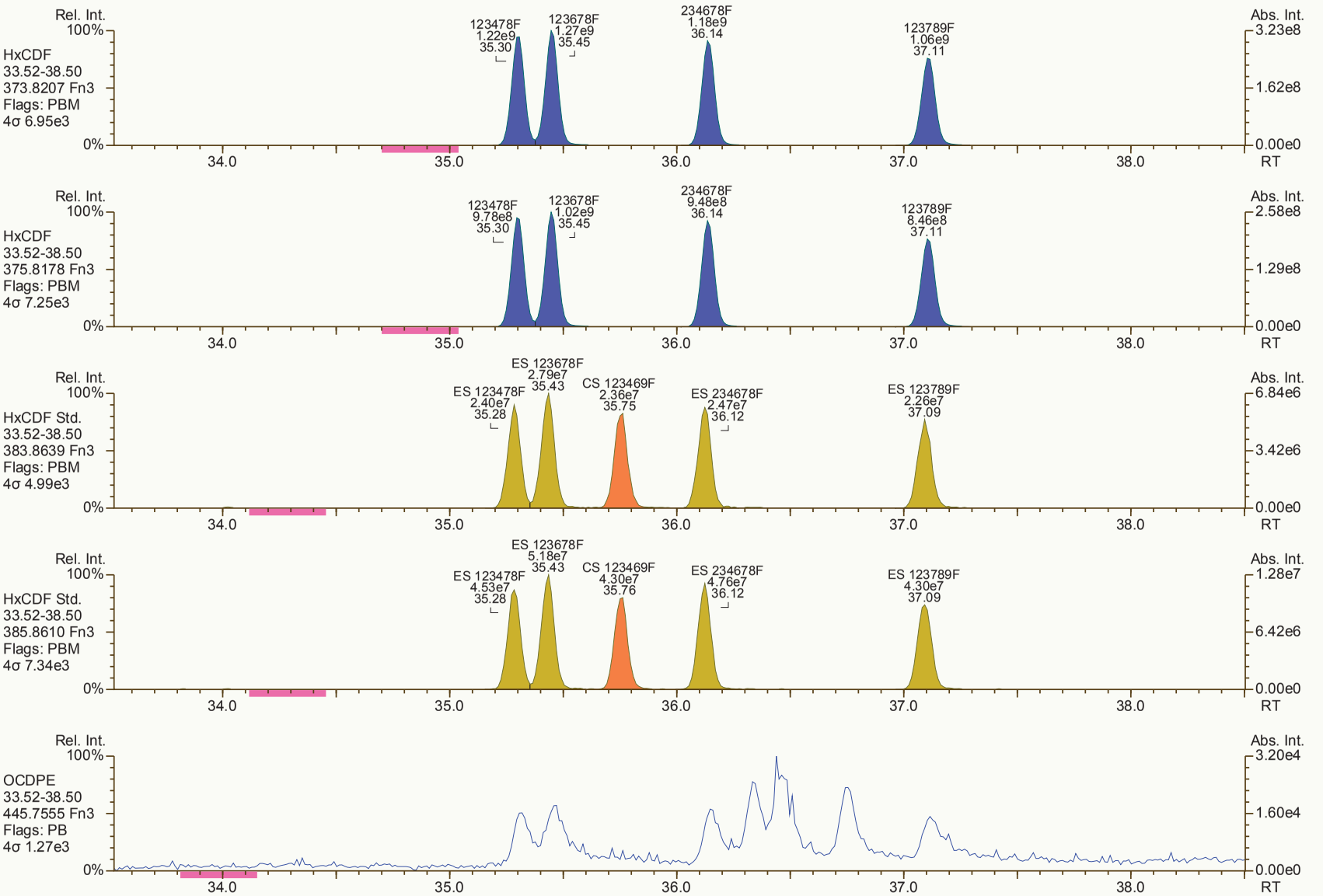

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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2541, 5320, 0843 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 10 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**
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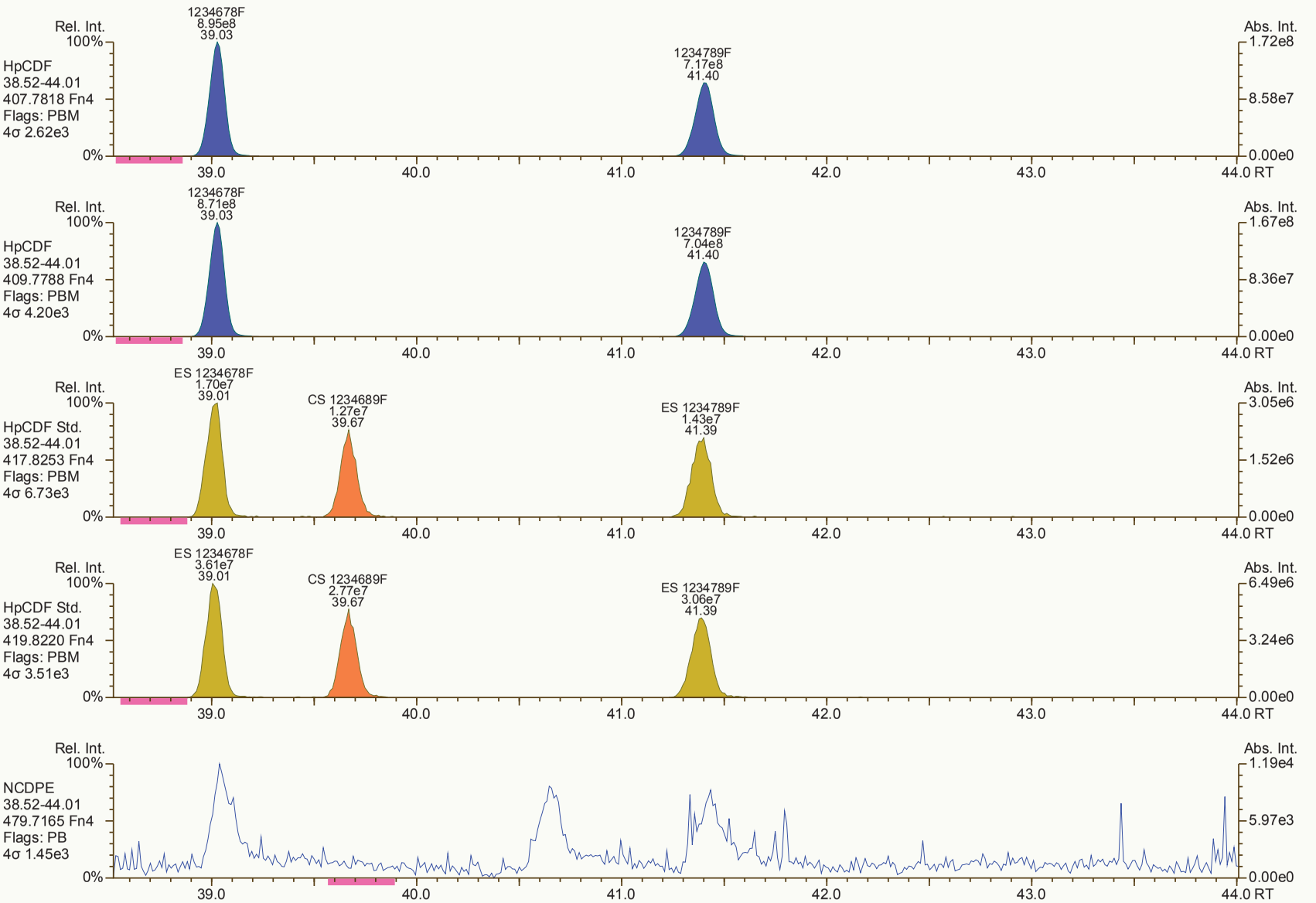

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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 9766, 2990, 6530 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 11 of 12*

SGS ID: CS6_160106_CA | **Sample ID: SIL 15-105-3** | **Acq: 07-Jan-2016 00:17:55**

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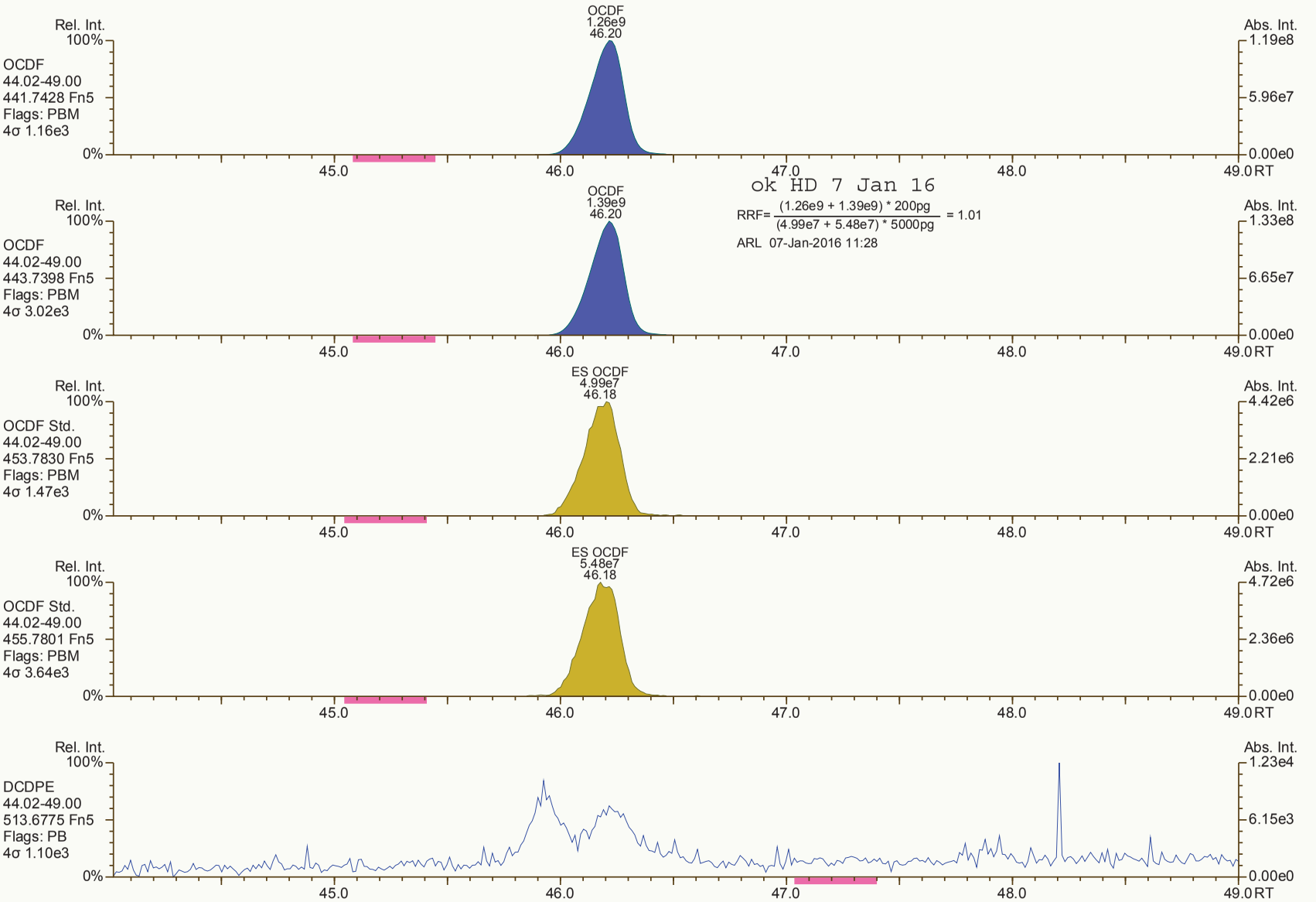

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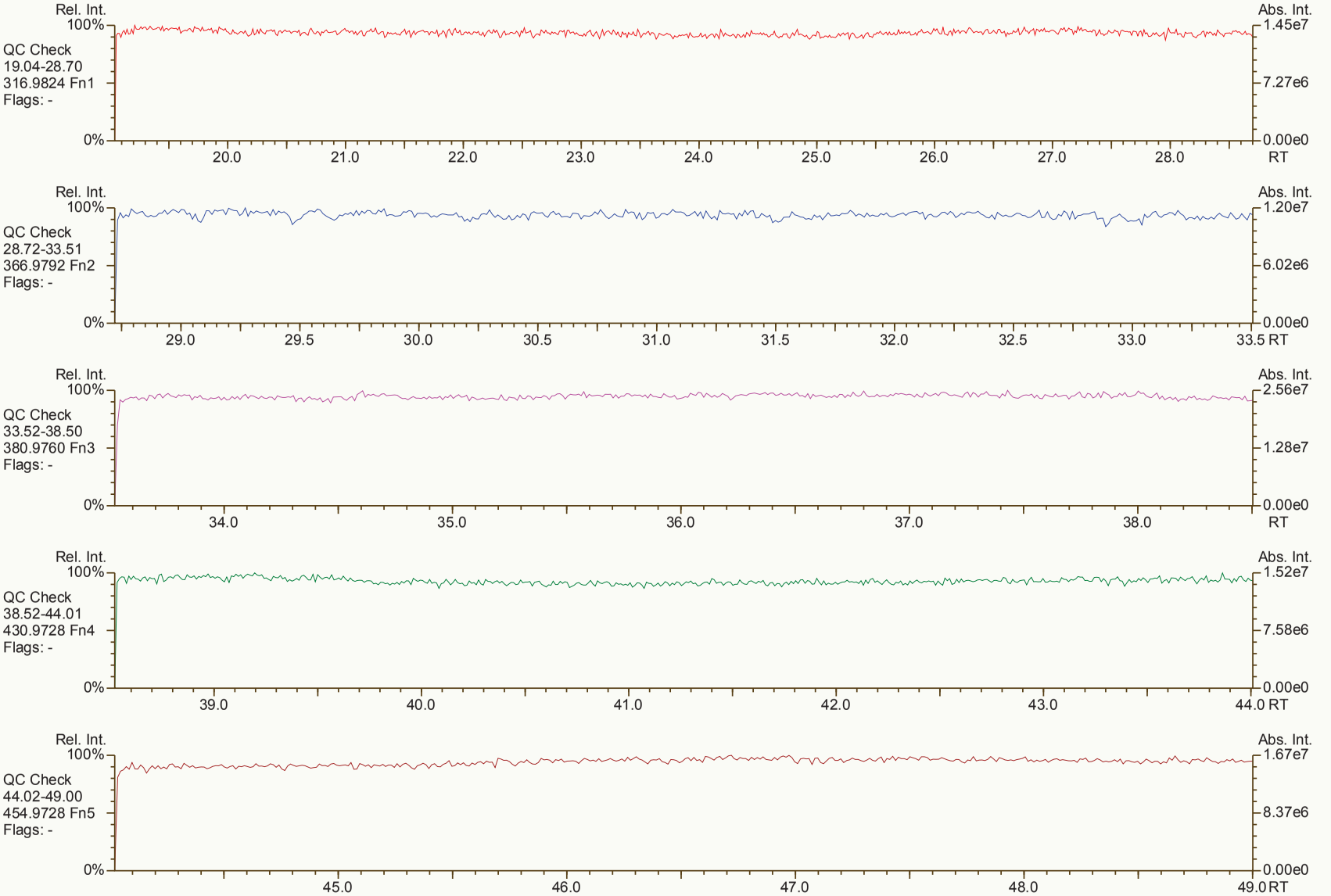
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 8429, 3879, 8613 scc: 804-666 *PKD: 07-Jan-2016 09:55 Printed: 07-Jan-2016 11:31 Page 12 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



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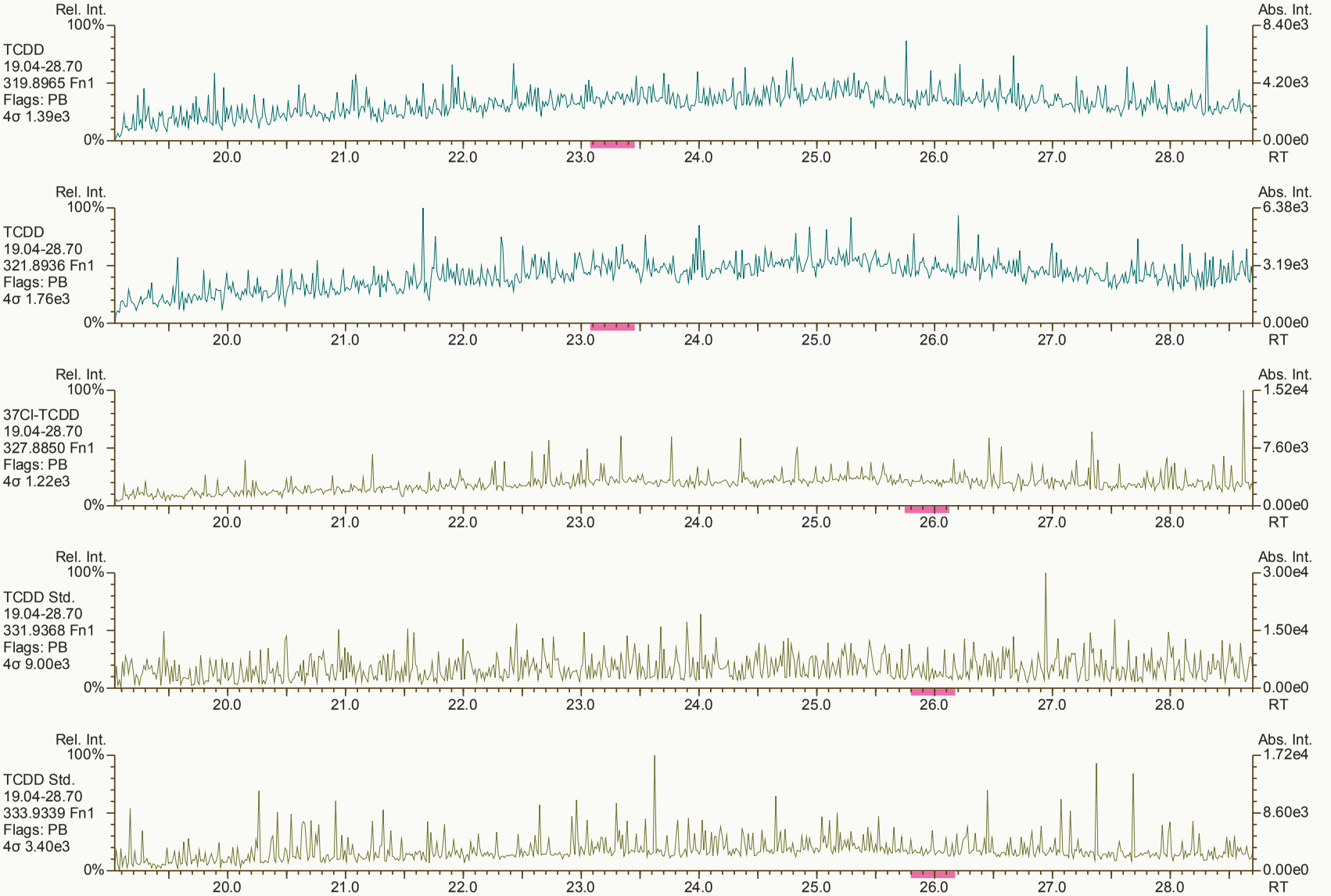
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 scc: 152-729 | *PKD: n/a Printed: 07-Jan-2016 11:29 Page 1 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**



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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4005, 8299, 5345 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 2 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 2860, 2558 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 3 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 5568, 9339 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 4 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 4227, 7341 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 5 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6446, 1639 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 6 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**

Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*

SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1385, 8643, 4959 scc: 152-729 *Revised: 07-Jan-2016 09:10 (ARL) Printed: 07-Jan-2016 11:29 Page 7 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

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SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 1158 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 8 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 7534, 7061, 1597 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 9 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

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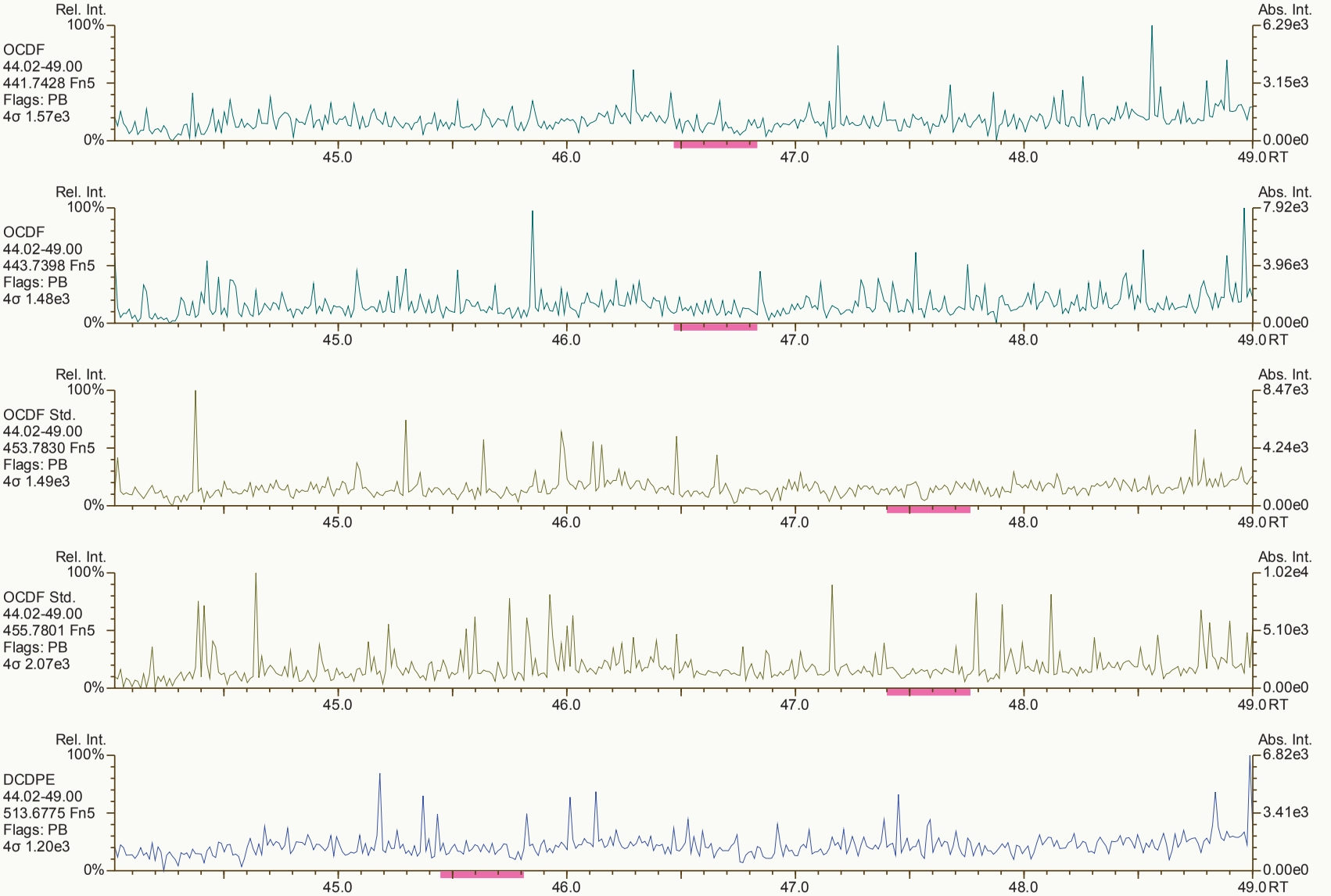
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 0586, 0533, 7908 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 10 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6278, 3765, 1758 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 11 of 12*

SGS ID: SBS_160106_CA | **Sample ID: SIL 15-49-1** | **Acq: 06-Jan-2016 17:12:51**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 160106C03**

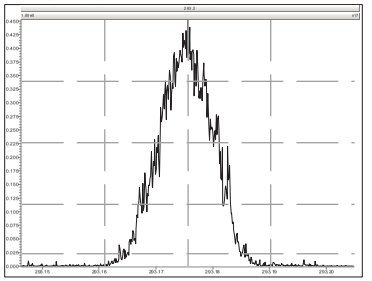


Results: T:\UltraTracePro\ICAL results\HRMS3\HRMS_DF_12212015_06JAN2016\Resources\SBS_160106_CA.utp_res, saved 07-Jan-2016 10:36 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.88 User/System: ARL/US0007951 cc: 6907, 6593, 3757 scc: 152-729 *PKD: 07-Jan-2016 09:10 Printed: 07-Jan-2016 11:29 Page 12 of 12*

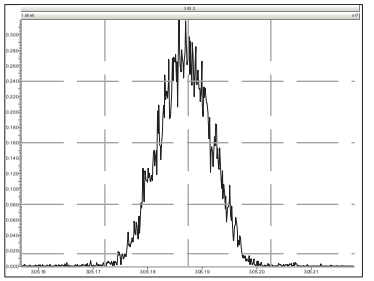
Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, January 06, 2016 18:11:40 Eastern Standard Time

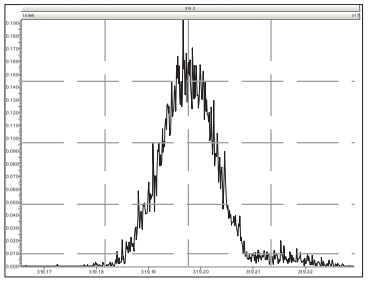
M 292.9824 R 14384



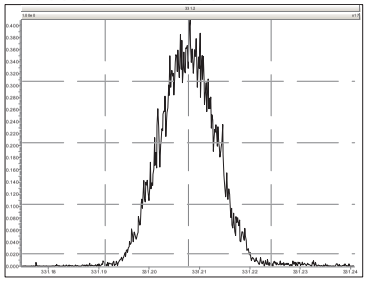
M 304.9824 R 13940



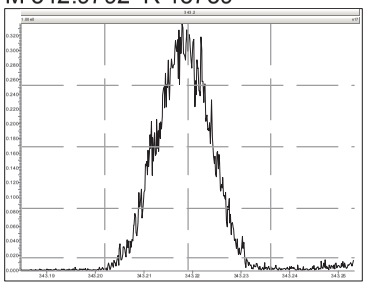
M 318.9792 R 14085



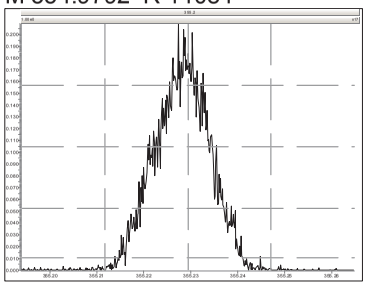
M 330.9792 R 13552



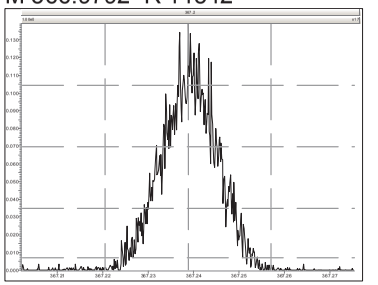
M 342.9792 R 13739



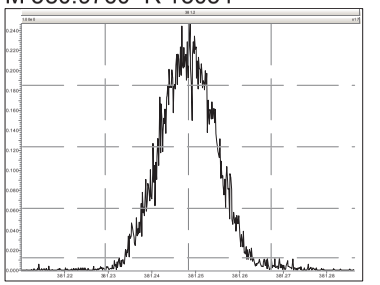
M 354.9792 R 14084



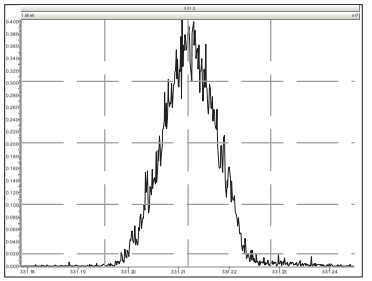
M 366.9792 R 14542



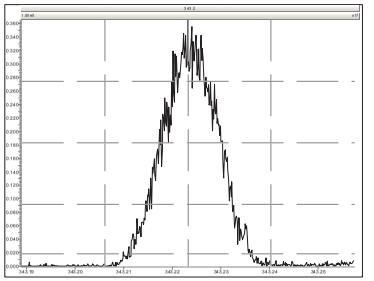
M 380.9760 R 13054



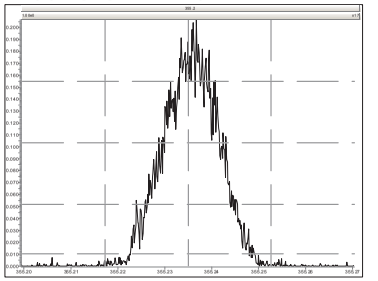
M 330.9792 R 14085



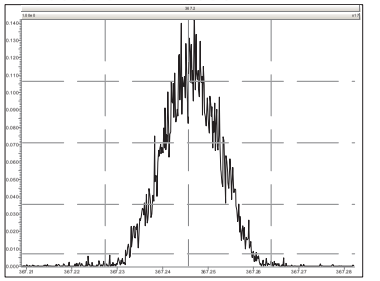
M 342.9792 R 13889



M 354.9792 R 14014



M 366.9792 R 13890



Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, January 06, 2016 18:11:40 Eastern Standard Time

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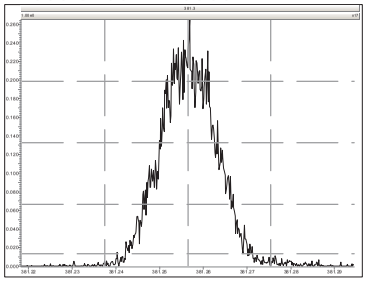
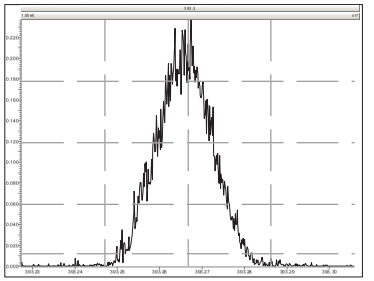
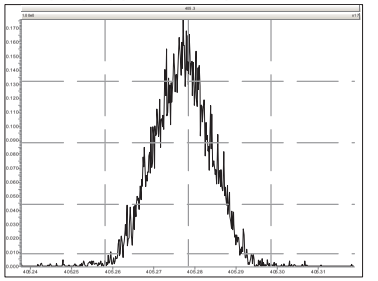


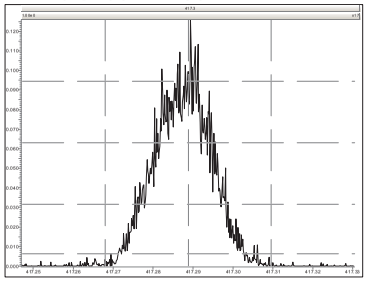
M 392.9760 R 13549



M 404.9760 R 14125



M 416.9760 R 13374



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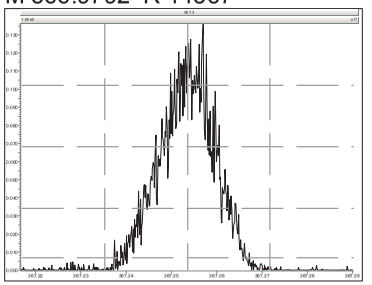

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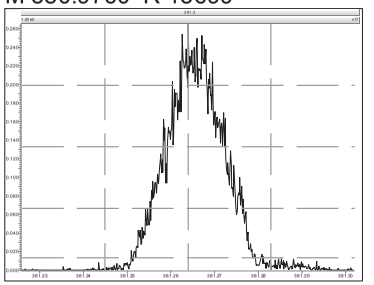
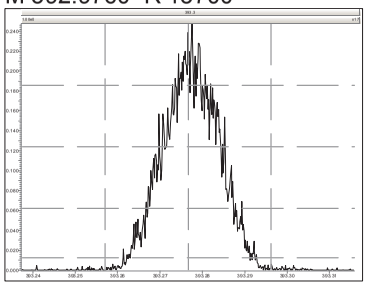
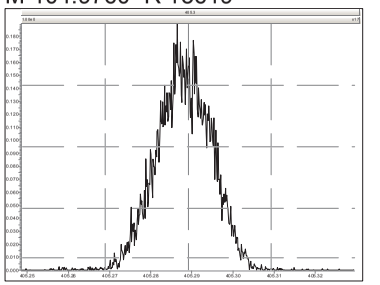


M 392.9760 R 13700



M 404.9760 R 13619



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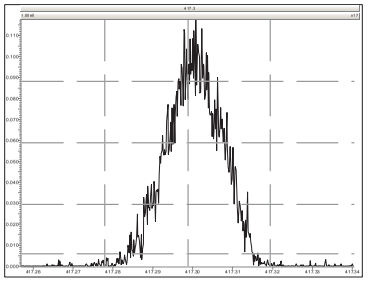
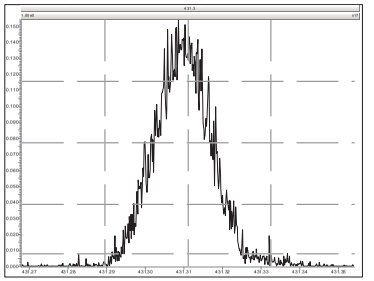
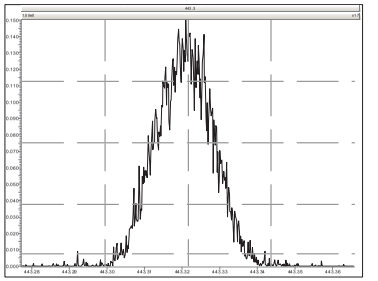


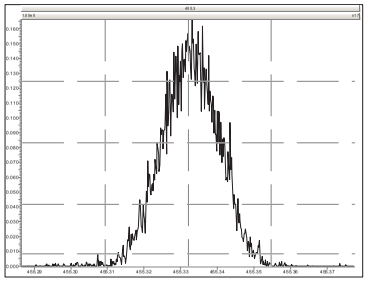
M 430.9728 R 13557



M 442.9728 R 13557



M 454.9728 R 13549



Resolution Check Report **MassLynx 4.1**

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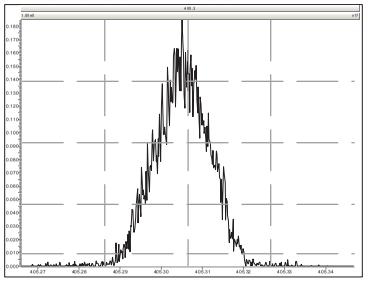
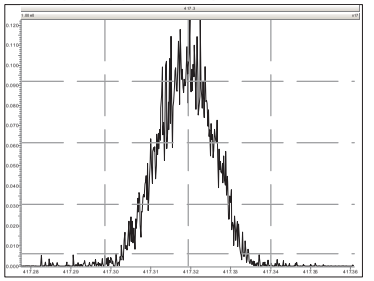


M 416.9760 R 14204



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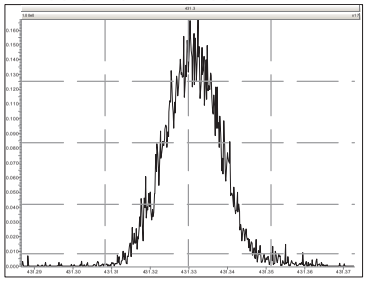
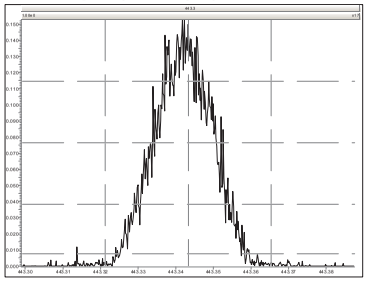


M 442.9728 R 13262



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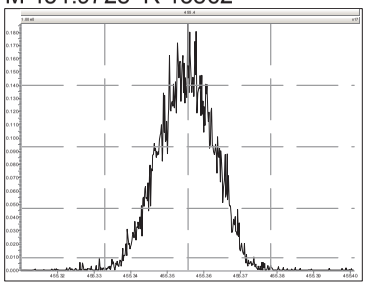
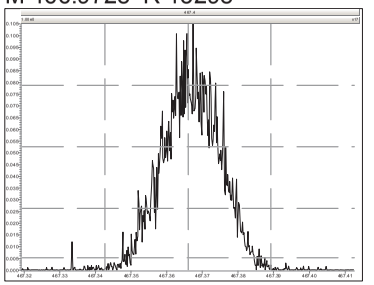
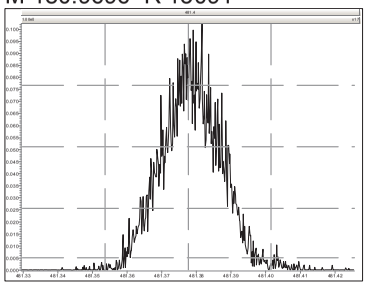


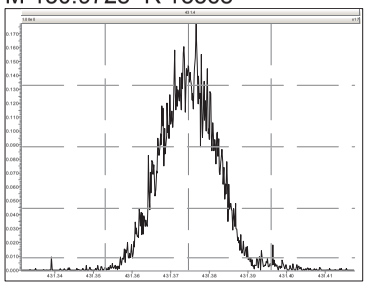
M 466.9728 R 13298



M 480.9696 R 13091



M 430.9728 R 13368



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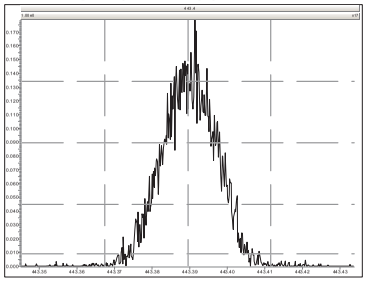
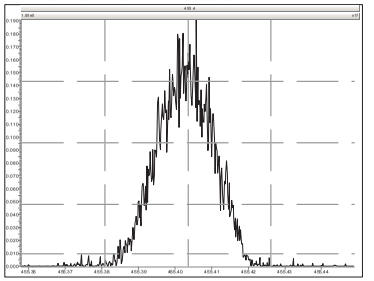
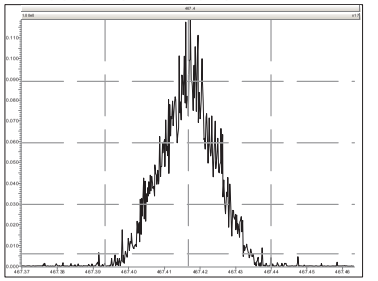


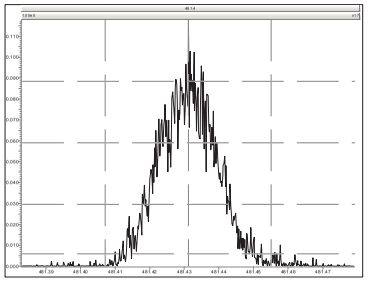
M 454.9728 R 13850



M 466.9728 R 13626



M 480.9696 R 14452



Resolution Check Report **MassLynx 4.1**

Printed: Wednesday, January 06, 2016 18:11:40 Eastern Standard Time

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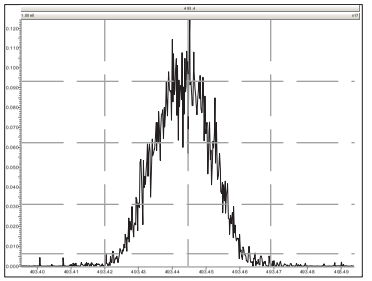

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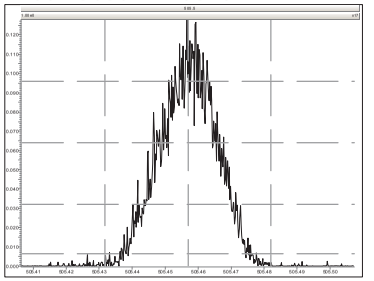
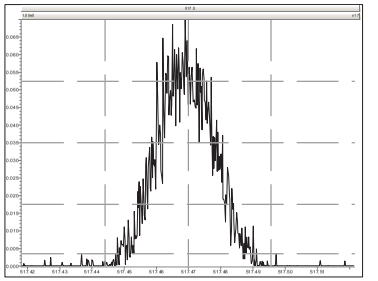


M 516.9697 R 14379



Resolution Check Report **MassLynx 4.1**

Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

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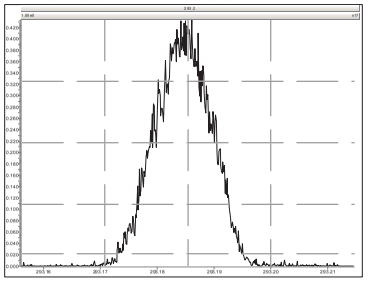

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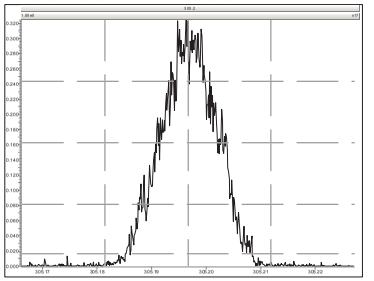

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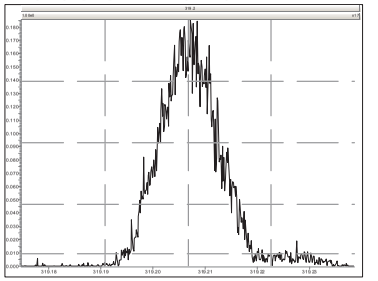
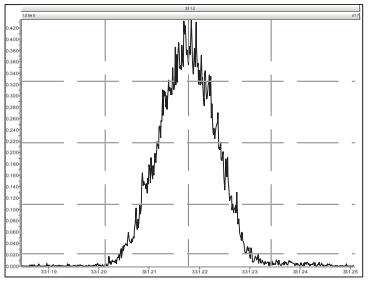
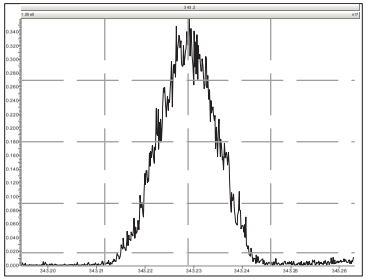


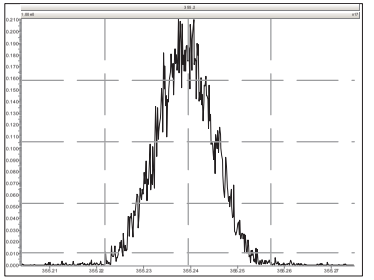
M 330.9792 R 13194



M 342.9792 R 13160



M 354.9792 R 13227



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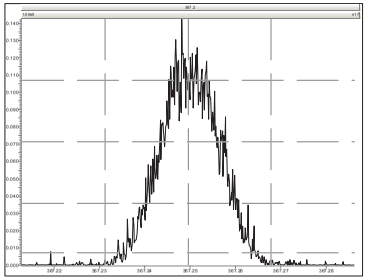
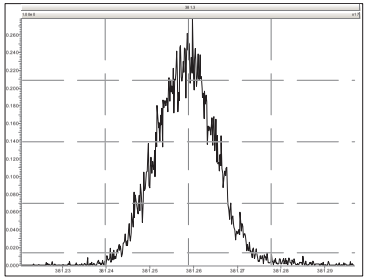


M 380.9760 R 12820



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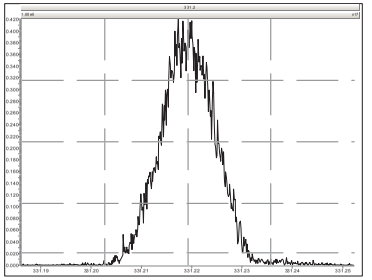

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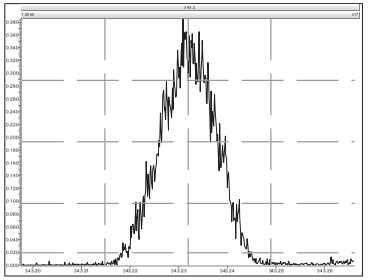

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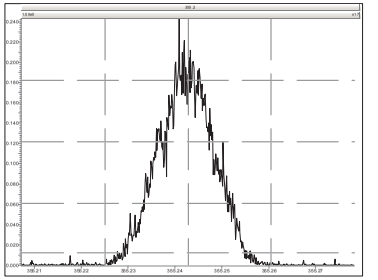
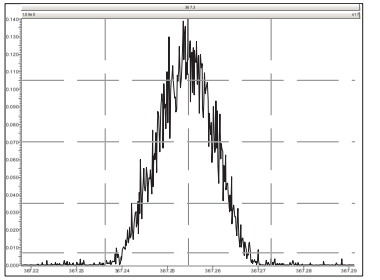


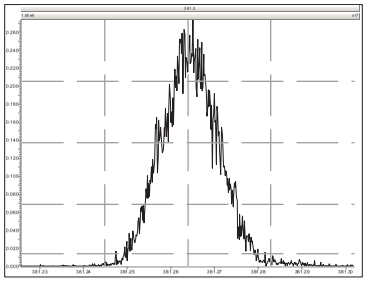
M 366.9792 R 13514



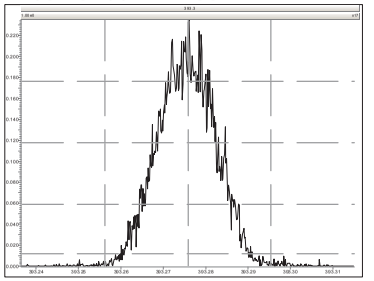
Resolution Check Report **MassLynx 4.1**

Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

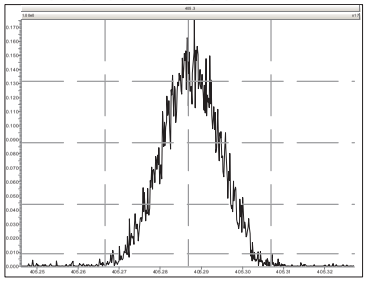
M 380.9760 R 13196



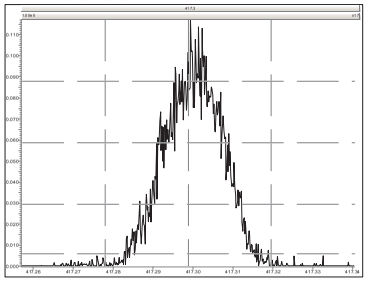
M 392.9760 R 12991



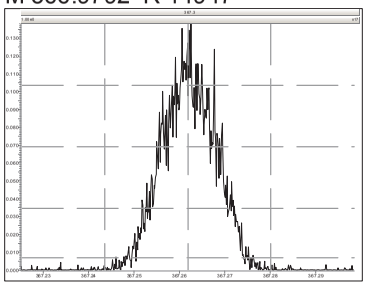
M 404.9760 R 13196



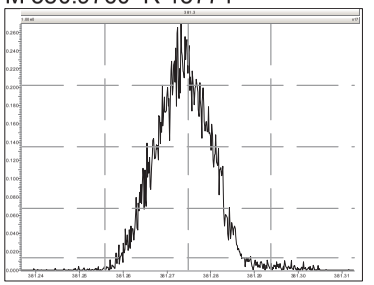
M 416.9760 R 13441



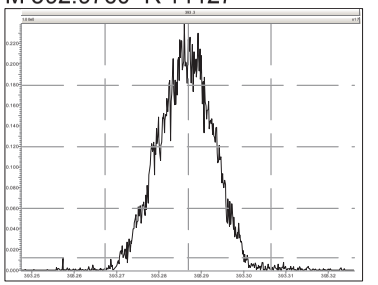
M 366.9792 R 14947



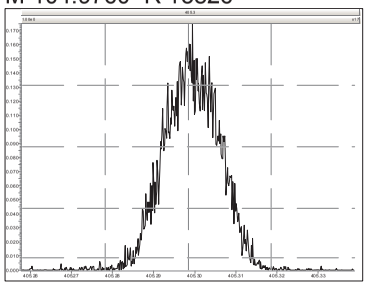
M 380.9760 R 13774



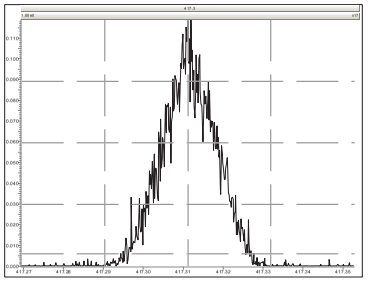
M 392.9760 R 14127



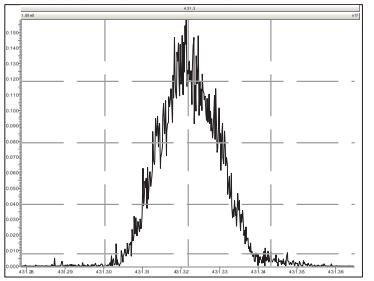
M 404.9760 R 13826



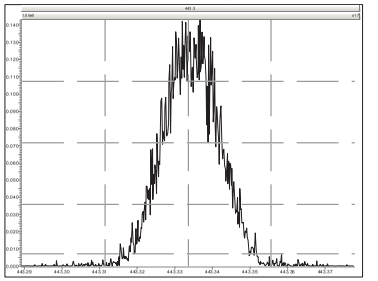
M 416.9760 R 13552



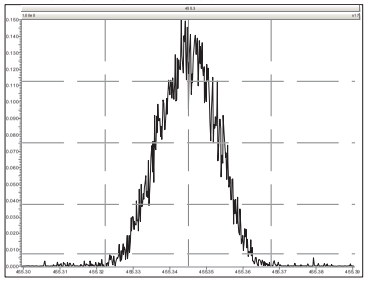
M 430.9728 R 12923



M 442.9728 R 13316



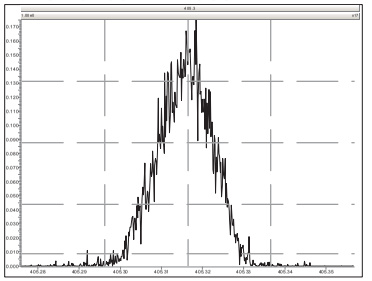
M 454.9728 R 13094



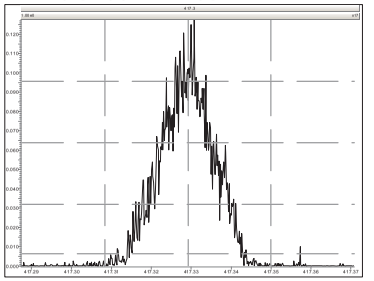
Resolution Check Report **MassLynx 4.1**

Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

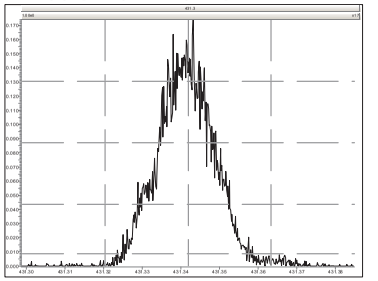
M 404.9760 R 14308



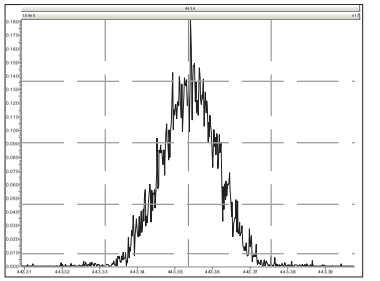
M 416.9760 R 14391



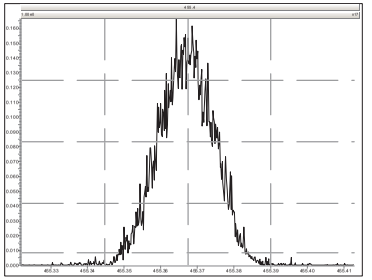
M 430.9728 R 13479



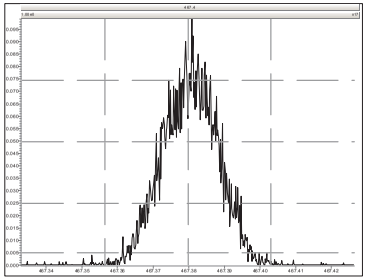
M 442.9728 R 13623



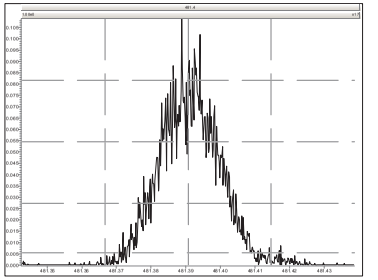
M 454.9728 R 13227



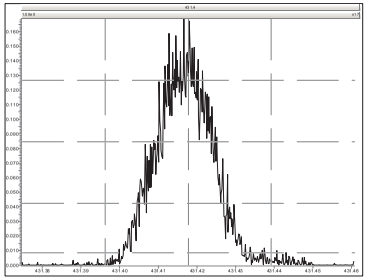
M 466.9728 R 14204



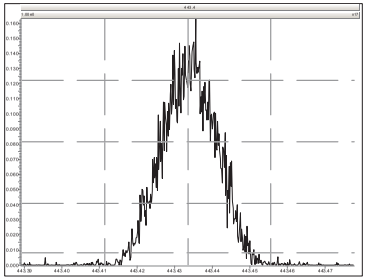
M 480.9696 R 13194



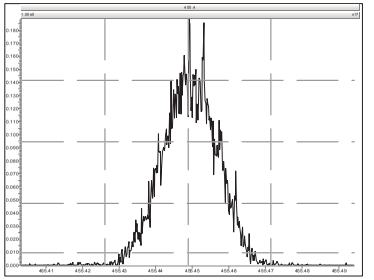
M 430.9728 R 13311



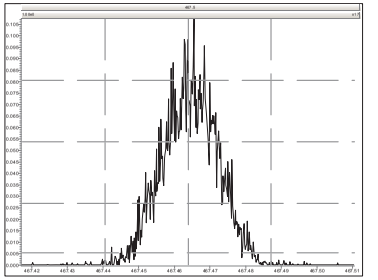
M 442.9728 R 14534



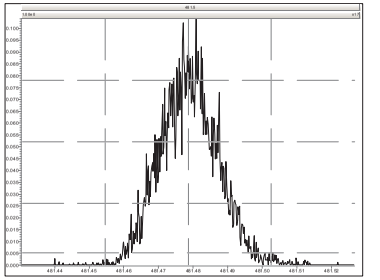
M 454.9728 R 14085



M 466.9728 R 15246



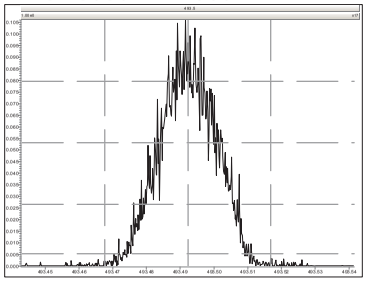
M 480.9696 R 14018



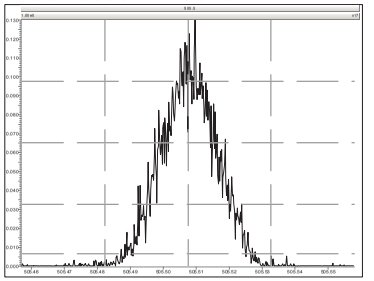
Resolution Check Report **MassLynx 4.1**

Printed: Thursday, January 07, 2016 01:18:27 Eastern Standard Time

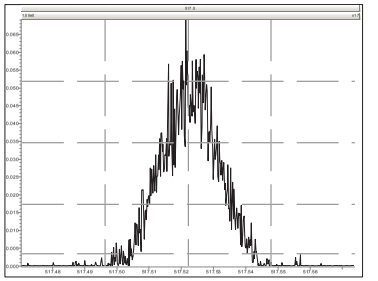
M 492.9696 R 14006



M 504.9696 R 13670



M 516.9697 R 14340



Lab ID: OPR1_14534_DF-RJ | Acq'd: 07 Dec 2016 15:01 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14534_OPR001 | UTP: 09-Dec-2016 11:29:00 ARL | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 508-740-DYC

Datafile: 161207C02 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.03		1.0009	1.0008	-0.2	4.08E+06	0.79	Y	1.19	9.34	3231	0.0812

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.01	1.0263	1.0264	+0.2	3.68E+07	0.81	Y	1.06	81.6

REVIEWED
By Amber Kornegay at 9:37 am, Dec 12, 2016

Lab ID: OPR1_14534_DF-RJ | Acq'd: 07 Dec 2016 15:01 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14534_OPR001 | UTP: 09-Dec-2016 11:29:00 ARL | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 508-740-DYC

Datafile: 161207C02 | Report: 09 Dec 2016 11:45 al | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.32		-	-	-	4.25E+07	0.80	Y	-	-
JS 123467-HxCDD	37.12		-	-	-	1.32E+07	1.30	Y	-	-
CS 37Cl-2378-TCDD	27.04		1.0272	1.0273	+0.2	1.68E+07	n/a	-	1.24	79.6

Totals	Conc	EMPC
Total TCDD	44.4	44.4

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.79	0.79
Response	4.09E+06	4.08E+06

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161207C02	Analysis Date:	07-DEC-2016 15:01:30
Lab ID:	OPR1_14534_DF-RJ		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	9.34	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 09 Dec 2016 11:45 Analyst: al

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161207C02	Analysis Date:	07-DEC-2016 15:01:30
Lab ID:	OPR1_14534_DF-RJ		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	81.6	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	31.8	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 09 Dec 2016 11:45 Analyst: al

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
CPSM Data Filename:	161207C02	Analysis Date:	07-DEC-2016 15:01:30
Lab ID:	OPR1_14534_DF-RJ		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.03	1289-TCDD	28.08

Isomer Specificity Test Standard Results

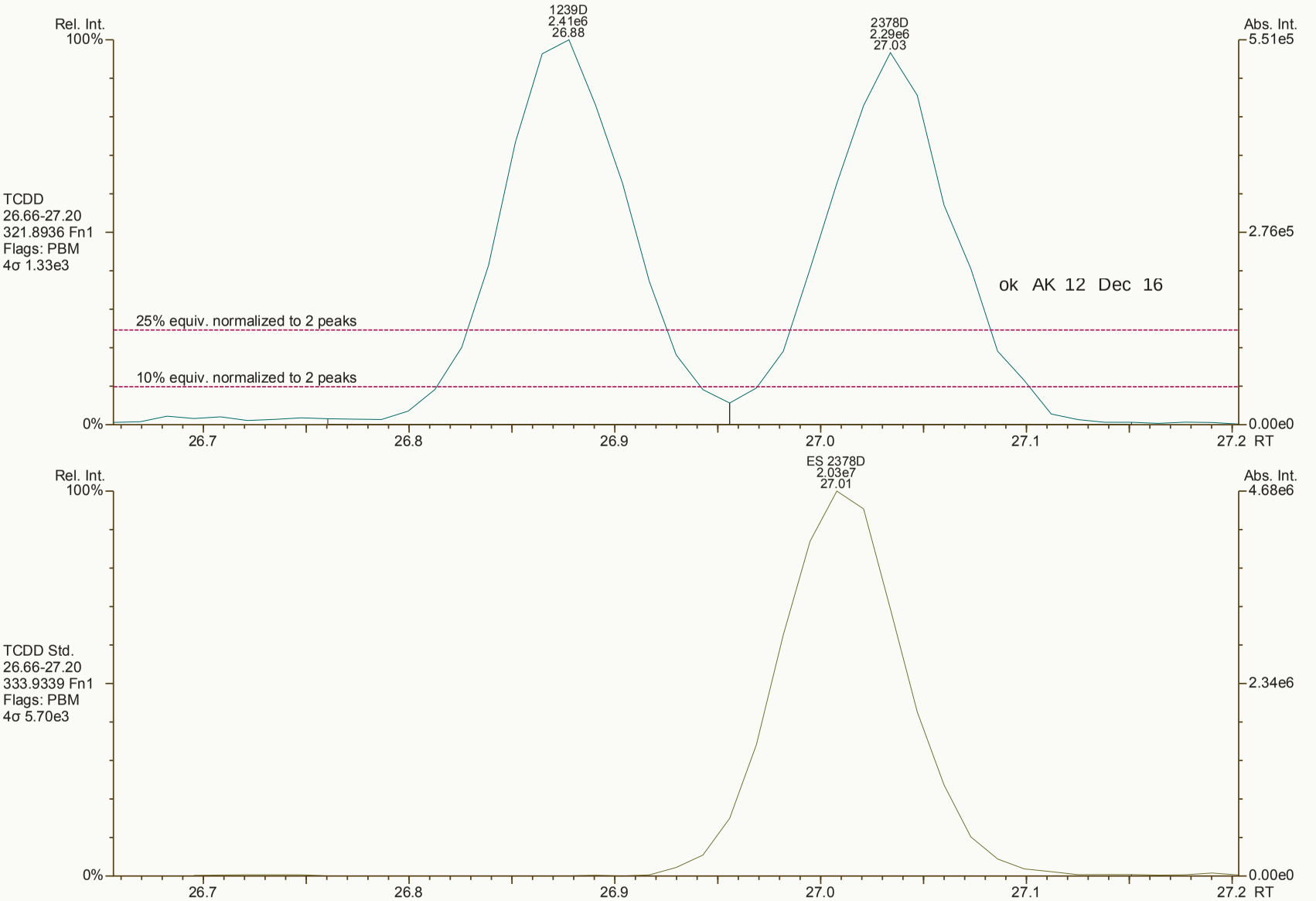
Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	26.88	2378-TCDD	27.03

Processed: 09 Dec 2016 11:45 Analyst: al

SGS ID: OPR1_14534_DF-RJ
Instr: [ILM] AutoSpec-Ultima HRMS3

Sample ID: 0_14534_OPR001
VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71

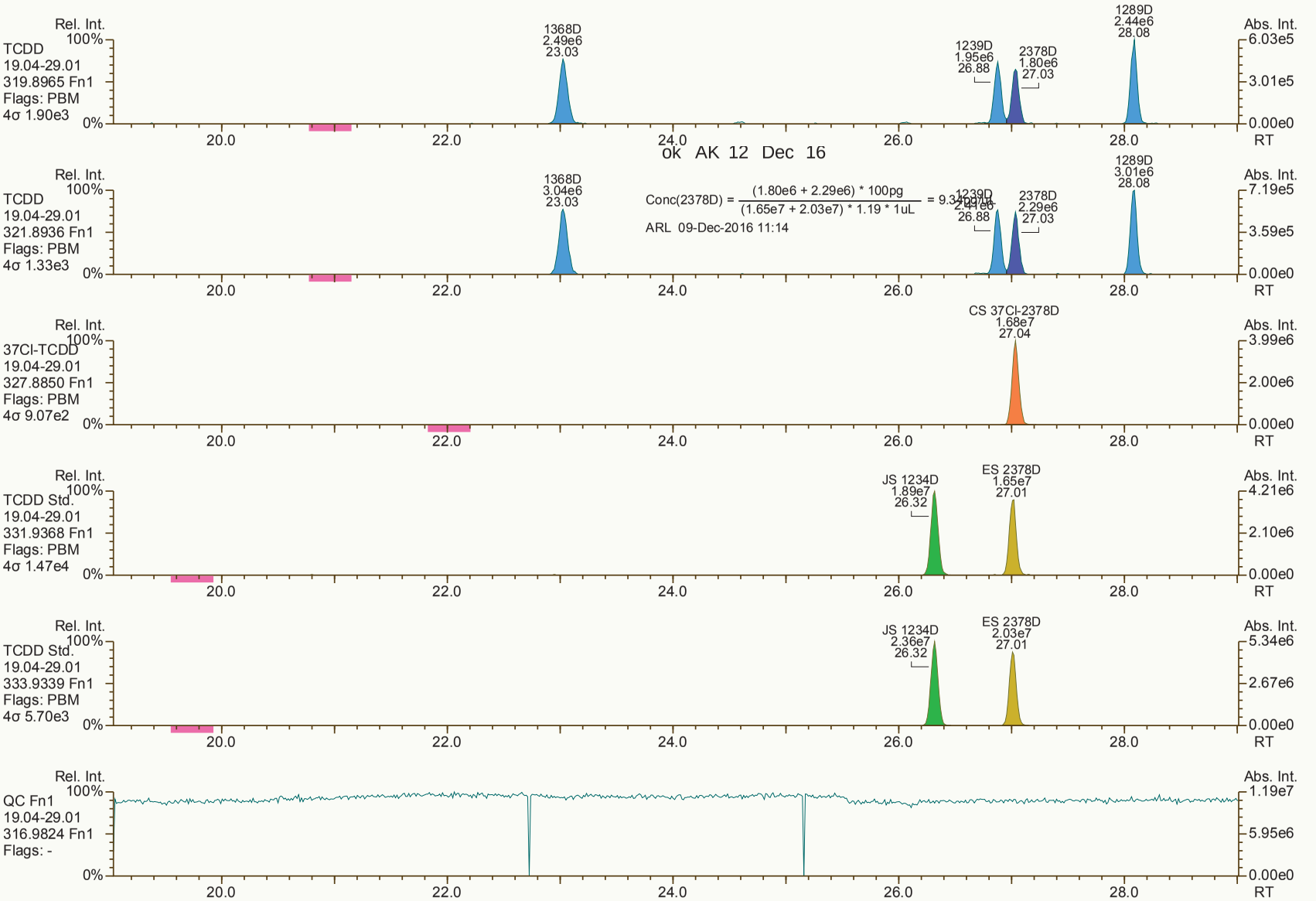
Acq: 07-Dec-2016 15:01:30
User: ARL Datafile: 161207C02



Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\OPR1_14534_DF-RJ.utp_res, saved 09-Dec-2016 11:29 (ARL)
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951

Peak annotation: Areas, Centroids
PKD: 08-Dec-2016 11:14 Printed: 09-Dec-2016 11:59

SGS ID: OPR1_14534_DF-RJ | **Sample ID: 0_14534_OPR001** | **Acq: 07-Dec-2016 15:01:30**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 161207C02**



Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\OPR1_14534_DF-RJ.utp_res, saved 09-Dec-2016 11:29 (ARL) | *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 8582, 0681, 5994 scc: 508-740 | *PKD: 08-Dec-2016 11:14 Printed: 09-Dec-2016 11:30 Page 1 of 1*

Lab ID: OPR1_14534_DF-RJ3 | Acq'd: 08 Dec 2016 12:43 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14534_OPR001 | UTP: 09-Dec-2016 11:29:10 ARL | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 854-187-MGY

Datafile: 161208C03 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Conc.	Noise	DL
2378-TCDD	27.03		1.0009	1.0009	0	4.34E+06	0.80	Y	1.19	9.45	3146	0.0738

Name	Act RT	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
ES 2378-TCDD	27.01	1.0263	1.0264	+0.2	3.87E+07	0.78	Y	1.06	76.9

Lab ID: OPR1_14534_DF-RJ3 | Acq'd: 08 Dec 2016 12:43 ARL | Wt/Vol: 1 uL | ICAL: HRMS3_DF_12212015_06JAN2016

Client ID: 0_14534_OPR001 | UTP: 09-Dec-2016 11:29:10 ARL | J-level: 0.25 pg/uL | Split: 1 | Checkcode: 854-187-MGY

Datafile: 161208C03 | Report: 09 Dec 2016 11:46 al | Stds (pg): JS: 100 ES: 100 CS/SS: 100, 40 (37Cl)

Name	Act RT	QC	Pred. RRT	Act. RRT	ΔSecs	Response	Ra	OK	RRF	Rec. %
JS 1234-TCDD	26.31		-	-	-	4.73E+07	0.81	Y	-	-
JS 123467-HxCDD	37.10		-	-	-	1.71E+07	1.23	Y	-	-
CS 37Cl-2378-TCDD	27.03		1.0272	1.0272	0	1.76E+07	n/a	-	1.24	74.7

Totals	Conc	EMPC
Total TCDD	44	44

* 37Cl correction has been applied to 2378-TCDD

	Original Values	Corrected Values
Ratio	0.8	0.80
Response	4.35E+06	4.34E+06

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8A**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161208C03	Analysis Date:	08-DEC-2016 12:43:10
Lab ID:	OPR1_14534_DF-RJ3		

NATIVE ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)	OK
2,3,7,8-TCDD	10	9.45	6.7 - 15.8	Y

Contract-required concentration limits for OPR as specified in Table 6,
Method 1613. 10/94

Processed: 09 Dec 2016 11:46 Analyst: al

METHOD 8290A **PCDD/F ONGOING PRECISION AND RECOVERY (OPR)** **FORM 8B**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
VER Data Filename:	161208C03	Analysis Date:	08-DEC-2016 12:43:10
Lab ID:	OPR1_14534_DF-RJ3		

LABELED ANALYTES	SPIKE CONC.	CONC. FOUND	RANGE (ng/mL)			OK
13C-2,3,7,8-TCDD	100	76.9	20	-	175	Y
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD	40	29.9	12.4	-	76.4	Y

Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

Processed: 09 Dec 2016 11:46 Analyst: al

METHOD 8290A **COLUMN PERFORMANCE AND RETENTION TIME WINDOWS** **FORM CPSM**

Lab Name:	SGS North America		
Initial Calibration:	ICAL: HRMS3_DF_12212015_06JAN2016		
Instrument ID:	HRMS3	GC Column ID:	ZB-5ms
CPSM Data Filename:	161208C03	Analysis Date:	08-DEC-2016 12:43:10
Lab ID:	OPR1_14534_DF-RJ3		

Window Defining Standards Results

First Eluting Isomer	RT	Last Eluting Isomer	RT
1368-TCDD	23.03	1289-TCDD	28.08

Isomer Specificity Test Standard Results

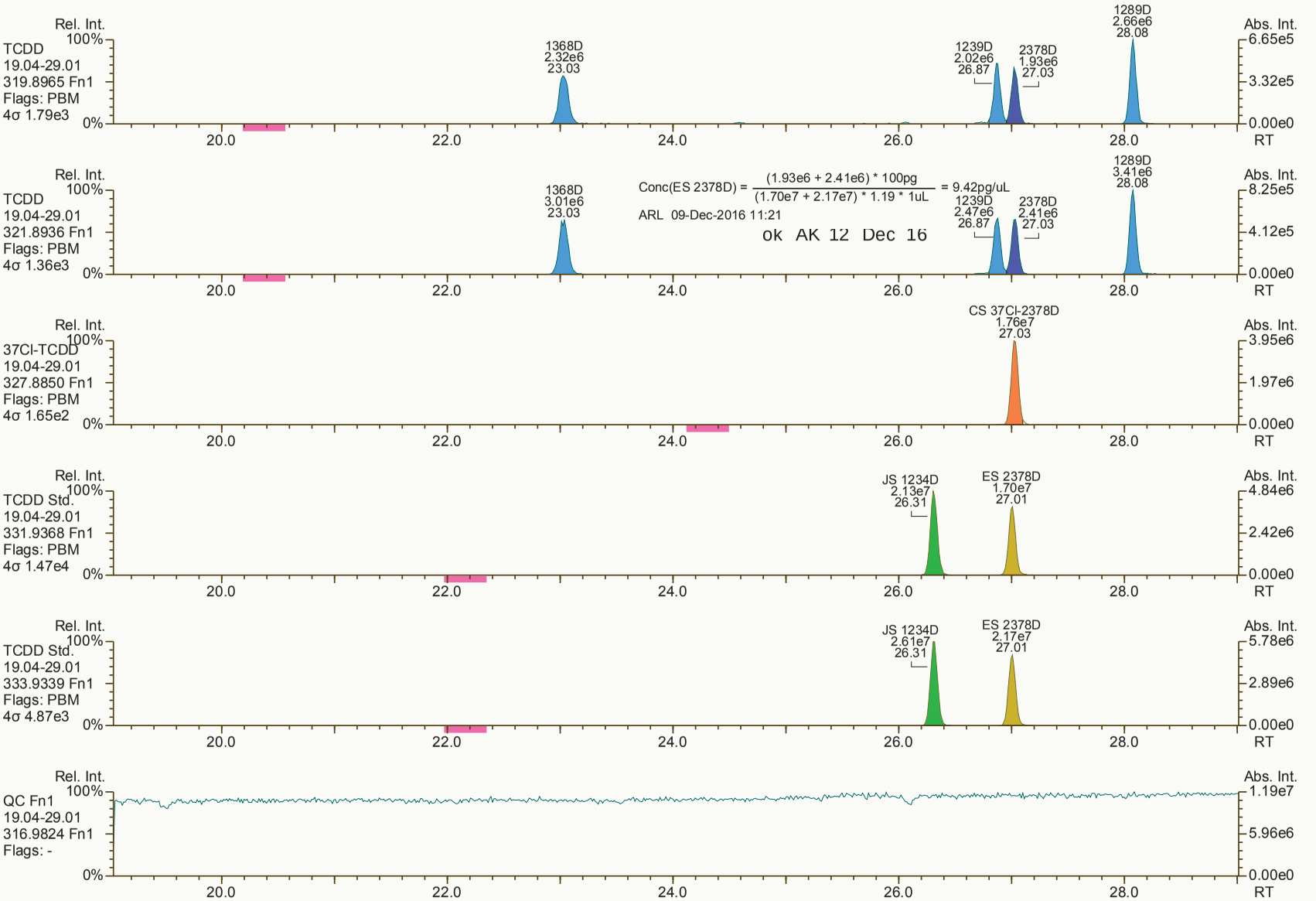
Closest Eluting Isomer	RT	2378 Specific Isomer	RT
1239-TCDD	26.87	2378-TCDD	27.03

Processed: 09 Dec 2016 11:46 Analyst: al

SGS ID: OPR1_14534_DF-RJ3 Sample ID: 0_14534_OPR001 Acq: 08-Dec-2016 12:43:10
Instr: [ILM] AutoSpec-Ultima HRMS3 VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71 User: ARL Datafile: 161208C03

Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\OPR1_14534_DF-RJ3.utp_res, saved 09-Dec-2016 11:29 (ARL) Peak annotation: Areas, Centroids
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 Revised: 09-Dec-2016 11:20 (ARL) Printed: 09-Dec-2016 11:59

SGS ID: OPR1_14534_DF-RJ3 | **Sample ID: 0_14534_OPR001** | **Acq: 08-Dec-2016 12:43:10**
Instr: [ILM] AutoSpec-Ultima HRMS3 | **VSIR EI+ Expt: df_cl4-8_db5 GC: df_db5 Vial: 71** | **User: ARL Datafile: 161208C03**



Results: P:\A9400_A9499\A9435\A9435_14534 DF\Resources\OPR1_14534_DF-RJ3.utp_res, saved 09-Dec-2016 11:29 (ARL) *Peak annotation: Areas, Centroids*
SGS UltraTrace-Pro V4.9 User/System: ARL/US0007951 cc: 1716, 8690, 3578 scc: 854-187 *Revised: 09-Dec-2016 11:20 (ARL) Printed: 09-Dec-2016 11:31 Page 1 of 1*

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST SUL

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

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FED-EX Tracking #	Bottle Order Control #
SGS Accutest Quote #	SGS Accutest Job # JC31595

Client / Reporting Information

Company Name: Matrix New World Engineering
Street Address: 20 Columbia Tpk.
City State Zip: Florham Park NJ 0932
Project Contact: Brian Crespi bcrespi@matrixnew.com
E-mail:
Phone #: 212.324 4251
Sampler(s) Name(s): M. Cellard
Phone #:

Project Information

Project Name: LIRR Expansion
Street:
City State: Long Island NY
Project #: 16-144
Client Purchase Order #:
Project Manager: Brian Crespi

Billing Information (If different from Report to)

Company Name:
Street Address:
City State Zip:
Attention:

Requested Analysis (see TEST CODE sheet)

TCLP/TAL (FULL) | TCLP (FULL) | RCRA | Dioxin

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	TCLP/TAL (FULL)	TCLP (FULL)	RCRA	Dioxin	LAB USE ONLY
1	SB40-161110	0	11/10/16	0955	MC	S	7					4			3	X	X	X	X	D15
2	SB23-161110	0	11/10/16	1207	MC	S	7					4			3	X	X	X	X	H3T3
3	SB24-161110	0	11/10/16	1236	MC	S	7					4			3	X	X	X	X	P52
4	SB02-161111	0	11/11/16	1010	MC	S	7					4			3	X	X	X	X	14D4
5	SB01-161111	0	11/11/16	1036	MC	S	7					4			3	X	X	X	X	40110
6	SB05-161111	0	11/11/16	1153	MC	S	7					4			3	X	X	X	X	
																				SUB

INITIAL ASESSMENT 2AJK
LABEL VERIFICATION JK

Turnaround Time (Business days)

- [x] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day RUSH
- [ ] other _____

Approved By (SGS Accutest PM): / Date:

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [x] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format _____
- [ ] Other _____
- [ ] *NJ Data of Known Quality Protocol Reporting*

Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Samples on ice.
0 3 encores received 11/11/16 JK

Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 M. Cellard	1246 11/11/16	1 Chris Kan	2 Chris Kan	11/11/16 16:20	2
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 708 [x] Intact [ ] Not intact	Preserved where applicable [ ]	On Ice [x] Cooler Temp. 3.1°C IR

JC31595X: Chain of Custody
Page 1 of 2

SGS Accutest Sample Receipt Summary

Job Number: JC31595 **Client:** **Project:**

Date / Time Received: 11/11/2016 4:20:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.1);

Cooler Temps (Corrected) °C: Cooler 1: (2.3);

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	or N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control _Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments