



1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6

SVOC DATA PACKAGE

Client Project Information

Project ID: 60566335
Project Description: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Contact: Amy Dahl

ALSE Project Information

Project ID: AECOM100

Contact: Whitney Davis
Submission ID(s): L2148686

Final Package Review by:

A handwritten signature in black ink, appearing to read 'Henry'.

Date Reviewed: 12-Sep-18

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100
Contact: Whitney Davis
Submission ID(s): L2148686

Client Project Information

Project ID: 60566335
Project Description: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Contact: Amy Dahl

Analytical Method: 2,4' and 4,4'-DDE, DDD and DDT by EPA 1699 (modified)

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Date Extracted	Date Analyzed
L2148686-1	PDI-SC-S109-0TO2	Sediment	15-Aug-18	17-Aug-18	27-Aug-18	02-Sep-18
WG2851440-4	Duplicate	QC	n/a	n/a	27-Aug-18	02-Sep-18
L2148686-2	PDI-SC-S109-2TO4	Sediment	15-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-3	PDI-SC-S109-4TO6	Sediment	15-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-4	PDI-SC-S109-6TO8	Sediment	15-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-5	PDI-SC-S109-8TO10	Sediment	15-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-6	PDI-SC-S109-10TO11.3	Sediment	15-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-7	PDI-SC-S131-0TO2	Sediment	16-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-8	PDI-SC-S131-2TO4	Sediment	16-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-9	PDI-SC-S131-4TO6	Sediment	16-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-10	PDI-SC-S131-6TO8	Sediment	16-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-11	PDI-SC-S256-0TO2	Sediment	16-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-12	PDI-SC-S256-2TO4	Sediment	16-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
L2148686-16	PDI-SC-S113(A)-0TO2.2	Sediment	15-Aug-18	17-Aug-18	27-Aug-18	07-Sep-18
WG2851440-1	Method Blank	QC	n/a	n/a	27-Aug-18	02-Sep-18
WG2851440-2	Laboratory Control Sample	QC	n/a	n/a	27-Aug-18	02-Sep-18

a) Sample Integrity:

The samples were received in good condition at 4.0 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis.

Six calibration points have been included.

For H6-18-CCV-0894, the post-run continuing calibration verification for the analytical sequence 6-180906B, the recovery of the labelled standard 13C12-4,4'-DDD was above the method control limit. As a result, the reported recoveries for this standard may be elevated. Native target data are not expected to be biased.

For a number of samples, the recovery of the labelled standard 13C12-4,4'-DDE was below the method control limit. As a result, the measured detection limits may be elevated. Detected native target data are not expected to be biased.

Replication between the sample and laboratory duplicate does not meet typical control limits for 2,4'- and 4,4'-DDT. Low levels were detected in one replicate but not the other. All other targets replicate well. The sample may not be homogeneous.

I certify that this data package is in compliance with the terms and condition of the contract , both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package (hardcopy and/or electronic version) has been authorized by the Laboratory Manager or his designee, as verified by the following signature.



Steve Kennedy, Technical Supervisor

12-Sep-18
Date



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SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100

Contact: Whitney Davis

Submission ID(s): L2148686

Client Project Information

Project ID: 60566335

Project Description: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling

Contact: Amy Dahl

Analytical Method: 2,4' and 4,4'-DDE, DDD and DDT by EPA 1699 (modified)

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Date Extracted	Date Analyzed
L2148686-13	PDI-RB-SS-180814-1040	Water	14-Aug-18	17-Aug-18	20-Aug-18	06-Sep-18
L2148686-14	PDI-RB-SS-180815-0730	Water	15-Aug-18	17-Aug-18	20-Aug-18	06-Sep-18
L2148686-15	PDI-RB-SS-180815-1340	Water	15-Aug-18	17-Aug-18	20-Aug-18	06-Sep-18
L2148686-76	PDI-RB-SS-180816-1110	Water	16-Aug-18	17-Aug-18	20-Aug-18	06-Sep-18
WG2853964-1	Method Blank	QC	n/a	n/a	8/20/2018	06-Sep-18
WG2853964-2	Laboratory Control Sample	QC	n/a	n/a	20-Aug-18	06-Sep-18

Comments and Notes:

a) Sample Integrity:

The samples were received in good condition at 4.0 degrees C.

b) Instrumental Analysis:

Six calibration points have been included.

For H6-18-CCV-0894, the post-run continuing calibration verification for the analytical sequence 6-180906B, the recovery of the labelled standard 13C12-4,4'-DDD was above the method control limit. As a result, the reported recoveries for this standard may be elevated. Native target data are not expected to be biased.

For the laboratory control sample, the recovery of the labelled standard 13C12-4,4'-DDE was marginally below the method control limit. In addition, the recovery of the native target 2,4'-DDE is above the method control limit. Neither 2,4'- nor 4,4'-DDE have been detected in the samples.

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Steve Kennedy, Technical Supervisor

12-Sep-18

Date

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100

Contact: Whitney Davis
Submission ID(s): L2148686

Analytical Method: 2,4' and 4,4'-DDE, DDD and DDT by EPA 1699 (modified)

Client Project Information

Project ID: 60566335

Project Description: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Contact: Amy Dahl

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Date Extracted	Date Analyzed
L2148686-17	PDI-SC-S113(A)-2.2TO4.6	Sediment	15-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
WG2855004-4	Duplicate	QC	n/a	n/a	28-Aug-18	08-Sep-18
L2148686-18	PDI-SC-S113(A)-2.2TO4.6D	Sediment	15-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-19	PDI-SC-S113(B)-3.6TO5.6	Sediment	15-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-20	PDI-SC-S113(B)-5.6TO7.4	Sediment	15-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-21	PDI-SC-S113(B)-7.4TO10	Sediment	15-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-22	PDI-SC-S113(B)-10TO12	Sediment	15-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-23	PDI-SC-S113(B)-12TO13.8	Sediment	15-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-24	PDI-SC-S065-4TO6	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-25	PDI-SC-S065-6TO8	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-26	PDI-SC-S065-8TO10	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-27	PDI-SC-S065-12TO14.3	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-28	PDI-SC-S070-0TO1.1	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-29	PDI-SC-S070-1.1TO2.4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-30	PDI-SC-S070-2.4TO4.4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	08-Sep-18
L2148686-31	PDI-SC-S070-4.4TO6.4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	09-Sep-18
L2148686-32	PDI-SC-S070-6.4TO8.4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-33	PDI-SC-S070-8.4TO10.4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	09-Sep-18
L2148686-34	PDI-SC-S065-10TO12	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	09-Sep-18
L2148686-35	PDI-SC-S070-10.4TO12.6	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	09-Sep-18
L2148686-36	PDI-SC-S150-7.7TO9.7	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	09-Sep-18
WG2855004-1	Method Blank	QC	n/a	n/a	28-Aug-18	08-Sep-18
WG2855004-2	Laboratory Control Sample	QC	n/a	n/a	28-Aug-18	08-Sep-18

Comments and Notes:

a) Sample Integrity:

The samples were received in good condition at 4.0 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis.

Six calibration points have been included.

For H6-18-CCV-0902, the post run continuing calibration verification (CCV) for the analytical sequence 6-180908B, the recovery of the labelled standard 13C12-4,4'-DDT was above the method control limit. As a result, the recoveries for this standard may be somewhat elevated for the impacted samples. The recoveries for this standard are above the method control limit for two samples. Native target data are not expected to be biased.

For the sample PDI-SC-S150-7.7TO9.7, the results for some targets have been reported from the analysis of a diluted extract due to target levels

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Steve Kennedy, Technical Supervisor

13-Sep-18
Date

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100
Contact: Whitney Davis
Submission ID(s): L2148686

Client Project Information

Project ID: 60566335
Project Description: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Contact: Amy Dahl

Analytical Method: 2,4' and 4,4'-DDE, DDD and DDT by EPA 1699 (modified)

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Date Extracted	Date Analyzed
L2148686-37	PDI-SC-S150-9.7TO11.1	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
WG2855028-4	Duplicate	QC	n/a	n/a	28-Aug-18	12-Sep-18
L2148686-38	PDI-SC-S150-11.1TO12.5	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-39	PDI-SC-S146-0TO2	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-40	PDI-SC-S146-2TO4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-41	PDI-SC-S146-4TO5	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-42	PDI-SC-S146-5TO7	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-43	PDI-SC-S146-7TO8	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-44	PDI-SC-S146-8TO9.1	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-45	PDI-SC-S136-0TO2	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-46	PDI-SC-S136-2TO4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-47	PDI-SC-S136-4TO6	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-48	PDI-SC-S151-2TO4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-49	PDI-SC-S151-0TO2	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-50	PDI-SC-S151-4TO6	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-51	PDI-SC-S151-6TO8	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-52	PDI-SC-S151-8TO10	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-53	PDI-SC-S151-10TO12	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-54	PDI-SC-S150-0TO2	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-55	PDI-SC-S150-2TO4	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
L2148686-56	PDI-SC-S150-4TO6	Sediment	14-Aug-18	17-Aug-18	28-Aug-18	12-Sep-18
WG2855028-1	Method Blank	QC	n/a	n/a	28-Aug-18	12-Sep-18
WG2855028-2	Laboratory Control Sample	QC	n/a	n/a	28-Aug-18	12-Sep-18

Comments and Notes:

a) Sample Integrity:

The samples were received in good condition at 4.0 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis.

Six calibration points have been included.

For H6-18-CCV-0918, the post run continuing calibration verification for an analytical bracket in the sequence 6-180912A, the recovery of 4,4'-DDT is well above the method control limit due to a high level sample that ran prior to it. All of the samples that ran after the high level sample have been reported from a reanalysis of the extract. Some of the samples from prior to the high level sample were reanalyzed to confirm the validity of the original data. The high level sample (PDI-SC-S150-4TO6) was re-analyzed from an extract that was diluted and fortified with additional extraction standard for quantification. The dilution results are therefore not inherently recovery-corrected. When the standard recoveries are taken into account, the dilution data match well with the original run. As a result, the data from the original run have been reported in order to preserve the isotope dilution calculation. This applies also to the samples PDI-SC-S151-6TO8, PDI-SC-S151-8TO10 and PDI-SC-S151-10TO12.

For the laboratory control sample (LCS), the recovery of the native target 2,4'-DDE is somewhat above the method control limit. The reported sample data may be elevated for this target. This is expected to be the case in samples where the recovery of 13C12-4,4'-DDE is below 40%, since 2,4'-DDE may be better recovered than 4,4'-DDE. The only likely affected sample is PDI-SC-S136-4TO6.

Replication between the sample and laboratory duplicate is outside the typical limits for some low level targets, as well as 4,4'-DDT. Replication is within limits for the other well-detected targets. Sample may not be homogeneous.

For three samples, the recovery of the labelled standard 13C12-4,4'-DDD was above the method control limit. However, reanalysis of a diluted extract, to which additional standard had been added yielded comparable results. Native target data are not expected to be biased.

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Steve Kennedy, Technical Supervisor

14-Sep-18
Date

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100
Contact: Whitney Davis
Submission ID(s): L2148686

Client Project Information

Project ID: 60566335
Project Description: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling
Contact: Amy Dahl

Analytical Method: 2,4' and 4,4'-DDE, DDD and DDT by EPA 1699 (modified)

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Date Extracted	Date Analyzed
L2148686-57	PDI-SC-S150-4TO6D	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
WG2856784-4	Duplicate	QC	n/a	n/a	29-Aug-18	12-Sep-18
L2148686-58	PDI-SC-S150-6TO7.7	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	13-Sep-18
L2148686-59	PDI-SC-S136-6TO7	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-60	PDI-SC-S136-7TO9	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-61	PDI-SC-S136-9TO11.3	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-62	PDI-SC-S092-0TO2	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	11-Sep-18
L2148686-63	PDI-SC-S092-2TO4	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	11-Sep-18
L2148686-64	PDI-SC-S092-4TO6	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	11-Sep-18
L2148686-65	PDI-SC-S092-4TO6D	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	11-Sep-18
L2148686-66	PDI-SC-S092-6TO8	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-67	PDI-SC-S092-8TO9.9	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-68	PDI-SC-S092-9.9TO10.9	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-69	PDI-SC-S065-0TO2	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-70	PDI-SC-S065-2TO4	Sediment	14-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-71	PDI-SC-S256-2TO4D	Sediment	16-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-72	PDI-SC-S256-4TO6	Sediment	16-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-73	PDI-SC-S256-6TO8	Sediment	16-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-74	PDI-SC-S256-8TO9.7	Sediment	16-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-75	PDI-SC-S256-9.7TO10.7	Sediment	16-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
L2148686-77	PDI-SC-S053-0TO2	Sediment	16-Aug-18	17-Aug-18	29-Aug-18	12-Sep-18
WG2856784-1	Method Blank	QC	n/a	n/a	29-Aug-18	11-Sep-18
WG2856784-2	Laboratory Control Sample	QC	n/a	n/a	29-Aug-18	11-Sep-18
WG2856784-3	Extraction and Injection STD.	QC	n/a	n/a	n/a	11-Sep-18

Comments and Notes:

a) Sample Integrity:

The samples were received in good condition at 4.0 degrees C.

Samples L2148686-57 to -70 were stored in the -20 degree freezer prior to extraction.

b) Instrumental Analysis:

All results have been reported on a dry weight basis.

Six calibration points have been included.

For the sample PDI-SC-S150-6TO7.7, the recovery of the labelled standard 13C12-4,4'-DDE was above the method control limit. The reported native target results are not expected to be biased as a result.

For select other samples the recovery of this labelled standard was marginally below the method control limit. As a result, the detection limits for the associated native targets may be elevated.

For the laboratory control sample (LCS), the recovery of 13C12-4,4'-DDE was low, but within the method control limit. However, the recovery of the native target 2,4'-DDE was above the limit. This has been observed in cases where the recovery of the labelled 13C-4,4'-DDE is low. However, the recoveries are not low for the samples where 2,4'-DDE has been detected. No bias to reported native target data is expected.

As indicated on the individual report pages, the results for some samples have been reported from the analysis of diluted extracts due to target levels.

Results for 2,4'-DDT and 4,4'-DDT vary quite significantly between the sample and laboratory duplicate. However, replication for all of the other targets is within typical limits. Sample may not be homogeneous.

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Steve Kennedy, Technical Supervisor

13-Sep-18
Date

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100

Contact: Whitney Davis

Submission ID(s): L2148686

Client Project Information

Project ID: 60566335

Project Description: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling

Contact: Amy Dahl

Analytical Method: 2,4' and 4,4'-DDE, DDD and DDT by EPA 1699 (modified)

ALS Sample ID	Client Sample Descriptions	Matrix	Date Sampled	Date Received	Date Extracted	Date Analyzed
L2148686-78	PDI-SC-S053-2TO4	Sediment	16-Aug-18	17-Aug-18	30-Aug-18	13-Sep-18
L2148686-79	PDI-SC-S053-4TO6	Sediment	16-Aug-18	17-Aug-18	30-Aug-18	13-Sep-18
L2148686-80	PDI-SC-S053-6TO8	Sediment	16-Aug-18	17-Aug-18	30-Aug-18	13-Sep-18
L2148686-81	PDI-SC-S053-8TO10	Sediment	16-Aug-18	17-Aug-18	30-Aug-18	13-Sep-18
L2148686-82	PDI-SC-S053-10TO12.4	Sediment	16-Aug-18	17-Aug-18	30-Aug-18	13-Sep-18
WG2856797-1	Method Blank	QC	n/a	n/a	30-Aug-18	13-Sep-18
WG2856797-2	Laboratory Control Sample	QC	n/a	n/a	30-Aug-18	13-Sep-18

Comments and Notes:
a) Sample Integrity:

The samples were received in good condition at 4.0 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis.

Six calibration points have been included.

The recovery of the labelled standard 13C12-4,4'-DDE was below the method control limit for the laboratory control sample (LCS) as well as a number of samples. As a result, the sample detection limits may be elevated. Reported data for 4,4'-DDE are not expected to be biased. However, the reported data for 2,4'-DDE may be somewhat elevated. The recovery of this target is marginally above the method control limits for the LCS.

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Steve Kennedy, Technical Supervisor

14-Sep-18

Date



1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6

SVOC DATA PACKAGE

SECTION 2: DATA SUMMARY REPORT



1435 Norjohn Court, Unit 1, Burlington, ON, Canada L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact: Whitney Davis
ALS Project ID: AECOM100
ALS WO#: L2148686
Date of Report: 12-Sep-18
Date of Sample Receipt: 17-Aug-18

Client Name: AECOM United States
Client Address: 1111 Third Avenue
Suite 1600
Seattle, WA 98101, USA
Client Contact: Amy Dahl
Client Project ID: 60566335

COMMENTS: 2,4' and 4,4'-DDE, DDD and DDT by EPA 1699 (modified)

Certified by:

A handwritten signature in black ink, appearing to read "Steve Kennedy".

Steve Kennedy
Technical Supervisor

Results in this certificate relate only to the samples as submitted to the laboratory.

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Sample Analysis summary Report

Sample Name	PDI-SC-S109-0TO2 Duplicate of PDI-SC-S109-0TO2 PDI-SC-S109-2TO4 PDI-SC-S109-4TO6 PDI-SC-S109-6TO8 PDI-SC-S109-8TO10					
ALS Sample ID	L2148686-1	WG2851440-4	L2148686-2	L2148686-3	L2148686-4	L2148686-5
Sample Size	7.95	7.96	8.68	8.70	8.59	7.10
Sample size units	g	g	g	g	g	g
Percent Solid	78.0%	78.0%	85.8%	84.3%	85.9%	69.9%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	15-Aug-18	n/a	15-Aug-18	15-Aug-18	15-Aug-18	15-Aug-18
Extraction Date	27-Aug-18	27-Aug-18	27-Aug-18	27-Aug-18	27-Aug-18	27-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.149	0.0912	<0.019	<0.15	0.0303	0.00845
4,4'-DDE	1.04	0.847	0.228	0.759	0.227	0.0901
2,4'-DDD	2.27	3.15	0.285	0.174	0.133	0.0831
4,4'-DDD	4.96	4.07	0.502	0.372	0.349	0.130
2,4'-DDT	0.265	<0.093	<0.023	<0.042	<0.017	<0.014
4,4'-DDT	0.248	0.0956	<0.069	1.05	<0.044	<0.031
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	73	86	19	16	22	91
4,4'-DDD, 13C12-	58	54	66	52	72	119
4,4'-DDT, 13C12-	49	45	38	31	47	91

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S109-10TO11.3	PDI-SC-S131-0TO2	PDI-SC-S131-2TO4	PDI-SC-S131-4TO6	PDI-SC-S131-6TO8	PDI-SC-S256-0TO2
ALS Sample ID	L2148686-6	L2148686-7	L2148686-8	L2148686-9	L2148686-10	L2148686-11
Sample Size	6.02	4.61	5.16	5.45	5.22	5.85
Sample size units	g	g	g	g	g	g
Percent Solid	60.2%	45.1%	50.9%	53.4%	51.2%	58.5%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	15-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18
Extraction Date	27-Aug-18	27-Aug-18	27-Aug-18	27-Aug-18	27-Aug-18	27-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	<0.016	<0.13	<0.15	0.372	0.519	<0.020
4,4'-DDE	<0.021	2.65	4.10	5.92	7.01	0.981
2,4'-DDD	<0.027	<0.22	0.634	0.791	1.19	<0.091
4,4'-DDD	<0.11	1.06	2.03	2.83	4.02	0.439
2,4'-DDT	<0.11	<0.23	<0.094	0.228	1.51	<0.033
4,4'-DDT	<0.25	<0.76	<0.31	0.657	1.87	<0.086
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	49	7	13	25	17	32
4,4'-DDD, 13C12-	43	25	48	93	66	91
4,4'-DDT, 13C12-	32	12	26	54	36	59

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Sample Analysis summary Report

Sample Name	PDI-SC-S256-2TO4	PDI-SC-S113(A)- OTO2.2
ALS Sample ID	L2148686-12	L2148686-16
Sample Size	6.12	7.11
Sample size units	g	g
Percent Solid	59.9%	70.9%
Sample Matrix	Sediment	Sediment
Sampling Date	16-Aug-18	15-Aug-18
Extraction Date	27-Aug-18	27-Aug-18
Target Analytes	ng / g	ng / g
2,4'-DDE	0.0539	0.411
4,4'-DDE	1.39	2.57
2,4'-DDD	0.216	6.58
4,4'-DDD	0.822	20.3
2,4'-DDT	<0.025	0.443
4,4'-DDT	<0.048	0.740
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	78	78
4,4'-DDD, 13C12-	129	56
4,4'-DDT, 13C12-	118	72

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2851440-1	WG2851440-2
Sample Size	6.21	1.00
Sample size units	g	n/a
Percent Solid	99.76%	49.79%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	27-Aug-18	27-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	<0.089	117
4,4'-DDE	<0.090	95
2,4'-DDD	<0.12	112
4,4'-DDD	<0.046	98
2,4'-DDT	<0.045	58
4,4'-DDT	0.425	55
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	15	64
4,4'-DDD, 13C12-	37	72
4,4'-DDT, 13C12-	21	121

ALS Life sciences

Continuing Calibration Summary Report

Sample Name	CCV	CCV	CCV	CCV	CVS	CVS
ALS Sample ID	H6-18-CCV-0869	H6-18-CCV-0870	H6-18-CCV-0892	H6-18-CCV-0894	H6-18-RS1-069	H6-18-RS#1-073
Sample Size	1	1	1	1	1	1
Sample size units	n/a	n/a	n/a	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a	n/a	n/a	n/a
Sample Matrix	QC	QC	QC	QC	QC	QC
Sampling Date	n/a	n/a	n/a	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
2,4'-DDE	101	104	103	102		
4,4'-DDE	102	103	102	102	96	96
2,4'-DDD	101	105	103	106		
4,4'-DDD	101	103	98	105	97	105
2,4'-DDT	105	106	114	111		
4,4'-DDT	103	101	103	102	96	99
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	92	96	99	103	100	101
4,4'-DDD, 13C12-	93	91	118	180	105	120
4,4'-DDT, 13C12-	89	87	117	166	108	113

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Sample Analysis summary Report

Sample Name	PDI-RB-SS-180814-1040	PDI-RB-SS-180815-0730	PDI-RB-SS-180815-1340	PDI-RB-SS-180816-1110
ALS Sample ID	L2148686-13	L2148686-14	L2148686-15	L2148686-76
Sample Size	0.97	0.95	1.00	1.00
Sample size units	L	L	L	L
Percent Solid	n/a	n/a	n/a	n/a
Sample Matrix	Water	Water	Water	Water
Sampling Date	14-Aug-18	15-Aug-18	15-Aug-18	16-Aug-18
Extraction Date	20-Aug-18	20-Aug-18	20-Aug-18	20-Aug-18
Target Analytes	ng/L	ng/L	ng/L	ng/L
2,4'-DDE	<0.035	<0.034	<0.021	<0.024
4,4'-DDE	<0.046	<0.045	<0.028	<0.032
2,4'-DDD	0.629	<0.048	<0.028	<0.032
4,4'-DDD	1.44	<0.37	<0.044	<0.065
2,4'-DDT	<0.056	<0.066	<0.042	<0.062
4,4'-DDT	<0.13	<0.16	<0.086	<0.13
Extraction Standards	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	30	28	37	40
4,4'-DDD, 13C12-	85	76	83	75
4,4'-DDT, 13C12-	62	54	71	63

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2853964-1	WG2853964-2
Sample Size	1.00	1.00
Sample size units	L	n/a
Percent Solid	n/a	n/a
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	8/20/2018	20-Aug-18
Target Analytes	ng / L	% Rec
2,4'-DDE	<0.025	142
4,4'-DDE	<0.033	96
2,4'-DDD	<0.035	101
4,4'-DDD	<0.057	105
2,4'-DDT	<0.055	79
4,4'-DDT	<0.12	98
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	39	20
4,4'-DDD, 13C12-	85	61
4,4'-DDT, 13C12-	71	39

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Continuing Calibration Summary Report			
Sample Name	CCV	CCV	CVS
ALS Sample ID	H6-18-CCV-0892	H6-18-CCV-0894	H6-18-RS#1-073
Sample Size	1	1	1
Sample size units	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a
Sample Matrix	QC	QC	QC
Sampling Date	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec
2,4'-DDE	103	102	
4,4'-DDE	102	102	96
2,4'-DDD	103	106	
4,4'-DDD	98	105	105
2,4'-DDT	114	111	
4,4'-DDT	103	102	99
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	99	103	101
4,4'-DDD, 13C12-	118	180	120
4,4'-DDT, 13C12-	117	166	113

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S113(A)- 2.2TO4.6	Duplicate of PDI-SC- S113(A)-2.2TO4.6	PDI-SC-S113(A)- 2.2TO4.6D	PDI-SC-S113(B)- 3.6TO5.6	PDI-SC-S113(B)- 5.6TO7.4	PDI-SC-S113(B)- 7.4TO10
ALS Sample ID	L2148686-17	WG2855004-4	L2148686-18	L2148686-19	L2148686-20	L2148686-21
Sample Size	7.93	7.93	7.95	5.11	6.26	8.26
Sample size units	g	g	g	g	g	g
Percent Solid	78.7%	79.3%	79.5%	50.7%	61.7%	80.3%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	15-Aug-18	n/a	15-Aug-18	15-Aug-18	15-Aug-18	15-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.0537	0.0524	0.0738	2.82	2.29	0.421
4,4'-DDE	0.250	0.276	0.354	14.2	12.9	2.15
2,4'-DDD	1.14	1.24	2.67	40.7	37.5	5.39
4,4'-DDD	3.83	4.23	7.03	94.8	158	14.9
2,4'-DDT	0.0904	0.0813	<0.098	0.706	3.90	0.140
4,4'-DDT	0.376	0.284	0.397	0.370	1.64	0.326
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	108	97	107	96	101	92
4,4'-DDD, 13C12-	108	103	117	98	120	99
4,4'-DDT, 13C12-	118	113	130	97	107	99

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Sample Analysis summary Report

Sample Name	PDI-SC-S113(B)- 10TO12	PDI-SC-S113(B)- 12TO13.8	PDI-SC-S065-4TO6	PDI-SC-S065-6TO8	PDI-SC-S065- 8TO10	PDI-SC-S065- 12TO14.3
ALS Sample ID	L2148686-22	L2148686-23	L2148686-24	L2148686-25	L2148686-26	L2148686-27
Sample Size	8.35	8.29	5.85	5.90	6.12	6.25
Sample size units	g	g	g	g	g	g
Percent Solid	82.0%	82.2%	57.0%	57.5%	59.6%	60.7%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	15-Aug-18	15-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.323	0.363	5.45	0.882	<0.0050	<0.0030
4,4'-DDE	1.57	1.46	21.5	6.10	0.0371	<0.0040
2,4'-DDD	5.13	10.0	99.4	1.77	0.0284	<0.0053
4,4'-DDD	14.2	29.6	145	4.00	0.0600	0.0261
2,4'-DDT	0.128	<0.13	2.09	<0.054	<0.011	<0.0067
4,4'-DDT	0.176	0.186	114	0.143	<0.026	<0.023
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	97	107	106	100	89	93
4,4'-DDD, 13C12-	110	121	119	87	96	92
4,4'-DDT, 13C12-	113	122	110	89	88	95

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Sample Analysis summary Report

Sample Name	PDI-SC-S070-0TO1.1	PDI-SC-S070-1.1TO2.4	PDI-SC-S070-2.4TO4.4	PDI-SC-S070-4.4TO6.4	PDI-SC-S070-6.4TO8.4	PDI-SC-S070-8.4TO10.4
ALS Sample ID	L2148686-28	L2148686-29	L2148686-30	L2148686-31	L2148686-32	L2148686-33
Sample Size	6.16	16.76	6.16	6.37	6.58	6.72
Sample size units	g	g	g	g	g	g
Percent Solid	61.6%	82.9%	60.5%	62.1%	64.7%	65.5%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	2.93	0.377	4.54	0.272	<0.038	0.0132
4,4'-DDE	12.5	1.59	17.4	1.18	0.147	0.0328
2,4'-DDD	29.9	4.62	102	2.64	0.481	0.0929
4,4'-DDD	73.6	8.70	152	4.86	0.730	0.169
2,4'-DDT	0.990	0.122	1.19	0.0593	<0.041	<0.011
4,4'-DDT	5.06	0.178	32.3	0.398	0.571	<0.022
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	108	86	94	90	35	90
4,4'-DDD, 13C12-	124	87	101	89	27	92
4,4'-DDT, 13C12-	115	86	95	89	20	102

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Sample Analysis summary Report

Sample Name	PDI-SC-S065- 10T012	PDI-SC-S070- 10.4T012.6	PDI-SC-S150- 7.7T09.7
ALS Sample ID	L2148686-34	L2148686-35	L2148686-36
Sample Size	6.31	6.5	7.81
Sample size units	g	g	g
Percent Solid	62.6%	63.6%	77.4%
Sample Matrix	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18
Target Analytes	ng / g	ng / g	ng / g
2,4'-DDE	<0.0054	<0.0053	1.11
4,4'-DDE	<0.0072	<0.0071	2.56
2,4'-DDD	0.0275	<0.030	125
4,4'-DDD	0.0479	0.0743	292
2,4'-DDT	<0.011	<0.012	9.37
4,4'-DDT	<0.025	0.0586	1120
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	91	94	95
4,4'-DDD, 13C12-	99	102	109
4,4'-DDT, 13C12-	104	110	96

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2855004-1	WG2855004-2
Sample Size	10.07	5.05
Sample size units	g	n/a
Percent Solid	n/a	50.4%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	28-Aug-18	28-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	<0.0022	103
4,4'-DDE	<0.0030	99
2,4'-DDD	0.0175	108
4,4'-DDD	0.0270	99
2,4'-DDT	<0.0043	95
4,4'-DDT	0.0261	99
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	82	77
4,4'-DDD, 13C12-	91	84
4,4'-DDT, 13C12-	100	90

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Continuing Calibration Summary Report

Sample Name	CVS	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-074	H6-18-CCV-0898	H6-18-CCV-0900	H6-18-CCV-0902
Sample Size	1	1	1	1
Sample size units	n/a	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a	n/a
Sample Matrix	QC	QC	QC	QC
Sampling Date	n/a	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec	% Rec
2,4'-DDE		104	100	102
4,4'-DDE	97	103	102	104
2,4'-DDD		100	98	101
4,4'-DDD	99	98	103	105
2,4'-DDT		104	95	97
4,4'-DDT	96	103	99	103
Extraction Standards	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	99	98	98	103
4,4'-DDD, 13C12-	118	115	118	130
4,4'-DDT, 13C12-	124	123	127	144

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Continuing Calibration Summary Report

Sample Name	CVS	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-075	H6-18-CCV-0910	H6-18-CCV-0912	H6-18-CCV-0914
Sample Size	1	1	1	1
Sample size units	n/a	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a	n/a
Sample Matrix	QC	QC	QC	QC
Sampling Date	n/a	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec	% Rec
2,4'-DDE		100	105	104
4,4'-DDE	97	97	100	103
2,4'-DDD		98	102	107
4,4'-DDD	97	91	103	101
2,4'-DDT		103	99	112
4,4'-DDT	98	93	99	99
Extraction Standards	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	97	95	102	124
4,4'-DDD, 13C12-	98	92	92	100
4,4'-DDT, 13C12-	94	89	81	77

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Sample Analysis summary Report

Sample Name	PDI-SC-S150-9.7TO11.1	Duplicate	PDI-SC-S150-11.1TO12.5	PDI-SC-S146-0TO2	PDI-SC-S146-2TO4	PDI-SC-S146-4TO5
ALS Sample ID	L2148686-37	WG2855028-4	L2148686-38	L2148686-39	L2148686-40	L2148686-41
Sample Size	7.80	7.67	7.26	5.42	5.74	5.71
Sample size units	g	g	g	g	g	g
Percent Solid	77.0%	76.7%	72.0%	53.1%	56.1%	56.2%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	n/a	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.187	0.135	<0.065	7.92	15.8	21.8
4,4'-DDE	0.316	<0.13	<0.083	76.2	114	131
2,4'-DDD	8.53	9.51	3.63	189	317	186
4,4'-DDD	12.8	10.4	5.11	531	982	611
2,4'-DDT	0.718	<0.43	<0.093	39.4	75.6	25.3
4,4'-DDT	6.05	2.03	<0.16	10700	1910	559
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	56	82	61	84	101	108
4,4'-DDD, 13C12-	55	58	61	47	63	69
4,4'-DDT, 13C12-	44	47	51	49	51	55

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S146-5TO7	PDI-SC-S146-7TO8	PDI-SC-S146-8TO9.1	PDI-SC-S136-0TO2	PDI-SC-S136-2TO4	PDI-SC-S136-4TO6
ALS Sample ID	L2148686-42	L2148686-43	L2148686-44	L2148686-45	L2148686-46	L2148686-47
Sample Size	7.19	7.46	8.01	6.67	7.58	7.80
Sample size units	g	g	g	g	g	g
Percent Solid	70.0%	73.6%	77.6%	66.0%	75.0%	77.7%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	1.59	<0.063	<0.10	2.10	1.38	1.04
4,4'-DDE	6.92	<0.080	<0.13	11.4	5.25	2.85
2,4'-DDD	47.6	<0.066	<0.15	77.5	64.4	31.0
4,4'-DDD	138	0.759	0.528	168	154	69.8
2,4'-DDT	4.26	<0.096	<0.13	4.55	4.08	6.39
4,4'-DDT	69.8	<0.17	<0.30	66.7	66.4	232
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	102	93	44	99	85	26
4,4'-DDD, 13C12-	80	76	67	81	70	57
4,4'-DDT, 13C12-	62	63	40	67	55	32

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S151-2TO4	PDI-SC-S151-0TO2	PDI-SC-S151-4TO6	PDI-SC-S151-6TO8	PDI-SC-S151-8TO10	PDI-SC-S151-10TO12
ALS Sample ID	L2148686-48	L2148686-49	L2148686-50	L2148686-51	L2148686-52	L2148686-53
Sample Size	5.27	5.06	5.30	5.49	6.32	6.38
Sample size units	g	g	g	g	g	g
Percent Solid	51.7%	49.3%	52.6%	54.2%	62.1%	62.2%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18	28-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	11.1	1.41	14.8	160	490	233
4,4'-DDE	54.3	12.5	58.7	334	933	471
2,4'-DDD	134	31.6	339	6940	34900	13100
4,4'-DDD	358	69.7	887	14300	60600	25900
2,4'-DDT	21.9	15.4	38.0	620	10300	1210
4,4'-DDT	1350	123	1770	9830	101000	8860
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	45	88	112	62	45	75
4,4'-DDD, 13C12-	44	65	94	149	191	220
4,4'-DDT, 13C12-	38	54	104	83	115	90

ALS Life sciences

Sample Analysis summary Report

Sample Name PDI-SC-S150-0TO2 PDI-SC-S150-2TO4 PDI-SC-S150-4TO6

ALS Sample ID L2148686-54 L2148686-55 L2148686-56

Sample Size	4.82	5.18	4.91
Sample size units	g	g	g
Percent Solid	48.0%	50.8%	48.8%
Sample Matrix	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	28-Aug-18	28-Aug-18	28-Aug-18

Target Analytes	ng / g	ng / g	ng / g
2,4'-DDE	6.36	4.17	24.3
4,4'-DDE	40.5	33.9	128
2,4'-DDD	257	118	579
4,4'-DDD	473	308	1250
2,4'-DDT	159	244	506
4,4'-DDT	3800	938	15500
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	123	79	48
4,4'-DDD, 13C12-	104	48	91
4,4'-DDT, 13C12-	92	33	63

ALS Life sciences

Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2855028-1	WG2855028-2
Sample Size	10.09	5.00
Sample size units	g	n/a
Percent Solid	99.96%	50.7%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	28-Aug-18	28-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	<0.14	140
4,4'-DDE	<0.18	109
2,4'-DDD	<0.16	120
4,4'-DDD	<0.083	106
2,4'-DDT	<0.087	106
4,4'-DDT	<0.24	109
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	25	30
4,4'-DDD, 13C12-	56	63
4,4'-DDT, 13C12-	29	38

ALS Life sciences

Continuing Calibration Summary Report

Sample Name	CVS	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-075	H6-18-CCV-0916	H6-18-CCV-0918	H6-18-CCV-0920
Sample Size	1	1	1	1
Sample size units	n/a	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a	n/a
Sample Matrix	QC	QC	QC	QC
Sampling Date	n/a	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec	% Rec
2,4'-DDE		102	105	110
4,4'-DDE	95	97	98	102
2,4'-DDD		108	125	111
4,4'-DDD	94	94	112	100
2,4'-DDT		108	114	117
4,4'-DDT	93	93	205	101
Extraction Standards	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	103	94	104	108
4,4'-DDD, 13C12-	98	84	66	79
4,4'-DDT, 13C12-	94	77	57	65

ALS Life sciences			
Continuing Calibration Summary Report			
Sample Name	CVS	CCV	CCV
ALS Sample ID	H6-18-RS1-077	H6-18-CCV-0922	H6-18-CCV-0924
Sample Size	1	1	1
Sample size units	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a
Sample Matrix	QC	QC	QC
Sampling Date	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec
2,4'-DDE		100	100
4,4'-DDE	94	100	103
2,4'-DDD		100	101
4,4'-DDD	94	101	102
2,4'-DDT		100	103
4,4'-DDT	91	97	100
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	100	102	110
4,4'-DDD, 13C12-	101	101	103
4,4'-DDT, 13C12-	103	104	96

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S150-4TO6D	Duplicate of PDI-SC-S150-4TO6D	PDI-SC-S150-6TO7.7	PDI-SC-S136-6TO7	PDI-SC-S136-7TO9	PDI-SC-S136-9TO11.3
ALS Sample ID	L2148686-57	WG2856784-4	L2148686-58	L2148686-59	L2148686-60	L2148686-61
Sample Size	5.20	4.77	5.66	7.78	6.69	7.27
Sample size units	g	g	g	g	g	g
Percent Solid	51.0%	47.4%	55.1%	75.6%	66.7%	71.6%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	n/a	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	18.9	18.5	23.9	0.882	1.04	4.92
4,4'-DDE	74.3	99.8	94.3	3.90	2.85	17.1
2,4'-DDD	581	605	1880	29.8	23.1	205
4,4'-DDD	1210	1210	3150	72.3	46.5	534
2,4'-DDT	25.2	546	162	<0.81	<0.63	20.3
4,4'-DDT	714	6790	2720	<1.8	<1.3	757
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	49	85	135	98	75	104
4,4'-DDD, 13C12-	68	63	131	68	80	82
4,4'-DDT, 13C12-	41	46	102	45	50	60

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S092-0TO2	PDI-SC-S092-2TO4	PDI-SC-S092-4TO6	PDI-SC-S092-4TO6D	PDI-SC-S092-6TO8	PDI-SC-S092-8TO9.9
ALS Sample ID	L2148686-62	L2148686-63	L2148686-64	L2148686-65	L2148686-66	L2148686-67
Sample Size	6.17	5.57	6.27	6.31	6.23	6.51
Sample size units	g	g	g	g	g	g
Percent Solid	61.0%	54.8%	62.5%	62.0%	62.0%	63.0%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18	14-Aug-18
Extraction Date	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	<0.40	7.92	0.600	0.650	<0.11	<0.077
4,4'-DDE	4.90	44.6	2.35	2.86	<0.14	<0.099
2,4'-DDD	6.68	140	28.6	35.0	6.82	<0.097
4,4'-DDD	23.6	320	42.0	59.0	6.89	<0.13
2,4'-DDT	<0.21	29.2	<0.10	8.12	<0.15	<0.13
4,4'-DDT	6.09	3050	44.3	6.09	3.01	<0.25
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	24	118	53	117	79	111
4,4'-DDD, 13C12-	66	94	88	98	94	92
4,4'-DDT, 13C12-	32	74	56	81	73	69

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Sample Analysis summary Report

Sample Name	PDI-SC-S092-9.9TO10.9	PDI-SC-S065-0TO2	PDI-SC-S065-2TO4	PDI-SC-S256-2TO4D	PDI-SC-S256-4TO6	PDI-SC-S256-6TO8
ALS Sample ID	L2148686-68	L2148686-69	L2148686-70	L2148686-71	L2148686-72	L2148686-73
Sample Size	6.96	5.24	5.66	6.32	6.62	6.19
Sample size units	g	g	g	g	g	g
Percent Solid	68.3%	51.9%	56.0%	61.8%	64.7%	60.9%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	14-Aug-18	14-Aug-18	14-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18
Extraction Date	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18	29-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	<0.51	<0.86	<0.55	<0.42	<0.39	<0.27
4,4'-DDE	<0.65	<3.3	7.56	1.71	2.49	2.62
2,4'-DDD	<0.67	3.22	5.87	<0.52	<0.53	<0.29
4,4'-DDD	<0.24	7.64	16.7	<0.25	1.68	2.52
2,4'-DDT	<0.24	<0.48	<0.32	<0.25	<0.25	<0.17
4,4'-DDT	<0.71	<1.7	<0.97	<0.79	<0.69	<0.49
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	22	16	18	21	20	25
4,4'-DDD, 13C12-	68	48	47	55	52	53
4,4'-DDT, 13C12-	33	20	21	25	26	27

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S256-8TO9.7	PDI-SC-S256-9.7TO10.7	PDI-SC-S053-0TO2
ALS Sample ID	L2148686-74	L2148686-75	L2148686-77
Sample Size	6.14	6.03	5.6
Sample size units	g	g	g
Percent Solid	60.4%	59.4%	54.8%
Sample Matrix	Sediment	Sediment	Sediment
Sampling Date	16-Aug-18	16-Aug-18	16-Aug-18
Extraction Date	29-Aug-18	29-Aug-18	29-Aug-18
Target Analytes	ng / g	ng / g	ng / g
2,4'-DDE	<0.19	<0.15	<0.13
4,4'-DDE	3.57	2.06	2.67
2,4'-DDD	<0.099	<0.24	2.02
4,4'-DDD	2.21	1.42	5.78
2,4'-DDT	<0.13	<0.29	<0.20
4,4'-DDT	<0.25	<0.51	<0.37
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	110	63	76
4,4'-DDD, 13C12-	95	60	75
4,4'-DDT, 13C12-	72	48	56

ALS Life sciences

Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2856784-1	WG2856784-2
Sample Size	10.09	5.00
Sample size units	g	n/a
Percent Solid	99.9%	50.7%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	29-Aug-18	29-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	<0.084	151
4,4'-DDE	<0.11	99
2,4'-DDD	<0.093	112
4,4'-DDD	<0.090	108
2,4'-DDT	<0.091	118
4,4'-DDT	<0.17	120
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	61	22
4,4'-DDD, 13C12-	82	54
4,4'-DDT, 13C12-	57	28

ALS Life sciences

Continuing Calibration Summary Report

Sample Name	CVS	CCV	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-075	H6-18-CCV-0910	H6-18-CCV-0912	H6-18-CCV-0914	H6-18-CCV-0922
Sample Size	1	1	1	1	1
Sample size units	n/a	n/a	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a	n/a	n/a
Sample Matrix	QC	QC	QC	QC	QC
Sampling Date	n/a	n/a	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec	% Rec	% Rec
2,4'-DDE		100	105	104	100
4,4'-DDE	97	97	100	103	100
2,4'-DDD		98	102	107	100
4,4'-DDD	97	91	103	101	101
2,4'-DDT		103	99	112	100
4,4'-DDT	98	93	99	99	97
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	97	95	102	124	102
4,4'-DDD, 13C12-	98	92	92	100	101
4,4'-DDT, 13C12-	94	89	81	77	104

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S053-2TO4	PDI-SC-S053-4TO6	PDI-SC-S053-6TO8	PDI-SC-S053-8TO10	PDI-SC-S053-10TO12.4
ALS Sample ID	L2148686-78	L2148686-79	L2148686-80	L2148686-81	L2148686-82
Sample Size	5.80	6.37	6.49	7.36	6.46
Sample size units	g	g	g	g	g
Percent Solid	56.3%	63.5%	64.6%	73.3%	64.5%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18	16-Aug-18
Extraction Date	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18	30-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	2.24	0.629	<0.014	<0.017	0.0751
4,4'-DDE	9.40	2.25	0.0688	0.0343	0.140
2,4'-DDD	14.9	4.34	0.130	0.155	0.233
4,4'-DDD	36.7	7.75	0.225	0.236	0.400
2,4'-DDT	2.31	0.417	<0.0086	<0.015	0.170
4,4'-DDT	11.7	1.20	0.151	0.282	0.820
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	16	16	97	78	20
4,4'-DDD, 13C12-	31	29	77	67	36
4,4'-DDT, 13C12-	16	16	67	50	17

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2856797-1	WG2856797-2
Sample Size	10.09	5.00
Sample size units	g	n/a
Percent Solid	99.95%	50.3%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	30-Aug-18	30-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	0.0166	123
4,4'-DDE	<0.029	96
2,4'-DDD	0.0789	112
4,4'-DDD	0.119	106
2,4'-DDT	<0.025	89
4,4'-DDT	0.158	116
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	49	16
4,4'-DDD, 13C12-	70	31
4,4'-DDT, 13C12-	49	17

ALS Life sciences			
Continuing Calibration Summary Report			
Sample Name	CVS	CCV	CCV
ALS Sample ID	H6-18-RS1-077	H6-18-CCV-0922	H6-18-CCV-0924
Sample Size	1	1	1
Sample size units	n/a	n/a	n/a
Percent Solid	n/a	n/a	n/a
Sample Matrix	QC	QC	QC
Sampling Date	n/a	n/a	n/a
Extraction Date	n/a	n/a	n/a
Target Analytes	% Rec	% Rec	% Rec
2,4'-DDE		100	100
4,4'-DDE	94	100	103
2,4'-DDD		100	101
4,4'-DDD	94	101	102
2,4'-DDT		100	103
4,4'-DDT	91	97	100
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	100	102	110
4,4'-DDD, 13C12-	101	101	103
4,4'-DDT, 13C12-	103	104	96

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S109-0T02
ALS Sample ID L2148686-1
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 27-Aug-18
Sample Size 7.95 g
Percent Solid 78.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180901A52
Run Date 02-Sep-18 13:51
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.87	0.149	0.0069	J		1.3
4,4'-DDE	11.41	1.04	0.0091	M,J		1.3
2,4'-DDD	11.58	2.27	0.012			1.3
4,4'-DDD	12.08	4.96	0.013	M		1.3
2,4'-DDT	12.14	0.265	0.013	M,J		1.3
4,4'-DDT	12.58	0.248	0.025	M,J,B		1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	73	21-125		
4,4'-DDD, 13C12-	125	12.08	58	5-150		
4,4'-DDT, 13C12-	125	12.57	49	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.

J indicates that a target analyte was detected below the calibrated range.

B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	Duplicate of PDI-SC-S109-0T02	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 10-Sep-2018
ALS Sample ID	WG2851440-4	Extraction Date	27-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.96 g	
Analysis Type	Sample	Percent Solid	78.0%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180901A53
Run Date	02-Sep-18 14:11
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.88	0.0912	0.0049	J		1.3
4,4'-DDE	11.41	0.847	0.0065	M,J		1.3
2,4'-DDD	11.58	3.15	0.011			1.3
4,4'-DDD	12.09	4.07	0.014	M		1.3
2,4'-DDT	12.14	<0.093	0.014	M,J,R	0.093	1.3
4,4'-DDT	12.58	0.0956	0.025	M,J,B		1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	86	21-125		
4,4'-DDD, 13C12-	125	12.08	54	5-150		
4,4'-DDT, 13C12-	125	12.58	45	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
J	indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S109-2TO4
ALS Sample ID L2148686-2
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 27-Aug-18
Sample Size 8.68 g
Percent Solid 85.8%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B24
Run Date 07-Sep-18 00:54
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.019	0.019	U		1.2
4,4'-DDE	11.37	0.228	0.025	J		1.2
2,4'-DDD	11.55	0.285	0.023	J		1.2
4,4'-DDD	12.06	0.502	0.024	J		1.2
2,4'-DDT	NotFnd	<0.023	0.023	U		1.2
4,4'-DDT	NotFnd	<0.069	0.069	U		1.2
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	19	21-125		
4,4'-DDD, 13C12-	125	12.05	66	5-150		
4,4'-DDT, 13C12-	125	12.55	38	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S109-4TO6
ALS Sample ID L2148686-3
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 27-Aug-18
Sample Size 8.7 g
Percent Solid 84.3%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information

Run 1

Filename 6-180906B25
Run Date 07-Sep-18 01:14
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC		LQL
	Time	ng / g	ng / g	Flags	ng / g	
2,4'-DDE	10.84	<0.15	0.032	J,R	0.15	1.1
4,4'-DDE	11.37	0.759	0.042	J		1.1
2,4'-DDD	11.54	0.174	0.043	J		1.1
4,4'-DDD	12.05	0.372	0.044	M,J		1.1
2,4'-DDT	NotFnd	<0.042	0.042	U		1.1
4,4'-DDT	12.55	1.05	0.13	J,B		1.1
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	16	21-125		
4,4'-DDD, 13C12-	125	12.05	52	5-150		
4,4'-DDT, 13C12-	125	12.55	31	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S109-6TO8
ALS Sample ID L2148686-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 27-Aug-18
Sample Size 8.59 g
Percent Solid 85.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B26
Run Date 07-Sep-18 01:34
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	0.0303	0.011	M,J		1.2
4,4'-DDE	11.38	0.227	0.014	J		1.2
2,4'-DDD	11.55	0.133	0.016	J		1.2
4,4'-DDD	12.07	0.349	0.018	J		1.2
2,4'-DDT	NotFnd	<0.017	0.017	U		1.2
4,4'-DDT	NotFnd	<0.044	0.044	U		1.2
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	22	21-125		
4,4'-DDD, 13C12-	125	12.06	72	5-150		
4,4'-DDT, 13C12-	125	12.56	47	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S109-8TO10
ALS Sample ID L2148686-5
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 27-Aug-18
Sample Size 7.1 g
Percent Solid 69.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B27
Run Date 07-Sep-18 01:54
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		10.88	0.00845	0.0039	M,J	1.4
4,4'-DDE		11.41	0.0901	0.0052	J	1.4
2,4'-DDD		11.58	0.0831	0.0052	J	1.4
4,4'-DDD		12.08	0.130	0.015	J	1.4
2,4'-DDT		NotFnd	<0.014	0.014	U	1.4
4,4'-DDT		NotFnd	<0.031	0.031	U	1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	91	21-125		
4,4'-DDD, 13C12-	125	12.08	119	5-150		
4,4'-DDT, 13C12-	125	12.57	91	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S109-10TO11.3
ALS Sample ID L2148686-6
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 27-Aug-18
Sample Size 6.02 g
Percent Solid 60.2%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B28
Run Date 07-Sep-18 02:14
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.016	0.016	U		1.7
4,4'-DDE	NotFnd	<0.021	0.021	U		1.7
2,4'-DDD	NotFnd	<0.027	0.027	U		1.7
4,4'-DDD	NotFnd	<0.11	0.11	U		1.7
2,4'-DDT	NotFnd	<0.11	0.11	U		1.7
4,4'-DDT	NotFnd	<0.25	0.25	U		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.43	49	21-125		
4,4'-DDD, 13C12-	125	12.10	43	5-150		
4,4'-DDT, 13C12-	125	12.59	32	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S131-0T02
ALS Sample ID L2148686-7
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 27-Aug-18
Sample Size 4.61 g
Percent Solid 45.1%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B30
Run Date 07-Sep-18 02:54
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.13	0.13	U		2.2
4,4'-DDE	11.38	2.65	0.17			2.2
2,4'-DDD	NotFnd	<0.22	0.22	U		2.2
4,4'-DDD	12.06	1.06	0.24	J		2.2
2,4'-DDT	NotFnd	<0.23	0.23	U		2.2
4,4'-DDT	NotFnd	<0.76	0.76	U		2.2
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	7	21-125		
4,4'-DDD, 13C12-	125	12.05	25	5-150		
4,4'-DDT, 13C12-	125	12.55	12	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S131-2TO4
ALS Sample ID L2148686-8
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 27-Aug-18
Sample Size 5.16 g
Percent Solid 50.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B31
Run Date 07-Sep-18 03:14
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	<0.15	0.057	M,J,R	0.15	1.9
4,4'-DDE	11.37	4.10	0.074	M		1.9
2,4'-DDD	11.54	0.634	0.11	J		1.9
4,4'-DDD	12.06	2.03	0.099			1.9
2,4'-DDT	NotFnd	<0.094	0.094	U		1.9
4,4'-DDT	NotFnd	<0.31	0.31	U		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	13	21-125		
4,4'-DDD, 13C12-	125	12.05	48	5-150		
4,4'-DDT, 13C12-	125	12.55	26	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S131-4TO6
ALS Sample ID L2148686-9
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 27-Aug-18
Sample Size 5.45 g
Percent Solid 53.4%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B32
Run Date 07-Sep-18 03:35
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	0.372	0.012	J		1.8
4,4'-DDE	11.38	5.92	0.016			1.8
2,4'-DDD	11.55	0.791	0.016	J		1.8
4,4'-DDD	12.06	2.83	0.016	M		1.8
2,4'-DDT	12.12	0.228	0.015	M,J		1.8
4,4'-DDT	12.56	0.657	0.046	J,B		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	25	21-125		
4,4'-DDD, 13C12-	125	12.05	93	5-150		
4,4'-DDT, 13C12-	125	12.55	54	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S131-6TO8

ALS Sample ID L2148686-10
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 16-Aug-18
 Extraction Date 27-Aug-18
 Sample Size 5.22 g
 Percent Solid 51.2%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information

Run 1

Filename 6-180906B33
 Run Date 07-Sep-18 03:55
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	0.519	0.030	J		1.9
4,4'-DDE	11.38	7.01	0.039			1.9
2,4'-DDD	11.55	1.19	0.043	J		1.9
4,4'-DDD	12.06	4.02	0.040			1.9
2,4'-DDT	12.12	1.51	0.038	J		1.9
4,4'-DDT	12.56	1.87	0.13	J,B		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	17	21-125		
4,4'-DDD, 13C12-	125	12.05	66	5-150		
4,4'-DDT, 13C12-	125	12.55	36	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S256-0TO2
ALS Sample ID L2148686-11
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 27-Aug-18
Sample Size 5.85 g
Percent Solid 58.5%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B22
Run Date 07-Sep-18 00:13
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.020	0.020	U		1.7
4,4'-DDE	11.38	0.981	0.026	J		1.7
2,4'-DDD	11.56	<0.091	0.027	J,R	0.091	1.7
4,4'-DDD	12.07	0.439	0.034	J		1.7
2,4'-DDT	NotFnd	<0.033	0.033	U		1.7
4,4'-DDT	NotFnd	<0.086	0.086	U		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	32	21-125		
4,4'-DDD, 13C12-	125	12.06	91	5-150		
4,4'-DDT, 13C12-	125	12.56	59	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S256-2TO4
ALS Sample ID L2148686-12
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 27-Aug-18
Sample Size 6.12 g
Percent Solid 59.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B23
Run Date 07-Sep-18 00:34
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	0.0539	0.011	J		1.6
4,4'-DDE	11.38	1.39	0.014	J		1.6
2,4'-DDD	11.55	0.216	0.012	J		1.6
4,4'-DDD	12.06	0.822	0.027	J		1.6
2,4'-DDT	NotFnd	<0.025	0.025	U		1.6
4,4'-DDT	NotFnd	<0.048	0.048	U		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	78	21-125		
4,4'-DDD, 13C12-	125	12.05	129	5-150		
4,4'-DDT, 13C12-	125	12.55	118	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-RB-SS-180814-1040

ALS Sample ID L2148686-13
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Water

Sampling Date 14-Aug-18

Extraction Date 20-Aug-18

Sample Size 0.97 L

Percent Solid n/a

Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information

Run 1

Filename 6-180906B18
 Run Date 06-Sep-18 22:53
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/L
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / L	ng / L	Flags	
2,4'-DDE		NotFnd	<0.035	0.035	U	10
4,4'-DDE		NotFnd	<0.046	0.046	U	10
2,4'-DDD		11.55	0.629	0.046	J	10
4,4'-DDD		12.06	1.44	0.059	J	10
2,4'-DDT		NotFnd	<0.056	0.056	U	10
4,4'-DDT		NotFnd	<0.13	0.13	U	10
Extraction Standards		ng				
4,4'-DDE, 13C12-	125	11.38	30	21-125		
4,4'-DDD, 13C12-	125	12.06	85	5-150		
4,4'-DDT, 13C12-	125	12.56	62	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.

LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-RB-SS-180815-0730
ALS Sample ID L2148686-14
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Water

Sampling Date 15-Aug-18
Extraction Date 20-Aug-18
Sample Size 0.95 L
Percent Solid n/a
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B19
Run Date 06-Sep-18 23:13
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/L
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / L	EDL ng / L	Flags	EMPC ng / L	LQL
2,4'-DDE	NotFnd	<0.034	0.034	U		11
4,4'-DDE	NotFnd	<0.045	0.045	U		11
2,4'-DDD	NotFnd	<0.048	0.048	U		11
4,4'-DDD	12.06	<0.37	0.069	J,R	0.37	11
2,4'-DDT	NotFnd	<0.066	0.066	U		11
4,4'-DDT	NotFnd	<0.16	0.16	U		11
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	28	21-125		
4,4'-DDD, 13C12-	125	12.05	76	5-150		
4,4'-DDT, 13C12-	125	12.55	54	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-RB-SS-180815-1340

ALS Sample ID L2148686-15
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Water

Sampling Date 15-Aug-18

Extraction Date 20-Aug-18

Sample Size 1 L

Percent Solid n/a

Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information

Run 1

Filename 6-180906B20
 Run Date 06-Sep-18 23:33
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/L
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / L	EDL ng / L	Flags	EMPC ng / L	LQL
2,4'-DDE	NotFnd	<0.021	0.021	U		10
4,4'-DDE	NotFnd	<0.028	0.028	U		10
2,4'-DDD	NotFnd	<0.028	0.028	U		10
4,4'-DDD	NotFnd	<0.044	0.044	U		10
2,4'-DDT	NotFnd	<0.042	0.042	U		10
4,4'-DDT	NotFnd	<0.086	0.086	U		10
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	37	21-125		
4,4'-DDD, 13C12-	125	12.06	83	5-150		
4,4'-DDT, 13C12-	125	12.56	71	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.

LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S113(A)-0TO2.2
ALS Sample ID L2148686-16
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 27-Aug-18
Sample Size 7.11 g
Percent Solid 70.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B34
Run Date 07-Sep-18 04:15
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		10.85	0.411	0.0056	J	1.4
4,4'-DDE		11.38	2.57	0.0073		1.4
2,4'-DDD		11.55	6.58	0.0091		1.4
4,4'-DDD		12.06	20.3	0.046	M	1.4
2,4'-DDT		12.12	0.443	0.044	M,J	1.4
4,4'-DDT		12.56	0.740	0.058	J,B	1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	78	21-125		
4,4'-DDD, 13C12-	125	12.05	56	5-150		
4,4'-DDT, 13C12-	125	12.55	72	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.
 J indicates that a target analyte was detected below the calibrated range.
 B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
 EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S113(A)-2.2TO4.6	Sampling Date	15-Aug-18	Approved: <i>Ella Gdyczynski</i> --e-signature-- 12-Sep-2018
ALS Sample ID	L2148686-17	Extraction Date	28-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.93 g	
Analysis Type	Sample	Percent Solid	78.7%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180908B17
Run Date	08-Sep-18 19:07
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	0.0537	0.0051	J		1.3
4,4'-DDE	11.37	0.250	0.0068	J		1.3
2,4'-DDD	11.54	1.14	0.0079	J		1.3
4,4'-DDD	12.05	3.83	0.012			1.3
2,4'-DDT	12.11	0.0904	0.0099	J		1.3
4,4'-DDT	12.55	0.376	0.021	J		1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	108	21-125		
4,4'-DDD, 13C12-	125	12.05	108	5-150		
4,4'-DDT, 13C12-	125	12.55	118	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name Duplicate of PDI-SC-S113(A)-2.2T04.6
ALS Sample ID WG2855004-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix QC

Sampling Date n/a
Extraction Date 28-Aug-18
Sample Size 7.93 g
Percent Solid 79.3%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B18
Run Date 08-Sep-18 19:27
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g Flags		
2,4'-DDE		10.85	0.0524	0.0044	J	1.3
4,4'-DDE		11.38	0.276	0.0059	J	1.3
2,4'-DDD		11.56	1.24	0.0052	J	1.3
4,4'-DDD		12.07	4.23	0.0074		1.3
2,4'-DDT		12.12	0.0813	0.0062	J	1.3
4,4'-DDT		12.56	0.284	0.013	J	1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	97	21-125		
4,4'-DDD, 13C12-	125	12.06	103	5-150		
4,4'-DDT, 13C12-	125	12.56	113	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S113(A)-2.2TO4.6D	Sampling Date	15-Aug-18	g	Approved: <i>Ella Gdyczynski</i> --e-signature-- 12-Sep-2018
ALS Sample ID	L2148686-18	Extraction Date	28-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	7.95		
Analysis Type	Sample	Percent Solid	79.5%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180908B19
Run Date	08-Sep-18 19:47
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC	
	Time	ng / g	ng / g	Flags	LQL
2,4'-DDE	10.85	0.0738	0.0039	J	1.3
4,4'-DDE	11.38	0.354	0.0053	J	1.3
2,4'-DDD	11.55	2.67	0.0056		1.3
4,4'-DDD	12.06	7.03	0.0080		1.3
2,4'-DDT	12.12	<0.098	0.0066	J,R	0.098 1.3
4,4'-DDT	12.56	0.397	0.013	J	1.3
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.37	107	21-125	
4,4'-DDD, 13C12-	125	12.06	117	5-150	
4,4'-DDT, 13C12-	125	12.55	130	5-120	

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S113(B)-3.6TO5.6

ALS Sample ID L2148686-19
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 15-Aug-18
 Extraction Date 28-Aug-18
 Sample Size 5.11 g
 Percent Solid 50.7%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B20
 Run Date 08-Sep-18 20:07
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.87	2.82	0.0079			2.0
4,4'-DDE	11.40	14.2	0.011			2.0
2,4'-DDD	11.57	40.7	0.012			2.0
4,4'-DDD	12.08	94.8	0.018	M		2.0
2,4'-DDT	12.12	0.706	0.015	M,J		2.0
4,4'-DDT	12.57	0.370	0.035	J		2.0
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	96	21-125		
4,4'-DDD, 13C12-	125	12.07	98	5-150		
4,4'-DDT, 13C12-	125	12.57	97	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S113(B)-5.6TO7.4

ALS Sample ID L2148686-20
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 15-Aug-18
 Extraction Date 28-Aug-18
 Sample Size 6.26 g
 Percent Solid 61.7%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B21
 Run Date 08-Sep-18 20:27
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g		
2,4'-DDE		10.86	2.29	0.0058		1.6
4,4'-DDE		11.39	12.9	0.0078		1.6
2,4'-DDD		11.56	37.5	0.010		1.6
4,4'-DDD		12.07	158	0.013	M	1.6
2,4'-DDT		12.10	3.90	0.011	M	1.6
4,4'-DDT		12.57	1.64	0.026		1.6
Extraction Standards		ng				
4,4'-DDE, 13C12-	125	11.38	101	21-125		
4,4'-DDD, 13C12-	125	12.07	120	5-150		
4,4'-DDT, 13C12-	125	12.56	107	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S113(B)-7.4TO10
ALS Sample ID L2148686-21
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 28-Aug-18
Sample Size 8.26 g
Percent Solid 80.3%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B22
Run Date 08-Sep-18 20:47
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC	LQL
	Time	ng / g	ng / g	Flags	
2,4'-DDE	10.86	0.421	0.0050	J	1.2
4,4'-DDE	11.38	2.15	0.0067		1.2
2,4'-DDD	11.56	5.39	0.0083		1.2
4,4'-DDD	12.07	14.9	0.012	M	1.2
2,4'-DDT	12.11	0.140	0.0098	M,J	1.2
4,4'-DDT	12.56	0.326	0.022	J	1.2
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.38	92	21-125	
4,4'-DDD, 13C12-	125	12.06	99	5-150	
4,4'-DDT, 13C12-	125	12.56	99	5-120	

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S113(B)-10T012	Sampling Date	15-Aug-18	Approved: <i>Ella Gdyczynski</i> --e-signature-- 12-Sep-2018
ALS Sample ID	L2148686-22	Extraction Date	28-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	8.35 g	
Analysis Type	Sample	Percent Solid	82.0%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180908B23
Run Date	08-Sep-18 21:07
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	0.323	0.0048	J		1.2
4,4'-DDE	11.37	1.57	0.0065			1.2
2,4'-DDD	11.54	5.13	0.0092			1.2
4,4'-DDD	12.05	14.2	0.012	M		1.2
2,4'-DDT	12.10	0.128	0.0099	M,J		1.2
4,4'-DDT	12.55	0.176	0.022	J,B		1.2
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	97	21-125		
4,4'-DDD, 13C12-	125	12.05	110	5-150		
4,4'-DDT, 13C12-	125	12.55	113	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
B	Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S113(B)-12TO13.8
ALS Sample ID L2148686-23
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 15-Aug-18
Extraction Date 28-Aug-18
Sample Size 8.29 g
Percent Solid 82.2%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B24
Run Date 08-Sep-18 21:28
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC	LQL
	Time	ng / g	ng / g	Flags	
2,4'-DDE	10.87	0.363	0.0036	J	1.2
4,4'-DDE	11.40	1.46	0.0048		1.2
2,4'-DDD	11.57	10.0	0.0069		1.2
4,4'-DDD	12.07	29.6	0.0091	M	1.2
2,4'-DDT	12.13	<0.13	0.0076	M,J,R	0.13 1.2
4,4'-DDT	12.57	0.186	0.018	J,B	1.2
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.39	107	21-125	
4,4'-DDD, 13C12-	125	12.07	121	5-150	
4,4'-DDT, 13C12-	125	12.57	122	5-120	

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

 J indicates that a target analyte was detected below the calibrated range.
 R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
 B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

 EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S065-4TO6
ALS Sample ID L2148686-24
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.85 g
Percent Solid 57.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B25
Run Date 08-Sep-18 21:48
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	5.45	0.0086			1.7
4,4'-DDE	11.38	21.5	0.012			1.7
2,4'-DDD	11.55	99.4	0.016			1.7
4,4'-DDD	12.06	145	0.022			1.7
2,4'-DDT	12.11	2.09	0.018			1.7
4,4'-DDT	12.56	114	0.043			1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	106	21-125		
4,4'-DDD, 13C12-	125	12.05	119	5-150		
4,4'-DDT, 13C12-	125	12.55	110	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S065-6TO8
ALS Sample ID L2148686-25
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.9 g
Percent Solid 57.5%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B26
Run Date 08-Sep-18 22:08
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.86	0.882	0.0074	J		1.7
4,4'-DDE	11.39	6.10	0.0099			1.7
2,4'-DDD	11.56	1.77	0.013			1.7
4,4'-DDD	12.07	4.00	0.023	M		1.7
2,4'-DDT	12.13	<0.054	0.019	M,J,R	0.054	1.7
4,4'-DDT	12.57	0.143	0.040	J,B		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	100	21-125		
4,4'-DDD, 13C12-	125	12.06	87	5-150		
4,4'-DDT, 13C12-	125	12.56	89	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S065-8TO10
ALS Sample ID L2148686-26
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 6.12 g
Percent Solid 59.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B27
Run Date 08-Sep-18 22:28
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.0050	0.0050	U		1.6
4,4'-DDE	11.38	0.0371	0.0068	J		1.6
2,4'-DDD	11.55	0.0284	0.0090	J,B		1.6
4,4'-DDD	12.06	0.0600	0.013	J,B		1.6
2,4'-DDT	NotFnd	<0.011	0.011	U		1.6
4,4'-DDT	NotFnd	<0.026	0.026	U		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	89	21-125		
4,4'-DDD, 13C12-	125	12.05	96	5-150		
4,4'-DDT, 13C12-	125	12.55	88	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S065-12T014.3
ALS Sample ID L2148686-27
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 6.25 g
Percent Solid 60.7%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B28
Run Date 08-Sep-18 22:48
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.0030	0.0030	U		1.6
4,4'-DDE	NotFnd	<0.0040	0.0040	U		1.6
2,4'-DDD	NotFnd	<0.0053	0.0053	U		1.6
4,4'-DDD	12.06	0.0261	0.0080	J,B		1.6
2,4'-DDT	NotFnd	<0.0067	0.0067	U		1.6
4,4'-DDT	12.56	<0.023	0.014	J,R	0.023	1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	93	21-125		
4,4'-DDD, 13C12-	125	12.06	92	5-150		
4,4'-DDT, 13C12-	125	12.56	95	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S070-0TO1.1
ALS Sample ID L2148686-28
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 6.16 g
Percent Solid 61.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B29
Run Date 08-Sep-18 23:08
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	2.93	0.0041			1.6
4,4'-DDE	11.38	12.5	0.0055			1.6
2,4'-DDD	11.55	29.9	0.0099			1.6
4,4'-DDD	12.06	73.6	0.014			1.6
2,4'-DDT	12.10	0.990	0.012	J		1.6
4,4'-DDT	12.56	5.06	0.027			1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	108	21-125		
4,4'-DDD, 13C12-	125	12.05	124	5-150		
4,4'-DDT, 13C12-	125	12.55	115	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S070-1.1T02.4
ALS Sample ID L2148686-29
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 16.76 g
Percent Solid 82.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B30
Run Date 08-Sep-18 23:29
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		10.84	0.377	0.0022	J	0.60
4,4'-DDE		11.37	1.59	0.0030		0.60
2,4'-DDD		11.54	4.62	0.0043		0.60
4,4'-DDD		12.06	8.70	0.0063	M	0.60
2,4'-DDT		12.10	0.122	0.0052	M,J	0.60
4,4'-DDT		12.55	0.178	0.012	J,B	0.60
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	86	21-125		
4,4'-DDD, 13C12-	125	12.05	87	5-150		
4,4'-DDT, 13C12-	125	12.55	86	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S070-2.4TO4.4

ALS Sample ID L2148686-30
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 28-Aug-18
 Sample Size 6.16 g
 Percent Solid 60.5%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B31
 Run Date 08-Sep-18 23:49
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.86	4.54	0.0083			1.6
4,4'-DDE	11.39	17.4	0.011			1.6
2,4'-DDD	11.57	102	0.015			1.6
4,4'-DDD	12.07	152	0.021	M		1.6
2,4'-DDT	12.12	1.19	0.017	M,J		1.6
4,4'-DDT	12.57	32.3	0.040			1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	94	21-125		
4,4'-DDD, 13C12-	125	12.07	101	5-150		
4,4'-DDT, 13C12-	125	12.56	95	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S070-4.4TO6.4

ALS Sample ID L2148686-31
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 28-Aug-18
 Sample Size 6.37 g
 Percent Solid 62.1%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B32
 Run Date 09-Sep-18 00:10
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g Flags		
2,4'-DDE		10.84	0.272	0.0054	J	1.6
4,4'-DDE		11.37	1.18	0.0072	J	1.6
2,4'-DDD		11.55	2.64	0.010		1.6
4,4'-DDD		12.05	4.86	0.016		1.6
2,4'-DDT		12.11	0.0593	0.013	M,J	1.6
4,4'-DDT		12.55	0.398	0.030	J	1.6
Extraction Standards		ng				
4,4'-DDE, 13C12-	125	11.37	90	21-125		
4,4'-DDD, 13C12-	125	12.05	89	5-150		
4,4'-DDT, 13C12-	125	12.55	89	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S070-6.4TO8.4

ALS Sample ID L2148686-32
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 28-Aug-18
 Sample Size 6.58 g
 Percent Solid 64.7%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180911B38
 Run Date 12-Sep-18 05:22
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.86	<0.038	0.019	M,J,R	0.038	1.5
4,4'-DDE	11.39	0.147	0.024	J		1.5
2,4'-DDD	11.56	0.481	0.026	J		1.5
4,4'-DDD	12.07	0.730	0.041	M,J		1.5
2,4'-DDT	NotFnd	<0.041	0.041	U		1.5
4,4'-DDT	12.57	0.571	0.077	J		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	35	21-125		
4,4'-DDD, 13C12-	125	12.06	27	5-150		
4,4'-DDT, 13C12-	125	12.56	20	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

 J indicates that a target analyte was detected below the calibrated range.
 R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

 EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S070-8.4TO10.4
ALS Sample ID L2148686-33
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 6.72 g
Percent Solid 65.5%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B37
Run Date 09-Sep-18 01:52
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	0.0132	0.0048	J		1.5
4,4'-DDE	11.38	0.0328	0.0065	J		1.5
2,4'-DDD	11.55	0.0929	0.0090	J,B		1.5
4,4'-DDD	12.06	0.169	0.014	J,B		1.5
2,4'-DDT	NotFnd	<0.011	0.011	U		1.5
4,4'-DDT	NotFnd	<0.022	0.022	U		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	90	21-125		
4,4'-DDD, 13C12-	125	12.05	92	5-150		
4,4'-DDT, 13C12-	125	12.55	102	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S065-10T012
ALS Sample ID L2148686-34
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 6.31 g
Percent Solid 62.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B38
Run Date 09-Sep-18 02:12
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.0054	0.0054	U		1.6
4,4'-DDE	NotFnd	<0.0072	0.0072	U		1.6
2,4'-DDD	11.55	0.0275	0.010	J,B		1.6
4,4'-DDD	12.05	0.0479	0.014	M,J,B		1.6
2,4'-DDT	NotFnd	<0.011	0.011	U		1.6
4,4'-DDT	NotFnd	<0.025	0.025	U		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	91	21-125		
4,4'-DDD, 13C12-	125	12.05	99	5-150		
4,4'-DDT, 13C12-	125	12.55	104	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S070-10.4TO12.6
ALS Sample ID L2148686-35
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 6.5 g
Percent Solid 63.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information **Run 1**
Filename 6-180908B39
Run Date 09-Sep-18 02:33
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.0053	0.0053	U		1.5
4,4'-DDE	NotFnd	<0.0071	0.0071	U		1.5
2,4'-DDD	11.54	<0.030	0.010	J,R	0.030	1.5
4,4'-DDD	12.05	0.0743	0.014	J,B		1.5
2,4'-DDT	NotFnd	<0.012	0.012	U		1.5
4,4'-DDT	12.55	0.0586	0.024	J,B		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	94	21-125		
4,4'-DDD, 13C12-	125	12.05	102	5-150		
4,4'-DDT, 13C12-	125	12.55	110	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S150-7.7TO9.7
ALS Sample ID L2148686-36
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 7.81 g
Percent Solid 77.4%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 12-Sep-2018

Run Information

Run 1

Filename 6-180908B40
Run Date 09-Sep-18 02:53
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2

Filename 6-180911B39
Run Date 12-Sep-18 05:42
Final Volume 1000 uL
Dilution Factor 20
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	1.11	0.0067	J	1.3						
4,4'-DDE	11.38	2.56	0.0090		1.3						
2,4'-DDD	11.55	125	0.0094		1.3						
4,4'-DDD						12.06	292	0.35	M	5.1	
2,4'-DDT	12.12	9.37	0.0086	M	1.3						
4,4'-DDT						12.56	1120	0.56		5.1	
Extraction Standards	ng										
4,4'-DDE, 13C12-	125	11.37	95	21-125							
4,4'-DDD, 13C12-	125					12.05	109				
4,4'-DDT, 13C12-	125					12.55	96				

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
E Indicates that this compound was detected above the calibrated range.
J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S150-9.7TO11.1
ALS Sample ID L2148686-37
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 7.8 g
Percent Solid 77.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180912A18
Run Date 12-Sep-18 14:47
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		10.85	0.187	0.064	M,J	1.3
4,4'-DDE		11.37	0.316	0.081	J	1.3
2,4'-DDD		11.55	8.53	0.056		1.3
4,4'-DDD		12.06	12.8	0.074	M	1.3
2,4'-DDT		12.10	0.718	0.078	M,J	1.3
4,4'-DDT		12.56	6.05	0.14		1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	56	21-125		
4,4'-DDD, 13C12-	125	12.05	55	5-150		
4,4'-DDT, 13C12-	125	12.55	44	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	Duplicate	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	WG2855028-4	Extraction Date	28-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.67 g	
Analysis Type	Sample	Percent Solid	76.7%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180912A19
Run Date	12-Sep-18 15:07
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	0.135	0.047	M,J		1.3
4,4'-DDE	11.38	<0.13	0.060	J,R	0.13	1.3
2,4'-DDD	11.55	9.51	0.059			1.3
4,4'-DDD	12.06	10.4	0.11	M		1.3
2,4'-DDT	12.10	<0.43	0.11	M,J,R	0.43	1.3
4,4'-DDT	12.56	2.03	0.19			1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	82	21-125		
4,4'-DDD, 13C12-	125	12.05	58	5-150		
4,4'-DDT, 13C12-	125	12.55	47	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S150-11.1TO12.5

ALS Sample ID L2148686-38
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 28-Aug-18
 Sample Size 7.26 g
 Percent Solid 72.0%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180912A20
 Run Date 12-Sep-18 15:27
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.065	0.065	U		1.4
4,4'-DDE	NotFnd	<0.083	0.083	U		1.4
2,4'-DDD	11.55	3.63	0.074			1.4
4,4'-DDD	12.06	5.11	0.089	M		1.4
2,4'-DDT	NotFnd	<0.093	0.093	U		1.4
4,4'-DDT	NotFnd	<0.16	0.16	U		1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	61	21-125		
4,4'-DDD, 13C12-	125	12.05	61	5-150		
4,4'-DDT, 13C12-	125	12.55	51	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S146-0TO2	Sampling Date	14-Aug-18	g	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	L2148686-39	Extraction Date	28-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.42		
Analysis Type	Sample	Percent Solid	53.1%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information		Run 1	Run 3
Filename		6-180912A29	6-180913A30
Run Date		12-Sep-18 18:30	13-Sep-18 10:17
Final Volume		1000 uL	1000 uL
Dilution Factor		50	500
Analysis Units		ng/g	ng/g
Instrument - Column		HRMS-6 HP5MSUSR163634H	HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC		Ret.	Conc.	EDL	EMPC		
		Time	ng / g	ng / g	Flags	ng / g	LQL	Time	ng / g	ng / g	Flags	ng / g
	2,4'-DDE	10.85	7.92	0.71	J	18	10.85	6.21	1.6	J	180	
	4,4'-DDE	11.38	76.2	0.91		18	11.38	50.0	2.2	J	180	
	2,4'-DDD	11.55	189	0.81		18	11.54	114	1.6	J	180	
	4,4'-DDD	12.06	531	1.8		18	12.05	344	3.4		180	
	2,4'-DDT	12.12	39.4	1.8		18	12.11	46.2	3.2	J	180	
	4,4'-DDT	12.56	14600	2.5	E	18	12.55	10700	6.2		180	
Extraction Standards	ng											
	4,4'-DDE, 13C12-	125	11.37	84	21-125							
	4,4'-DDD, 13C12-	125	12.05	47	5-150							
	4,4'-DDT, 13C12-	125	12.55	49	5-120							

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.

LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

U Indicates that this compound was not detected above the EDL.

E Indicates that this compound was detected above the calibrated range.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S146-2TO4
ALS Sample ID L2148686-40
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.74 g
Percent Solid 56.1%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180912A30
Run Date 12-Sep-18 18:50
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2 Confirmation reanalysis

Filename 6-180913A20
Run Date 13-Sep-18 06:56
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	15.8	0.61	J	17	10.84	15.3	0.28	J	17	
4,4'-DDE	11.38	114	0.78		17	11.37	116	0.39		17	
2,4'-DDD	11.56	317	0.67		17	11.54	316	0.33		17	
4,4'-DDD	12.07	982	1.2		17	12.06	1020	0.75		17	
2,4'-DDT	12.12	75.6	1.3		17	12.11	81.2	0.70		17	
4,4'-DDT	12.57	1910	2.3		17	12.55	1910	1.5		17	

Extraction Standards ng

4,4'-DDE, 13C12-	125	11.38	101	21-125	125
4,4'-DDD, 13C12-	125	12.06	63	5-150	125
4,4'-DDT, 13C12-	125	12.56	51	5-120	125

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S146-4TO5
ALS Sample ID L2148686-41
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.71 g
Percent Solid 56.2%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180912A31
Run Date 12-Sep-18 19:10
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2 Confirmation Reanalysis

Filename 6-180913A21
Run Date 13-Sep-18 07:16
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	21.8	0.75		18	10.85	21.0	0.35		18	
4,4'-DDE	11.38	131	0.95		18	11.38	148	0.48		18	
2,4'-DDD	11.55	186	0.67		18	11.55	205	0.50		18	
4,4'-DDD	12.06	611	1.2	M	18	12.06	702	1.2	M	18	
2,4'-DDT	12.10	25.3	1.3	M	18	12.10	26.7	1.2	M	18	
4,4'-DDT	12.56	559	2.4		18	12.56	602	2.5		18	

Extraction Standards ng

4,4'-DDE, 13C12-	125	11.38	108	21-125	11.37	121
4,4'-DDD, 13C12-	125	12.06	69	5-150	12.06	77
4,4'-DDT, 13C12-	125	12.56	55	5-120	12.56	67

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S146-5TO7
ALS Sample ID L2148686-42
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 7.19 g
Percent Solid 70.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180912A21
Run Date 12-Sep-18 15:48
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g		
2,4'-DDE		10.85	1.59	0.038		1.4
4,4'-DDE		11.38	6.92	0.048		1.4
2,4'-DDD		11.55	47.6	0.055		1.4
4,4'-DDD		12.06	138	0.087	M	1.4
2,4'-DDT		12.10	4.26	0.090	M	1.4
4,4'-DDT		12.56	69.8	0.18		1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	102	21-125		
4,4'-DDD, 13C12-	125	12.06	80	5-150		
4,4'-DDT, 13C12-	125	12.56	62	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S146-7TO8
ALS Sample ID L2148686-43
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 7.46 g
Percent Solid 73.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180912A22
Run Date 12-Sep-18 16:08
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.063	0.063	U		1.3
4,4'-DDE	NotFnd	<0.080	0.080	U		1.3
2,4'-DDD	NotFnd	<0.066	0.066	U		1.3
4,4'-DDD	12.06	0.759	0.092	M,J		1.3
2,4'-DDT	NotFnd	<0.096	0.096	U		1.3
4,4'-DDT	NotFnd	<0.17	0.17	U		1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	93	21-125		
4,4'-DDD, 13C12-	125	12.05	76	5-150		
4,4'-DDT, 13C12-	125	12.55	63	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S146-8TO9.1
ALS Sample ID L2148686-44
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 8.01 g
Percent Solid 77.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180912A23
Run Date 12-Sep-18 16:28
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.10	0.10	U		1.2
4,4'-DDE	NotFnd	<0.13	0.13	U		1.2
2,4'-DDD	NotFnd	<0.15	0.15	U		1.2
4,4'-DDD	12.06	0.528	0.12	J		1.2
2,4'-DDT	NotFnd	<0.13	0.13	U		1.2
4,4'-DDT	NotFnd	<0.30	0.30	U		1.2
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	44	21-125		
4,4'-DDD, 13C12-	125	12.05	67	5-150		
4,4'-DDT, 13C12-	125	12.55	40	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S136-0TO2
ALS Sample ID L2148686-45
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 6.67 g
Percent Solid 66.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180912A24
Run Date 12-Sep-18 16:48
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	2.10	0.046			1.5
4,4'-DDE	11.37	11.4	0.058			1.5
2,4'-DDD	11.54	77.5	0.061			1.5
4,4'-DDD	12.05	168	0.088			1.5
2,4'-DDT	12.11	4.55	0.091			1.5
4,4'-DDT	12.55	66.7	0.17			1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	99	21-125		
4,4'-DDD, 13C12-	125	12.05	81	5-150		
4,4'-DDT, 13C12-	125	12.55	67	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S136-2TO4
ALS Sample ID L2148686-46
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 7.58 g
Percent Solid 75.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180912A25
Run Date 12-Sep-18 17:09
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	1.38	0.044			1.3
4,4'-DDE	11.37	5.25	0.056			1.3
2,4'-DDD	11.54	64.4	0.050			1.3
4,4'-DDD	12.05	154	0.068	M		1.3
2,4'-DDT	12.10	4.08	0.071	M		1.3
4,4'-DDT	12.55	66.4	0.13			1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	85	21-125		
4,4'-DDD, 13C12-	125	12.05	70	5-150		
4,4'-DDT, 13C12-	125	12.55	55	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S136-4TO6
ALS Sample ID L2148686-47
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 7.8 g
Percent Solid 77.7%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180912A26
Run Date 12-Sep-18 17:29
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2 Confirmation Reanalysis

Filename 6-180913A17
Run Date 13-Sep-18 05:55
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	1.04	0.13	J	1.3	10.84	1.12	0.055	J	1.3	
4,4'-DDE	11.38	2.85	0.17		1.3	11.37	3.37	0.076		1.3	
2,4'-DDD	11.55	31.0	0.14		1.3	11.54	29.9	0.073		1.3	
4,4'-DDD	12.06	69.8	0.080		1.3	12.05	67.3	0.051	M	1.3	
2,4'-DDT	12.12	6.39	0.084		1.3	12.11	7.53	0.048	M	1.3	
4,4'-DDT	12.56	232	0.22		1.3	12.55	232	0.14		1.3	

Extraction Standards ng

4,4'-DDE, 13C12-	125	11.37	26	21-125	125
4,4'-DDD, 13C12-	125	12.06	57	5-150	125
4,4'-DDT, 13C12-	125	12.56	32	5-120	125

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S151-2TO4
ALS Sample ID L2148686-48
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.27 g
Percent Solid 51.7%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180912A32
Run Date 12-Sep-18 19:30
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2 Confirmation Reanalysis

Filename 6-180913A22
Run Date 13-Sep-18 07:36
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	11.1	2.6	J	19	10.85	10.5	0.89	J	19	
4,4'-DDE	11.37	54.3	3.3		19	11.38	53.6	1.2		19	
2,4'-DDD	11.55	134	2.7		19	11.55	127	1.1		19	
4,4'-DDD	12.06	358	3.4	M	19	12.06	363	1.3	M	19	
2,4'-DDT	12.10	21.9	3.6	M	19	12.10	32.6	1.2	M	19	
4,4'-DDT	12.55	1350	5.8		19	12.56	2040	3.1		19	

Extraction Standards ng

4,4'-DDE, 13C12-	125	11.37	45	21-125	125
4,4'-DDD, 13C12-	125	12.05	44	5-150	125
4,4'-DDT, 13C12-	125	12.55	38	5-120	125

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S151-0TO2
ALS Sample ID L2148686-49
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.06 g
Percent Solid 49.3%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180912A27
Run Date 12-Sep-18 17:49
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2 Confirmation Reanalysis

Filename 6-180913A18
Run Date 13-Sep-18 06:15
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng/g	EDL ng/g	Flags	EMPC ng/g	LQL	Ret. Time	Conc. ng/g	EDL ng/g	Flags	EMPC ng/g	LQL
2,4'-DDE	10.85	1.41	0.062	J	2.0	10.85	1.36	0.027	J	2.0	
4,4'-DDE	11.38	12.5	0.079		2.0	11.38	12.9	0.037	M	2.0	
2,4'-DDD	11.55	31.6	0.064		2.0	11.55	30.6	0.029		2.0	
4,4'-DDD	12.06	69.7	0.11		2.0	12.06	72.2	0.053		2.0	
2,4'-DDT	12.12	15.4	0.11		2.0	12.12	16.1	0.050		2.0	
4,4'-DDT	12.56	123	0.21		2.0	12.56	117	0.093		2.0	

Extraction Standards ng

4,4'-DDE, 13C12-	125	11.37	88	21-125	125
4,4'-DDD, 13C12-	125	12.06	65	5-150	125
4,4'-DDT, 13C12-	125	12.56	54	5-120	125

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S151-4TO6
ALS Sample ID L2148686-50
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.3 g
Percent Solid 52.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180912A38
Run Date 12-Sep-18 21:31
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2 Confirmation Reanalysis

Filename 6-180913A24
Run Date 13-Sep-18 08:16
Final Volume 1000 uL
Dilution Factor 50
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	14.8	0.91	J	19	10.84	18.0	0.57	J	19	
4,4'-DDE	11.37	58.7	1.2		19	11.37	69.0	0.80		19	
2,4'-DDD	11.55	339	0.81		19	11.54	353	0.62		19	
4,4'-DDD	12.06	887	1.1	M	19	12.05	971	1.0		19	
2,4'-DDT	12.11	38.0	1.2	M	19	12.11	49.4	0.97		19	
4,4'-DDT	12.56	1770	1.5		19	12.55	2750	2.3		19	

Extraction Standards ng

4,4'-DDE, 13C12-	125	11.37	112	21-125	125
4,4'-DDD, 13C12-	125	12.05	94	5-150	
4,4'-DDT, 13C12-	125	12.55	104	5-120	

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S151-6TO8	Sampling Date	14-Aug-18	g	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	L2148686-51	Extraction Date	28-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.49		
Analysis Type	Sample	Percent Solid	54.2%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1	Run 3
Filename	6-180912A39	6-180913A25
Run Date	12-Sep-18 21:52	13-Sep-18 08:36
Final Volume	1000 uL	1000 uL
Dilution Factor	20	500
Analysis Units	ng/g	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H	HRMS-6 HP5MSUSR163634H

		Ret.	Conc.	EDL	EMPC				Ret.	Conc.	EDL	EMPC		
Target Analytes		Time	ng / g	ng / g	Flags	ng / g	LQL		Time	ng / g	ng / g	Flags	ng / g	LQL
	2,4'-DDE	10.84	160	1.2			7.3		10.85	54.6	2.3	J		180
	4,4'-DDE	11.37	334	1.5			7.3		11.38	134	3.2	J		180
	2,4'-DDD	11.54	6940	1.8	E		7.3		11.55	5780	2.7			180
	4,4'-DDD	12.05	14300	0.89	E		7.3		12.06	11200	6.0	M		180
	2,4'-DDT	12.11	620	0.93			7.3		12.11	782	5.6	M		180
	4,4'-DDT	12.55	9830	2.4	E		7.3		12.56	6390	12			180
Extraction Standards	ng													
	4,4'-DDE, 13C12-	125	11.36	62	21-125									
	4,4'-DDD, 13C12-	125	12.05	149	5-150									
	4,4'-DDT, 13C12-	125	12.55	83	5-120									

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.

LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

M Indicates that a peak has been manually integrated.

U Indicates that this compound was not detected above the EDL.

E Indicates that this compound was detected above the calibrated range.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S151-8TO10	Sampling Date	14-Aug-18	g	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	L2148686-52	Extraction Date	28-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	6.32		
Analysis Type	Sample	Percent Solid	62.1%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information		Run 1	Run 3
Filename		6-180912A40	6-180913A26
Run Date		12-Sep-18 22:12	13-Sep-18 08:56
Final Volume		1000 uL	1000 uL
Dilution Factor		20	500
Analysis Units		ng/g	ng/g
Instrument - Column		HRMS-6 HP5MSUSR163634H	HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	Flags	EMPC		Ret.	Conc.	EDL	Flags	EMPC	
		Time	ng / g	ng / g		ng / g	LQL	Time	ng / g	ng / g		ng / g	LQL
2,4'-DDE		10.84	490	1.4		6.3		10.85	96.7	2.1	J	160	
4,4'-DDE		11.37	933	1.8		6.3		11.38	261	2.9		160	
2,4'-DDD		11.55	34900	2.3	E	6.3		11.55	25000	2.5		160	
4,4'-DDD		12.06	60600	0.65	E	6.3		12.06	38300	5.3	E	160	
2,4'-DDT		12.12	10300	0.68	E	6.3		12.12	7070	5.0		160	
4,4'-DDT		12.56	101000	1.7	E	6.3		12.56	47300	9.6	E	160	
Extraction Standards	ng												
4,4'-DDE, 13C12-	125	11.37	45	21-125									
4,4'-DDD, 13C12-	125	12.06	191	5-150									
4,4'-DDT, 13C12-	125	12.56	115	5-120									

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

U Indicates that this compound was not detected above the EDL.
E Indicates that this compound was detected above the calibrated range.
J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S151-10T012	Sampling Date	14-Aug-18	g	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	L2148686-53	Extraction Date	28-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	6.38		
Analysis Type	Sample	Percent Solid	62.2%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information		Run 1	Run 3
Filename		6-180912A41	6-180913A27
Run Date		12-Sep-18 22:32	13-Sep-18 09:16
Final Volume		1000 uL	1000 uL
Dilution Factor		20	500
Analysis Units		ng/g	ng/g
Instrument - Column		HRMS-6 HP5MSUSR163634H	HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC		Ret.	Conc.	EDL	EMPC	
		Time	ng / g	ng / g	Flags	LQL	Time	ng / g	ng / g	Flags	LQL
2,4'-DDE		10.85	233	0.67		6.3	10.84	83.3	1.7	J	160
4,4'-DDE		11.38	471	0.85		6.3	11.37	181	2.4		160
2,4'-DDD		11.55	13100	1.3	E	6.3	11.54	12600	2.8		160
4,4'-DDD		12.07	25900	0.48	M,E	6.3	12.05	21800	6.3	M	160
2,4'-DDT		12.10	1210	0.51	M	6.3	12.09	1730	5.9	M	160
4,4'-DDT		12.56	8860	2.0	E	6.3	12.55	5380	12		160
Extraction Standards	ng										
4,4'-DDE, 13C12-	125	11.37	75	21-125							
4,4'-DDD, 13C12-	125	12.06	220	5-150							
4,4'-DDT, 13C12-	125	12.56	90	5-120							

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
E	Indicates that this compound was detected above the calibrated range.
J	indicates that a target analyte was detected below the calibrated range.

EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure
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ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S150-0TO2	Sampling Date	14-Aug-18	g	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	L2148686-54	Extraction Date	28-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	4.82		
Analysis Type	Sample	Percent Solid	48.0%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information		Run 1	Run 3
Filename		6-180912A42	6-180913A28
Run Date		12-Sep-18 22:52	13-Sep-18 09:37
Final Volume		1000 uL	1000 uL
Dilution Factor		20	500
Analysis Units		ng/g	ng/g
Instrument - Column		HRMS-6 HP5MSUSR163634H	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC		Ret.	Conc.	EDL	EMPC	
	Time	ng / g	ng / g	Flags	LQL	Time	ng / g	ng / g	Flags	LQL
2,4'-DDE	10.85	6.36	0.47	J	8.3	10.85	7.02	2.4	J	210
4,4'-DDE	11.38	40.5	0.60		8.3	11.38	34.6	3.3	J	210
2,4'-DDD	11.54	257	0.63		8.3	11.55	187	2.6	J	210
4,4'-DDD	12.05	473	0.95		8.3	12.06	332	5.7		210
2,4'-DDT	12.11	159	0.99		8.3	12.11	119	5.4	J	210
4,4'-DDT	12.55	5940	1.6	E	8.3	12.56	3800	10		210
Extraction Standards	ng									
4,4'-DDE, 13C12-	125	11.37	123	21-125						
4,4'-DDD, 13C12-	125	12.04	104	5-150						
4,4'-DDT, 13C12-	125	12.54	92	5-120						

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

U Indicates that this compound was not detected above the EDL.
E Indicates that this compound was detected above the calibrated range.
J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S150-2T04
ALS Sample ID L2148686-55
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 28-Aug-18
Sample Size 5.18 g
Percent Solid 50.8%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information	Run 1	Run 2
Filename	6-180912A28	6-180913A19
Run Date	12-Sep-18 18:09	13-Sep-18 06:36
Final Volume	1000 uL	1000 uL
Dilution Factor	5	5
Analysis Units	ng/g	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC			Ret.	Conc.	EDL	EMPC		
	Time	ng / g	ng / g	Flags	ng / g	LQL	Time	ng / g	ng / g	Flags	ng / g	LQL
2,4'-DDE	10.86	4.17	0.066		1.9		10.85	3.88	0.028		1.9	
4,4'-DDE	11.39	33.9	0.084		1.9		11.37	34.4	0.038	M	1.9	
2,4'-DDD	11.56	118	0.068		1.9		11.55	103	0.033		1.9	
4,4'-DDD	12.07	308	0.13		1.9		12.06	294	0.064		1.9	
2,4'-DDT	12.13	244	0.14		1.9		12.11	234	0.060		1.9	
4,4'-DDT	12.57	938	0.30		1.9		12.56	975	0.15		1.9	
Extraction Standards	ng											
4,4'-DDE, 13C12-	125	11.38	79	21-125			11.37	84				
4,4'-DDD, 13C12-	125	12.06	48	5-150			12.05	65				
4,4'-DDT, 13C12-	125	12.56	33	5-120			12.55	44				

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.
 E Indicates that this compound was detected above the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name	PDI-SC-S150-4TO6	Sampling Date	14-Aug-18	g	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	L2148686-56	Extraction Date	28-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	4.91		
Analysis Type	Sample	Percent Solid	48.8%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information		Run 1	Run 3
Filename		6-180912A43	6-180913A29
Run Date		12-Sep-18 23:12	13-Sep-18 09:57
Final Volume		1000 uL	1000 uL
Dilution Factor		20	500
Analysis Units		ng/g	ng/g
Instrument - Column		HRMS-6 HP5MSUSR163634H	HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC			Ret.	Conc.	EDL	EMPC		
		Time	ng / g	ng / g	Flags	ng / g	LQL	Time	ng / g	ng / g	Flags	ng / g	LQL
2,4'-DDE		10.85	24.3	1.2			8.1	10.84	11.4	2.5	J		200
4,4'-DDE		11.38	128	1.5			8.1	11.37	57.6	3.5	J		200
2,4'-DDD		11.54	579	1.3			8.1	11.54	426	3.0			200
4,4'-DDD		12.05	1250	0.85			8.1	12.05	941	6.5			200
2,4'-DDT		12.11	506	0.88			8.1	12.11	364	6.1			200
4,4'-DDT		12.55	15500	1.8	E		8.1	12.55	9090	12			200
Extraction Standards		ng											
4,4'-DDE, 13C12-	125	11.37	48	21-125									
4,4'-DDD, 13C12-	125	12.05	91	5-150									
4,4'-DDT, 13C12-	125	12.55	63	5-120									

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

U Indicates that this compound was not detected above the EDL.
E Indicates that this compound was detected above the calibrated range.
J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S150-4TO6D

ALS Sample ID L2148686-57
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 29-Aug-18
 Sample Size 5.2 g
 Percent Solid 51.0%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180911B40
 Run Date 12-Sep-18 06:02
 Final Volume 1000 uL
 Dilution Factor 20
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	
		Time	ng / g	ng / g	Flags	ng / g LQL
2,4'-DDE		10.84	18.9	0.66		7.7
4,4'-DDE		11.37	74.3	0.84		7.7
2,4'-DDD		11.54	581	0.82		7.7
4,4'-DDD		12.06	1210	0.68		7.7
2,4'-DDT		12.10	25.2	0.69		7.7
4,4'-DDT		12.56	714	1.7		7.7
Extraction Standards		ng				
4,4'-DDE, 13C12-	125	11.37	49	21-125		
4,4'-DDD, 13C12-	125	12.05	68	5-150		
4,4'-DDT, 13C12-	125	12.55	41	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name Duplicate of PDI-SC-S150-4T06D
ALS Sample ID WG2856784-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix QC

Sampling Date n/a
Extraction Date 29-Aug-18
Sample Size 4.77 g
Percent Solid 47.4%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B41
Run Date 12-Sep-18 06:23
Final Volume 1000 uL
Dilution Factor 20
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	18.5	0.69			8.4
4,4'-DDE	11.38	99.8	0.88			8.4
2,4'-DDD	11.55	605	0.85			8.4
4,4'-DDD	12.06	1210	1.5			8.4
2,4'-DDT	12.12	546	1.5			8.4
4,4'-DDT	12.56	6790	2.8			8.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	85	21-125		
4,4'-DDD, 13C12-	125	12.06	63	5-150		
4,4'-DDT, 13C12-	125	12.56	46	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S150-6TO7.7
ALS Sample ID L2148686-58
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 5.66 g
Percent Solid 55.1%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180913A16
Run Date 13-Sep-18 05:35
Final Volume 1000 uL
Dilution Factor 80
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	23.9	0.47	J		28
4,4'-DDE	11.37	94.3	0.66	M		28
2,4'-DDD	11.54	1880	0.57			28
4,4'-DDD	12.05	3150	0.84			28
2,4'-DDT	12.11	162	0.79			28
4,4'-DDT	12.55	2720	1.8			28
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	135	21-125		
4,4'-DDD, 13C12-	125	12.05	131	5-150		
4,4'-DDT, 13C12-	125	12.55	102	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S136-6T07
ALS Sample ID L2148686-59
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 7.78 g
Percent Solid 75.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B43
Run Date 12-Sep-18 07:03
Final Volume 1000 uL
Dilution Factor 20
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		10.84	0.882	0.50	M,J	5.1
4,4'-DDE		11.37	3.90	0.64	J	5.1
2,4'-DDD		11.54	29.8	0.48		5.1
4,4'-DDD		12.05	72.3	0.81		5.1
2,4'-DDT		NotFnd	<0.81	0.81	U	5.1
4,4'-DDT		NotFnd	<1.8	1.8	U	5.1
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	98	21-125		
4,4'-DDD, 13C12-	125	12.05	68	5-150		
4,4'-DDT, 13C12-	125	12.55	45	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S136-7TO9
ALS Sample ID L2148686-60
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.69 g
Percent Solid 66.7%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B44
Run Date 12-Sep-18 07:23
Final Volume 1000 uL
Dilution Factor 20
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC	
	Time	ng / g	ng / g	Flags	LQL
2,4'-DDE	10.84	1.04	0.50	M,J	6.0
4,4'-DDE	11.38	2.85	0.63	J	6.0
2,4'-DDD	11.55	23.1	0.56		6.0
4,4'-DDD	12.06	46.5	0.62		6.0
2,4'-DDT	NotFnd	<0.63	0.63	U	6.0
4,4'-DDT	NotFnd	<1.3	1.3	U	6.0
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.37	75	21-125	
4,4'-DDD, 13C12-	125	12.05	80	5-150	
4,4'-DDT, 13C12-	125	12.55	50	5-120	

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.
 J indicates that a target analyte was detected below the calibrated range.
 EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S136-9TO11.3

ALS Sample ID L2148686-61
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 29-Aug-18
 Sample Size 7.27 g
 Percent Solid 71.6%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180911B45
 Run Date 12-Sep-18 07:43
 Final Volume 1000 uL
 Dilution Factor 20
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	4.92	0.26	J		5.5
4,4'-DDE	11.37	17.1	0.34	M		5.5
2,4'-DDD	11.54	205	0.32			5.5
4,4'-DDD	12.05	534	0.51			5.5
2,4'-DDT	12.11	20.3	0.52			5.5
4,4'-DDT	12.55	757	1.0			5.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	104	21-125		
4,4'-DDD, 13C12-	125	12.05	82	5-150		
4,4'-DDT, 13C12-	125	12.54	60	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S092-0TO2
ALS Sample ID L2148686-62
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.17 g
Percent Solid 61.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180911B18
Run Date 11-Sep-18 22:41
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		NotFnd	<0.40	0.40	U	1.6
4,4'-DDE		11.38	4.90	0.52		1.6
2,4'-DDD		11.56	6.68	0.52		1.6
4,4'-DDD		12.07	23.6	0.21		1.6
2,4'-DDT		NotFnd	<0.21	0.21	U	1.6
4,4'-DDT		12.56	6.09	0.64		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	24	21-125		
4,4'-DDD, 13C12-	125	12.06	66	5-150		
4,4'-DDT, 13C12-	125	12.56	32	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S092-2TO4

ALS Sample ID L2148686-63
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18

Extraction Date 29-Aug-18

Sample Size 5.57 g

Percent Solid 54.8%

Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180911B19
 Run Date 11-Sep-18 23:01
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Run 2

6-180913A23
 13-Sep-18 07:56
 1000 uL
 20
 ng/g
 HRMS-6 HP5MSUSR163634H

Target Analytes

Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	7.92	0.12		1.8						
4,4'-DDE	11.39	44.6	0.15		1.8						
2,4'-DDD						11.54	140	0.14		7.2	
4,4'-DDD						12.06	320	0.30		7.2	
2,4'-DDT						12.11	29.2	0.28		7.2	
4,4'-DDT						12.56	3050	0.58		7.2	

Extraction Standards ng

4,4'-DDE, 13C12-	125	11.38	118	21-125
4,4'-DDD, 13C12-	125			
4,4'-DDT, 13C12-	125			

12.05	94
12.55	74

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S092-4TO6
ALS Sample ID L2148686-64
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.27 g
Percent Solid 62.5%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B20
Run Date 11-Sep-18 23:21
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	0.600	0.11	J		1.6
4,4'-DDE	11.37	2.35	0.14			1.6
2,4'-DDD	11.55	28.6	0.14			1.6
4,4'-DDD	12.06	42.0	0.10			1.6
2,4'-DDT	NotFnd	<0.10	0.10	U		1.6
4,4'-DDT	12.56	44.3	0.22			1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	53	21-125		
4,4'-DDD, 13C12-	125	12.05	88	5-150		
4,4'-DDT, 13C12-	125	12.55	56	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S092-4TO6D

ALS Sample ID L2148686-65
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 29-Aug-18
 Sample Size 6.31 g
 Percent Solid 62.0%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180911B21
 Run Date 11-Sep-18 23:41
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	0.650	0.085	J		1.6
4,4'-DDE	11.37	2.86	0.11			1.6
2,4'-DDD	11.54	35.0	0.11			1.6
4,4'-DDD	12.05	59.0	0.17			1.6
2,4'-DDT	12.11	8.12	0.17			1.6
4,4'-DDT	12.55	6.09	0.30			1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	117	21-125		
4,4'-DDD, 13C12-	125	12.05	98	5-150		
4,4'-DDT, 13C12-	125	12.54	81	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

J indicates that a target analyte was detected below the calibrated range.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S092-6TO8

ALS Sample ID L2148686-66
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 14-Aug-18
 Extraction Date 29-Aug-18
 Sample Size 6.23 g
 Percent Solid 62.0%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180911B22
 Run Date 12-Sep-18 00:01
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.11	0.11	U		1.6
4,4'-DDE	NotFnd	<0.14	0.14	U		1.6
2,4'-DDD	11.55	6.82	0.14			1.6
4,4'-DDD	12.06	6.89	0.15			1.6
2,4'-DDT	NotFnd	<0.15	0.15	U		1.6
4,4'-DDT	12.56	3.01	0.26			1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	79	21-125		
4,4'-DDD, 13C12-	125	12.05	94	5-150		
4,4'-DDT, 13C12-	125	12.55	73	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S092-8TO9.9
ALS Sample ID L2148686-67
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.51 g
Percent Solid 63.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B23
Run Date 12-Sep-18 00:21
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.077	0.077	U		1.5
4,4'-DDE	NotFnd	<0.099	0.099	U		1.5
2,4'-DDD	NotFnd	<0.097	0.097	U		1.5
4,4'-DDD	NotFnd	<0.13	0.13	U		1.5
2,4'-DDT	NotFnd	<0.13	0.13	U		1.5
4,4'-DDT	NotFnd	<0.25	0.25	U		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	111	21-125		
4,4'-DDD, 13C12-	125	12.06	92	5-150		
4,4'-DDT, 13C12-	125	12.56	69	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S092-9.9TO10.9
ALS Sample ID L2148686-68
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.96 g
Percent Solid 68.3%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B24
Run Date 12-Sep-18 00:41
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		NotFnd	<0.51	0.51	U	1.4
4,4'-DDE		NotFnd	<0.65	0.65	U	1.4
2,4'-DDD		NotFnd	<0.67	0.67	U	1.4
4,4'-DDD		NotFnd	<0.24	0.24	U	1.4
2,4'-DDT		NotFnd	<0.24	0.24	U	1.4
4,4'-DDT		NotFnd	<0.71	0.71	U	1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	22	21-125		
4,4'-DDD, 13C12-	125	12.06	68	5-150		
4,4'-DDT, 13C12-	125	12.56	33	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S065-0TO2
ALS Sample ID L2148686-69
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 5.24 g
Percent Solid 51.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B25
Run Date 12-Sep-18 01:01
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret.	Conc.	EDL	EMPC		LQL
	Time	ng / g	ng / g	Flags	ng / g	
2,4'-DDE	NotFnd	<0.86	0.86	U		1.9
4,4'-DDE	11.37	<3.3	1.1	M,R	3.3	1.9
2,4'-DDD	11.54	3.22	1.2			1.9
4,4'-DDD	12.06	7.64	0.48			1.9
2,4'-DDT	NotFnd	<0.48	0.48	U		1.9
4,4'-DDT	NotFnd	<1.7	1.7	U		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	16	21-125		
4,4'-DDD, 13C12-	125	12.05	48	5-150		
4,4'-DDT, 13C12-	125	12.55	20	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S065-2TO4
ALS Sample ID L2148686-70
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 14-Aug-18
Extraction Date 29-Aug-18
Sample Size 5.66 g
Percent Solid 56.0%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B26
Run Date 12-Sep-18 01:21
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.55	0.55		U	1.8
4,4'-DDE	11.37	7.56	0.70			1.8
2,4'-DDD	11.54	5.87	0.66			1.8
4,4'-DDD	12.05	16.7	0.32			1.8
2,4'-DDT	NotFnd	<0.32	0.32		U	1.8
4,4'-DDT	NotFnd	<0.97	0.97		U	1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	18	21-125		
4,4'-DDD, 13C12-	125	12.05	47	5-150		
4,4'-DDT, 13C12-	125	12.55	21	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S256-2TO4D
ALS Sample ID L2148686-71
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.32 g
Percent Solid 61.8%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B27
Run Date 12-Sep-18 01:41
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.42	0.42	U		1.6
4,4'-DDE	11.38	1.71	0.53	M		1.6
2,4'-DDD	NotFnd	<0.52	0.52	U		1.6
4,4'-DDD	NotFnd	<0.25	0.25	U		1.6
2,4'-DDT	NotFnd	<0.25	0.25	U		1.6
4,4'-DDT	NotFnd	<0.79	0.79	U		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	21	21-125		
4,4'-DDD, 13C12-	125	12.06	55	5-150		
4,4'-DDT, 13C12-	125	12.55	25	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S256-4TO6
ALS Sample ID L2148686-72
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.62 g
Percent Solid 64.7%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B28
Run Date 12-Sep-18 02:01
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.39	0.39	U		1.5
4,4'-DDE	11.37	2.49	0.50	M		1.5
2,4'-DDD	NotFnd	<0.53	0.53	U		1.5
4,4'-DDD	12.06	1.68	0.25			1.5
2,4'-DDT	NotFnd	<0.25	0.25	U		1.5
4,4'-DDT	NotFnd	<0.69	0.69	U		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	20	21-125		
4,4'-DDD, 13C12-	125	12.05	52	5-150		
4,4'-DDT, 13C12-	125	12.55	26	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S256-6TO8
ALS Sample ID L2148686-73
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.19 g
Percent Solid 60.9%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180911B29
Run Date 12-Sep-18 02:21
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		NotFnd	<0.27	0.27	U	1.6
4,4'-DDE		11.37	2.62	0.35		1.6
2,4'-DDD		NotFnd	<0.29	0.29	U	1.6
4,4'-DDD		12.05	2.52	0.17		1.6
2,4'-DDT		NotFnd	<0.17	0.17	U	1.6
4,4'-DDT		NotFnd	<0.49	0.49	U	1.6
Extraction Standards		ng				
4,4'-DDE, 13C12-	125	11.36	25	21-125		
4,4'-DDD, 13C12-	125	12.05	53	5-150		
4,4'-DDT, 13C12-	125	12.54	27	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S256-8TO9.7
ALS Sample ID L2148686-74
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.14 g
Percent Solid 60.4%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B30
Run Date 12-Sep-18 02:41
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g Flags		
2,4'-DDE		10.85	<0.19	0.089 M,J,R	0.19	1.6
4,4'-DDE		11.38	3.57	0.11		1.6
2,4'-DDD		NotFnd	<0.099	0.099 U		1.6
4,4'-DDD		12.07	2.21	0.13		1.6
2,4'-DDT		NotFnd	<0.13	0.13 U		1.6
4,4'-DDT		NotFnd	<0.25	0.25 U		1.6
Extraction Standards ng						
4,4'-DDE, 13C12-	125	11.38	110	21-125		
4,4'-DDD, 13C12-	125	12.06	95	5-150		
4,4'-DDT, 13C12-	125	12.56	72	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the EDL.

J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S256-9.7TO10.7
ALS Sample ID L2148686-75
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 29-Aug-18
Sample Size 6.03 g
Percent Solid 59.4%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B31
Run Date 12-Sep-18 03:01
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.15	0.15	U		1.7
4,4'-DDE	11.37	2.06	0.19			1.7
2,4'-DDD	NotFnd	<0.24	0.24	U		1.7
4,4'-DDD	12.06	1.42	0.29	J		1.7
2,4'-DDT	NotFnd	<0.29	0.29	U		1.7
4,4'-DDT	NotFnd	<0.51	0.51	U		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	63	21-125		
4,4'-DDD, 13C12-	125	12.05	60	5-150		
4,4'-DDT, 13C12-	125	12.55	48	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-RB-SS-180816-1110
ALS Sample ID L2148686-76
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Water

Sampling Date 16-Aug-18
Extraction Date 20-Aug-18
Sample Size 1 L
Percent Solid n/a
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 10-Sep-2018

Run Information **Run 1**
Filename 6-180906B21
Run Date 06-Sep-18 23:53
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/L
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / L	ng / L	Flags	
2,4'-DDE		NotFnd	<0.024	0.024	U	10
4,4'-DDE		NotFnd	<0.032	0.032	U	10
2,4'-DDD		NotFnd	<0.032	0.032	U	10
4,4'-DDD		NotFnd	<0.065	0.065	U	10
2,4'-DDT		NotFnd	<0.062	0.062	U	10
4,4'-DDT		NotFnd	<0.13	0.13	U	10
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	40	21-125		
4,4'-DDD, 13C12-	125	12.05	75	5-150		
4,4'-DDT, 13C12-	125	12.55	63	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S053-0TO2
ALS Sample ID L2148686-77
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 29-Aug-18
Sample Size 5.6 g
Percent Solid 54.8%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180911B32
Run Date 12-Sep-18 03:21
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.13	0.13	U		1.8
4,4'-DDE	11.38	2.67	0.17			1.8
2,4'-DDD	11.55	2.02	0.16			1.8
4,4'-DDD	12.06	5.78	0.20			1.8
2,4'-DDT	NotFnd	<0.20	0.20	U		1.8
4,4'-DDT	NotFnd	<0.37	0.37	U		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	76	21-125		
4,4'-DDD, 13C12-	125	12.05	75	5-150		
4,4'-DDT, 13C12-	125	12.55	56	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S053-2TO4

ALS Sample ID L2148686-78
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 16-Aug-18
 Extraction Date 30-Aug-18
 Sample Size 5.8 g
 Percent Solid 56.3%
 Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information

Run 1

Filename 6-180913A31
 Run Date 13-Sep-18 10:51
 Final Volume 1000 uL
 Dilution Factor 5
 Analysis Units ng/g
 Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.86	2.24	0.040			1.7
4,4'-DDE	11.39	9.40	0.055			1.7
2,4'-DDD	11.56	14.9	0.052			1.7
4,4'-DDD	12.07	36.7	0.044			1.7
2,4'-DDT	12.12	2.31	0.041			1.7
4,4'-DDT	12.57	11.7	0.13			1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	16	21-125		
4,4'-DDD, 13C12-	125	12.06	31	5-150		
4,4'-DDT, 13C12-	125	12.56	16	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S053-4TO6
ALS Sample ID L2148686-79
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 30-Aug-18
Sample Size 6.37 g
Percent Solid 63.5%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180913A32
Run Date 13-Sep-18 11:07
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.84	0.629	0.034	J		1.6
4,4'-DDE	11.37	2.25	0.048			1.6
2,4'-DDD	11.54	4.34	0.040			1.6
4,4'-DDD	12.05	7.75	0.036	M		1.6
2,4'-DDT	12.09	0.417	0.034	M,J		1.6
4,4'-DDT	12.55	1.20	0.10	J,B		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.36	16	21-125		
4,4'-DDD, 13C12-	125	12.05	29	5-150		
4,4'-DDT, 13C12-	125	12.55	16	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M Indicates that a peak has been manually integrated.

J indicates that a target analyte was detected below the calibrated range.

B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S053-6TO8
ALS Sample ID L2148686-80
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 30-Aug-18
Sample Size 6.49 g
Percent Solid 64.6%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180913A33
Run Date 13-Sep-18 11:27
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.85	<0.014	0.0042	J,R	0.014	1.5
4,4'-DDE	11.37	0.0688	0.0059	J		1.5
2,4'-DDD	11.55	0.130	0.0048	J,B		1.5
4,4'-DDD	12.06	0.225	0.0091	J,B		1.5
2,4'-DDT	NotFnd	<0.0086	0.0086	U		1.5
4,4'-DDT	12.56	0.151	0.016	J,B		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	97	21-125		
4,4'-DDD, 13C12-	125	12.05	77	5-150		
4,4'-DDT, 13C12-	125	12.55	67	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U Indicates that this compound was not detected above the EDL.
J indicates that a target analyte was detected below the calibrated range.
R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S053-8TO10
ALS Sample ID L2148686-81
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 30-Aug-18
Sample Size 7.36 g
Percent Solid 73.3%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180913A34
Run Date 13-Sep-18 11:48
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	
		Time	ng / g	ng / g	Flags	LQL
2,4'-DDE		10.85	<0.017	0.0068	M,J,R	0.017 1.4
4,4'-DDE		11.38	0.0343	0.0095	M,J	1.4
2,4'-DDD		11.55	0.155	0.0088	J,B	1.4
4,4'-DDD		12.06	0.236	0.016	M,J,B	1.4
2,4'-DDT		NotFnd	<0.015	0.015	U	1.4
4,4'-DDT		12.56	0.282	0.033	J,B	1.4
Extraction Standards		ng				
4,4'-DDE, 13C12-	125	11.37	78	21-125		
4,4'-DDD, 13C12-	125	12.05	67	5-150		
4,4'-DDT, 13C12-	125	12.55	50	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.

 J indicates that a target analyte was detected below the calibrated range.
 R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
 B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.

 EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S053-10T012.4
ALS Sample ID L2148686-82
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 16-Aug-18
Extraction Date 30-Aug-18
Sample Size 6.46 g
Percent Solid 64.5%
Split Ratio 1

Approved:
Ella Gdyczynski
 --e-signature--
 13-Sep-2018

Run Information **Run 1**
Filename 6-180913A35
Run Date 13-Sep-18 12:08
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	LQL
		Time	ng / g	ng / g	Flags	
2,4'-DDE		10.85	0.0751	0.025	M,J,B	1.5
4,4'-DDE		11.38	0.140	0.034	J	1.5
2,4'-DDD		11.55	0.233	0.029	J,B	1.5
4,4'-DDD		12.06	0.400	0.027	M,J,B	1.5
2,4'-DDT		12.12	0.170	0.025	M,J	1.5
4,4'-DDT		12.56	0.820	0.084	J,B	1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	20	21-125		
4,4'-DDD, 13C12-	125	12.05	36	5-150		
4,4'-DDT, 13C12-	125	12.55	17	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
 LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
 M Indicates that a peak has been manually integrated.
 U Indicates that this compound was not detected above the EDL.
 J indicates that a target analyte was detected below the calibrated range.
 B Indicates that this target was detected in the blank at greater than 10% of the sample concentration.
 EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

SVOC DATA PACKAGE

SECTION 3: METHOD SUMMARY

OC Pesticide METHOD SUMMARY
Method EPA 1699

Introduction:

This summary is to provide ALSE Burlington OC pesticide method details in order to provide persons reviewing or validating this data package sufficient information to re-construct the sample calculation, data verification and review. It incorporates the analysis of organochlorine pesticides via EPA method 1699. Deviations from this reference method are documented in ALS Standard Operating Procedures (available upon request) and in this Method Summary.

Any deviations to what is listed herein or in the ALS Standard Operating Procedures would be listed in the project narrative.

To avoid the confusion and conflicting nomenclature within the performance based methods, we have defined the labeled standards in terms relating to the time of addition to the sample or extract. Therefore;

- Laboratory Surrogate (when provided/requested by the client) are added prior to sample extraction
- The Field or Sampling Standards (where used) are added prior to field sampling
- The Extraction Standards are added prior to extraction
- The GPC Recovery Standard is added (when used) prior to Gel Permeation Chromatographic cleanup
- The Clean-up Standards (where used) are added prior to extract clean-up
- The Injection Standards are added prior to extract injection.

Additional method information, such as Instrumental Descriptors, is documented in ALS Standard Operating Procedures and available upon request.

Calibration Standard Levels:

Seven levels of standard are available for calibration as listed in Table 1. These targets give a wide range of responses on the analytical instruments, thus it is expected that for any given target, either the lowest standard level(s) or the highest standard level(s) may be excluded due to poor response, poor linearity, or detector saturation. With seven levels of standard, it is expected that at least 5 points can be used for calibration for each target.

Table 1: Calibration Standards (conc in ng/mL)

		CS1	CS2	CS3	CS4	CS5	CS6	CS7
Natives	Hexachlorobutadiene	2	7.5	20	50	150	400	1200
	1,2,4,5-Tetrachlorobenzene	2	7.5	20	50	150	400	1200
	1,2,3,4-Tetrachlorobenzene	2	7.5	20	50	150	400	1200
	Pentachlorobenzene	2	7.5	20	50	150	400	1200
	Hexachlorobenzene	2	7.5	20	50	150	400	1200
	3,4,5,6-Tetrachloroveratrole	2	7.5	20	50	150	400	1200
	Pentachloroanisole	2	7.5	20	50	150	400	1200
	alpha-BHC	2	7.5	20	50	150	400	1200
	beta-BHC	2	7.5	20	50	150	400	1200
	gamma-BHC	2	7.5	20	50	150	400	1200
	delta-BHC	2	7.5	20	50	150	400	1200
	Pentachloronitrobenzene	2	7.5	20	50	150	400	1200
	Heptachlor	2	7.5	20	50	150	400	1200
	Aldrin	2	7.5	20	50	150	400	1200
	4,4'-DDNU	2	7.5	20	50	150	400	1200
	Dacthal	2	7.5	20	50	150	400	1200
	Chlorpyrifos	10	37.5	100	250	750	2000	6000
	Octachlorostyrene	2	7.5	20	50	150	400	1200
	Heptachlor Epoxide B	2	7.5	20	50	150	400	1200
	Heptachlor Epoxide A	2	7.5	20	50	150	400	1200
	Oxychlordane	2	7.5	20	50	150	400	1200
	4,4'-DDMU	2	7.5	20	50	150	400	1200
	trans-Chlordane	2	7.5	20	50	150	400	1200
	cis-Chlordane	2	7.5	20	50	150	400	1200
	trans-Nonachlor	2	7.5	20	50	150	400	1200
	Dieldrin	2	7.5	20	50	150	400	1200
	Endrin	2	7.5	20	50	150	400	1200
	cis-Nonachlor	2	7.5	20	50	150	400	1200
	Endosulfan I	2	7.5	20	50	150	400	1200
	Endosulfan II	2	7.5	20	50	150	400	1200
	Endosulfan Sulfate	2	7.5	20	50	150	400	1200
	24'-DDE	2	7.5	20	50	150	400	1200
	44'-DDE	2	7.5	20	50	150	400	1200
	24'-DDD	2	7.5	20	50	150	400	1200
	44'-DDD	2	7.5	20	50	150	400	1200
	24'-DDT	2	7.5	20	50	150	400	1200
	44'-DDT	2	7.5	20	50	150	400	1200
	Endrin Aldehyde	2	7.5	20	50	150	400	1200
	Endrin Ketone	2	7.5	20	50	150	400	1200
	Methoxychlor	2	7.5	20	50	150	400	1200
	Dicofol	20	75	200	500	1500	4000	12000
	Mirex	2	7.5	20	50	150	400	1200
	Parlar-26	2	7.5	20	50	150	400	1200
	Parlar-50	2	7.5	20	50	150	400	1200
	Parlar-62	2	7.5	20	50	150	400	1200

Laboratory Surrogate	1,3-Dibromobenzene	20	20	20	20	20	20	20
	Endrin Ketone	2	7.5	20	50	150	400	1200
Field Surrogate	1,3,5-Tribromobenzene	20	20	20	20	20	20	20
	1,2,4,5-Tetrabromobenzene	20	20	20	20	20	20	20
	delta-BHC	2	7.5	20	50	150	400	1200
GPC Recovery Standard	13C12-PCB-133	100	100	100	100	100	100	100
Extraction Standard	13C6-Pentachlorobenzene	250	250	250	250	250	250	250
	13C6-Hexachlorobenzene	250	250	250	250	250	250	250
	13C6-alpha-BHC	250	250	250	250	250	250	250
	d6-gamma-BHC	250	250	250	250	250	250	250
	13C10-Heptachlor	250	250	250	250	250	250	250
	13C10-Oxychlorane	250	250	250	250	250	250	250
	13C10-trans-Nonachlor	250	250	250	250	250	250	250
	13C12-Dieldrin	250	250	250	250	250	250	250
	13C12-Endrin	250	250	250	250	250	250	250
	13C9-Endosulfan-II	250	250	250	250	250	250	250
	13C12-44'-DDE	250	250	250	250	250	250	250
	13C12-44'-DDD	250	250	250	250	250	250	250
	13C12-44'-DDT	250	250	250	250	250	250	250
	d6-Methoxychlor	250	250	250	250	250	250	250
	13C10-Mirex	250	250	250	250	250	250	250
Injection Standard	13C12-PCB-9	100	100	100	100	100	100	100
	13C12-PCB-52	100	100	100	100	100	100	100
	13C12-PCB-101	100	100	100	100	100	100	100

Calibration and Quality Control Limits

The calibration and QC Sample control limits are presented in Table 2 below. For the lowest standard used for initial calibration, and for each calibration verification CS3, the signal to noise ratio for each ion for both labelled and non-labelled analytes must be greater than or equal to 10:1

		Calibration		Samples and QC Samples	
		Initial Cal. %RSD	Cal. Ver. %Exp	LCS % Rec	Samples % Rec
Natives	24'-DDE	35	75-125	50-120	
	44'-DDE	20	75-125	50-120	
	24'-DDD	35	75-125	42-120	
	44'-DDD	20	75-125	42-120	
	24'-DDT	35	75-125	50-120	
	44'-DDT	20	75-125	50-120	
Extraction Standards	13C12-44'-DDE	35	70-130	21-125	21-125
	13C12-44'-DDD	35	70-130	13-200	5-150
	13C12-44'-DDT	35	70-130	13-200	5-120

Additional Continuing Calibration Details:

After initial calibration is established, a CS4 standard is injected as a Continuing Calibration Verification (CCV) at the beginning of every 12 hour shift in which samples are analyzed. If the following performance criteria are met, analysis of samples may proceed:

- Ion abundance ratios are within their respective theoretical limits (see Table 3)
- All targets have a s/n ratio of at least 10:1
- The RT of each analyte is within 15 seconds of that in the initial calibration
- Endin and DDT breakdown is less than 20% (see Section 5.2.4.2)
- The %Diff is within the CCV limits (see Table 2)

If these performance criteria are not met, GC maintenance is performed or the system is adjusted and a new CCV is injected, or a new initial calibration is run.

Mid-run Calibration Verification:

While the EPA 1699 does not require a post-run calibration verification standard to be run, it is recognized that responses and/or relative responses of some targets may change significantly during HRMS analysis due to sample related contamination of GC or MS components. This problem is compounded by chemical dissimilarities between some targets and their quantification reference standards in the case of internal standard quantification. Enhanced quantification and a measure of confidence in sample results obtained during an analytical shift can be attained by injecting a CS4 calibration verification (VER) standard in the middle of, and at the end of a 12-hour run, and quantifying samples against the average of bracketing calibration standards where improved results would be achieved.

a) Mid-Run VER:

If this analysis meets the performance criteria for a pre-run CCV, then all of the samples preceding the mid-run VER can be quantified vs. the initial calibration, and analysis can proceed. If the mid-run VER does not meet pre-run CCV criteria, the preceding samples can be quantified vs. bracketing calibration runs (using the pre-run CCV and mid-run VER as a two-point calibration) and analysis can proceed, provided that the following criteria are met:

- Ion abundance ratios are within their respective theoretical limits (see Table 1) or within 15% of the ratios in the pre-run CCV
- All targets have a s/n ratio of at least 10:1
- The RT of each analyte is within 15 seconds of that in the initial calibration
- Endin and DDT breakdown is less than 20%
- The %RPD of the mid-run VER vs. the pre-run CCV meets the CCV %Diff limits (See Table 2)

If the mid-run VER does not meet the above criteria either, analysis cannot continue without corrective action (samples analyzed after the mid-run VER in an automated sequence must be re-analyzed). The samples preceding the failing mid-run VER may be flagged and reported, but must be assessed for impact on data quality:

- If a failing native target is present in any of the preceding samples above the Method Detection Limit (or above the client's lower required Detection Limit, if known), that sample must be re-analyzed for that target.
- If a failing native target's Estimated Detection Limit is above the Method Detection Limit (or above the client's lower required Detection Limit, if known) due to deterioration of system performance, that sample must be re-analyzed for that target.

a) Post-Run VER:

If this analysis meets the performance criteria for a pre-run CCV, then all of the samples preceding the post-run VER can be quantified vs. the initial calibration. If the post-run VER does not meet pre-run CCV criteria, the preceding samples can be quantified vs. bracketing calibration runs (using the post-run VER and mid-run VER as a two-point calibration) provided that the following criteria are met:

- Ion abundance ratios are within their respective theoretical limits (see Table 1) or within 15% of the ratios in the mid-run CCV
- All targets have a s/n ratio of at least 10:1
- The RT of each analyte is within 15 seconds of that in the initial calibration
- Endin and DDT breakdown is less than 20%
- The %RPD of the post-run VER vs. the mid-run VER meets the CCV %Diff limits (See Table 2)

If the post-run VER does not meet the above criteria either, the samples preceding the failing post-run VER may be flagged and reported, but must be assessed for impact on data quality:

- If a failing native target is present in any of the preceding samples above the Method Detection Limit (or above the client's lower required Detection Limit, if known), that sample must be re-analyzed for that target.
- If a failing native target's Estimated Detection Limit is above the Method Detection Limit (or above the client's lower required Detection Limit, if known) due to deterioration of system performance, that sample must be re-analyzed for that target.

Reporting Limits:

Unless indicated in the otherwise, native target data is reported down to 2.5:1 signal to noise for each isomer grouping for each extract injection. This is consistent to SW846 8290 defined protocols (i.e. EDL or Estimated Detection Limit) and is commonly applied throughout the industry to any and all performance based HRMS methods.

Method Blank:

The method blank levels must be below the response to the lowest calibration standard used for initial calibration.

MS/MSD (where required):

The % relative difference between the MS and MSD spike recoveries should be less than or equal to 20%.

Instrument/Run Performance Criteria:

a) Chromatographic Performance

For the DB-5 column, 44'-DDT and 24'-DDT (or the labelled analogues) must be uniquely resolved to a valley height of less than 60% of the shorter of the two peaks.

b) DDT and Endrin Breakdown

A custom standard (HROCP-GC_BD#1) is injected to measure the breakdown of endrin and DDT during the run. This standard must be injected at the beginning and end of each 12 hour shift, and it is also recommended that it be injected along with the mid-run CCV where used. This standard contains 13C12-4,4'-DDT, 13C12-endrin, and native endrin, endrin aldehyde and endrin ketone.

- For measurement of DDT breakdown, measure the concentration for 13C12-44'-DDE, 13C12-44'-DDD and 13C12-44'-DDT (the labelled DDT is part of the standard, and the labelled DDE and DDD are breakdown products). Calculate breakdown using the following formula:

13C12-44'-DDT % Breakdown =

$$\frac{(\text{concentration of 13C12-44'-DDD} + \text{concentration of 13C12-44'-DDE})}{\text{concentration of 13C12-44'-DDT}} \times 100\%$$

labelled DDT = part of standard; labelled DDE and DDD = breakdown products

- Additionally, measurement of endrin breakdown can be performed. For measurement of endrin breakdown, measure the concentration of endrin, endrin aldehyde, and endrin ketone (these natives are quantified by isotope dilution vs. the 13C12-endrin). Calculate breakdown using the following formula:

Endrin % Breakdown =

$$\frac{(\text{concentration of endrin aldehyde} + \text{concentration of endrin ketone})}{\text{concentration of endrin}} \times 100\%$$

If the breakdown of endrin and/or DDT exceeds 20% in a standard, the targets are decomposing on the inlet or column, and remedial action must be taken (inlet maintenance and trimming of the analytical column) before any valid sample data can be produced. If the breakdown of DDT or endrin in a sample exceeds 20% and there is that native in the sample above the MDL, that sample will have to be reanalyzed for that target (further cleanup or dilution of that sample is recommended before reanalysis).

Breakdown exceedences can be ignored under the following circumstances:

- Where the endrin breakdown fails but DDT breakdown passes and where DDT and/or its metabolites are the only targets.
- Where the DDT breakdown fails but endrin breakdown passes and where endrin and/or its metabolites are the only targets.
- For the determination of other pesticide targets (i.e. non-DDT and non-Endrin and metabolite targets) which have a corresponding labelled extraction/internal standard of exactly the same isomer.

c) Mass Resolution:

At the beginning of and just following the end of each 12 hour run sequence, the instrument must be checked to demonstrate a resolution of 10,000 for each quantification window.

The maximum time between scans within a descriptor is 1 second.

Lock mass deviations to the average response must be less than or equal 20%.

Laboratory Duplicates:

The % relative difference between duplicates should be less than or equal to 25% but only where the response is greater than the low calibration standard.

Analyte Identification Criteria:

Ion Ratio Criteria

For all compounds, a pair of ions with a specific isotopic ratio are being monitored. To have a confirmed positive response to a native or labelled OCP, that ratio must be within the theoretical limits in Table 1, or within 15% of the observed values on the most recent CS4 analysis.

Signal to Noise Criteria

The signal to noise ratio for each quantification and confirmation ion for labelled and non-labelled analytes must be greater than or equal to 10:1 for the initial calibration CS1 and for each calibration verification CS4. For positive identification of a native target in a sample, both ions must have a s/n ratio exceeding 2.5:1.

Matched RT on Peak Maxima

The retention time (RT) of the peak maxima for each pair of quantification ions must be no more than 2 seconds (i.e. 2 scans) difference.

Expected Retention Time (RT)

The peak must be at the expected RT

- within -1/+3 seconds of the labelled standard for natives with their own ¹³C labelled standard
- within +/- 0.008 RRT units of the RRT in the most recent CS4 analysis for targets with their own ²H labelled standard
- within +/- 0.010 RRT units of the RRT in the most recent CS4 analysis for targets without their own labelled standard

As per EPA 1699 Sections 16.5-16.6, it is possible that not all of the positive ID criteria are met. If a pesticide is deemed to be present in this case by the experienced spectroscopist, the result may be flagged as "this result is unconfirmed and must not be used for permitting or regulatory compliance purposes". If the ion abundance ratio criteria are not met, the result must also include an "R" flag.

Table 3: Monitored Masses, Ion Abundance Ratios, and Quantitation/RT References

Entry	Native Standard	Quantification Method	Quantification vs. Entry #:	Quantitation Ion	Confirmation Ion	Theoretical Ion Abundance ratio	Ion Abundance Ratio Tolerance
1	24'-DDE	rel_int	7	246.0003	247.9974	1.56	0.25
2	44'-DDE	rel_int	7	246.0003	247.9974	1.56	0.25
3	24'-DDD	rel_int	8	235.0082	237.0053	1.56	0.25
4	44'-DDD	rel_int	8	235.0082	237.0053	1.56	0.25
5	24'-DDT	rel_int	9	235.0082	237.0053	1.56	0.25
6	44'-DDT	rel_int	9	235.0082	237.0053	1.56	0.25
Extraction Standard							
7	13C12-44'-DDE	rel_int	10	258.0405	260.0376	1.56	0.25
8	13C12-44'-DDD	rel_int	10	247.0483	249.0454	1.56	0.25
9	13C12-44'-DDT	rel_int	10	247.0483	249.0454	1.56	0.25
Injection Standard							
10	13C12-PCB-52	abs_int	-	301.9625	303.9597	0.77	0.15

Data Calculations:

a) Analyte Concentrations:

The relative response factor of each target relative to the standard against which it is to be calculated is determined using the area responses of both quantification ions via equation 9.1.

In cases where a native target is calculated against an exact labelled analogue, the quantification will be considered to be by isotope dilution. In other cases, the quantification will be considered to be by internal standard.

$$\text{RRF} = \frac{(A1_t + A2_t) C_s}{(A1_s + A2_s) C_t} \quad \text{Equ. 9.1}$$

Where,

$A1_t + A2_t$ = The areas of the two quantification ions for the target analyte

$A1_s + A2_s$ = The areas of the two quantification ions for the labelled compound against which the target analyte will be calculated.

C_t = The concentration in the calibration standard of the target analyte.

C_s = The concentration in the calibration standard of the labelled compound against which the target will be calculated.

For all analytes to be quantified and from the initial calibration series of standard injections, a table of RRFs is prepared. The relative standard deviation (%RSD, or the coefficient of variance) is checked to confirm that appropriate method criteria has been met as listed in Table 3. The average of the five or six levels of for each analyte, RRF_{av} is applied for quantification of samples according to Equations 9.2 and 9.3 below.

$$\text{Amount in sample (ng)} = \frac{(A1_n + A2_n) Q_l}{(A1_l + A2_l) (\text{RRF}_{av})} \quad \text{Equ. 9.2}$$

$$\text{Concentration in sample (ng/g or ng/L)} = \frac{(A1_n + A2_n) Q_l}{(A1_l + A2_l) (\text{RRF}_{av}) (W_s)} \quad \text{Equ. 9.3}$$

Where,

Q_l = The amount (pg) of labelled compound added to the sample

W_s = The weight (g) or volume (l) of sample

b) Extraction, Clean-up, and Sampling Standard Recovery Calculation:

The extraction, clean-up, and sampling standard recoveries are determined by Equation 9.4 below.

$$\% \text{ Recovery} = \frac{(\text{Amount in sample})}{(\text{Amount added to sample})} \times 100 \quad \text{Equ. 9.4}$$

c) Estimated Detection Limit

$$\text{EDL} = \frac{2.5 \times H_x \times Q_{\text{es}}}{H_{\text{es}} \times W \times \text{RFF}_{\text{av}}} \quad \text{Equ. 9.5}$$

Where,

EDL = estimated detection limit for native targets

H_x = sum of the height of the noise level for each quantification ions for the unlabeled target

H_{es} = Sum of the heights of responses of both quantification ions for the labelled extraction standard.

W = weight of volume of sample

RFF_{av} = average relative response factor

Q_{es} = Amount of extraction standard added

Chromatogram Annotation Codes

All manually integrated peaks are expanded and reprinted with the following annotations:

* Analyst Initials	AA
* Date	YYMMDD
* integration code	CC

The Syntax is:

Example:

AAYYMMDDCC

SK111220MB

Code	Mnemonic	Description
MB	Manual Baseline	The peak was manually integrated because the initial baseline was determined incorrectly by the software
MS	Manual Split	The peak was manually integrated because the peak was incorrectly or not split by the software
MJ/MC	Manual Join/Manual Combine	The peak was manually integrated because the peak was split by the software and the peak should be integrated as a single peak
MA	Manual Add	The peak was manually integrated because the signal:noise ratio was judged to be >2.5
MD	Manual Delete	The peak was excluded because the signal:noise ratio was judged to be <2.5
MX	Manual Exclude	The peak was excluded due to an interference
MT	Manual Time	The peak retention time was manually chosen

The following explanatory annotation codes may appear on the chromatograms of peaks that have been reviewed:

Code	Mnemonic	Description
+	Detected Peak	A peak was detected at this mass and retention time that was above 2.5:1 signal to noise
<	Below Detection Limit	The signal at this mass and retention time was below 2.5:1 signal to noise
EMPC	Estimated Maximum Possible Concentration	The signal at this mass and retention time is an interference such that the target compound could not be confirmed
X-RT	Not Detected due to Retention Time non-conformance	The signal at this retention time could not be used to positively identify the target compound because of retention time non-conformance (apex of quantification and confirmation ions do not maximize within the same two seconds, or the retention time of the peak does not fall within the expected range with respect to its labeled analogue)
X-LOC	Not Detected due to interference from a higher level of chlorination	The signal at this retention time is attributable to a fragment from a co-eluting compound at a higher level of chlorination, and cannot be used to positively identify the target. The result is expressed as an Estimated Maximum Possible Concentration (EMPC)
X-DPE	Not Detected due to diphenyl ether interference	The signal at this retention time is attributable to interference from a chlorinated diphenyl ether, and cannot be used to positively identify the target. The result is expressed as an Estimated Maximum Possible Concentration (EMPC)
X-IF	Not Detected due to interference	The signal at this retention time is attributable to a co-eluting interference, and cannot be used to positively identify the target. The result is expressed as an Estimated Maximum Possible Concentration (EMPC)

SVOC DATA PACKAGE

SECTION 4: CALIBRATION DATA

Including:

for Multi-Point Calibration(s)

- Multi-Point Calibration Tables
- Individual Quantitation Reports

for Continuing Calibration(s)

- Individual Quantitation Reports

ALS Life sciences

Calibration Summary Report

Calibration Level	Filename	Run Date
CS-1	6-180906B09	06-Sep-2018 19:52
CS-2	6-180906B08	06-Sep-2018 19:31
CS-3	6-180906B07	06-Sep-2018 19:11
CS-4	6-180906B06	06-Sep-2018 18:51
CS-5	6-180906B05	06-Sep-2018 18:31
CS-6	6-180906B04	06-Sep-2018 18:11

Approved: *Ella Gdyczynski*
 --e-signature--
 10-Sep-2018

Target Analytes	Relative Response Factors						Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5	CS-6		
2,4'-DDE	1.336	1.486	1.346	1.473	1.542	1.530	1.452	6%
4,4'-DDE	0.990	1.192	1.048	1.130	1.165	1.120	1.108	7%
2,4'-DDD	1.158	1.325	1.162	1.304	1.330	1.288	1.261	6%
4,4'-DDD	0.980	1.153	1.015	1.093	1.143	1.123	1.085	7%
2,4'-DDT	1.007	1.144	1.096	1.187	1.214	1.173	1.137	7%
4,4'-DDT	0.909	1.051	0.942	1.029	1.092	1.043	1.011	7%
Extraction Standards								
4,4'-DDE, 13C12-	0.692	0.674	0.679	0.666	0.673	0.677	0.677	1%
4,4'-DDD, 13C12-	0.216	0.201	0.196	0.186	0.186	0.189	0.196	6%
4,4'-DDT, 13C12-	0.132	0.122	0.118	0.114	0.109	0.108	0.117	8%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-073**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180906B09
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 06-Sep-2018 19:52

Approved: *Ella Gdyczynski*
 --e-signature--
 10-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.68	2.00	7.43E+04	1.336
4,4'-DDE	11.38	1.50	2.00	5.50E+04	0.990
2,4'-DDD	11.55	1.78	2.00	2.01E+04	1.158
4,4'-DDD	12.06	1.65	2.00	1.71E+04	0.980
2,4'-DDT	12.11	1.59	2.00	1.07E+04	1.007
4,4'-DDT	12.56	1.73	2.00	9.63E+03	0.909
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.54	250.00	6.95E+06	0.692
4,4'-DDD, 13C12-	12.05	1.57	250.00	2.18E+06	0.216
4,4'-DDT, 13C12-	12.55	1.57	250.00	1.33E+06	0.132

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-073**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180906B08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 06-Sep-2018 19:31

Approved: *Ella Gdyczynski*
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 10-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.58	7.50	3.04E+05	1.486
4,4'-DDE	11.37	1.57	7.50	2.44E+05	1.192
2,4'-DDD	11.55	1.68	7.50	8.08E+04	1.325
4,4'-DDD	12.06	1.66	7.50	7.03E+04	1.153
2,4'-DDT	12.11	1.57	7.50	4.24E+04	1.144
4,4'-DDT	12.55	1.62	7.50	3.90E+04	1.051
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.54	250.00	6.82E+06	0.674
4,4'-DDD, 13C12-	12.05	1.58	250.00	2.03E+06	0.201
4,4'-DDT, 13C12-	12.55	1.55	250.00	1.24E+06	0.122

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-073**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180906B07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 06-Sep-2018 19:11

Approved: *Ella Gdyczynski*
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 10-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.56	20.00	7.28E+05	1.346
4,4'-DDE	11.38	1.56	20.00	5.67E+05	1.048
2,4'-DDD	11.55	1.70	20.00	1.82E+05	1.162
4,4'-DDD	12.07	1.75	20.00	1.59E+05	1.015
2,4'-DDT	12.12	1.58	20.00	1.03E+05	1.096
4,4'-DDT	12.56	1.67	20.00	8.88E+04	0.942
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.54	250.00	6.76E+06	0.679
4,4'-DDD, 13C12-	12.06	1.56	250.00	1.96E+06	0.196
4,4'-DDT, 13C12-	12.56	1.58	250.00	1.18E+06	0.118

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-073**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180906B06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 06-Sep-2018 18:51

Approved: *Ella Gdyczynski*
 --e-signature--
 10-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.56	50.00	1.62E+06	1.473
4,4'-DDE	11.38	1.57	50.00	1.24E+06	1.130
2,4'-DDD	11.55	1.64	50.00	4.00E+05	1.304
4,4'-DDD	12.06	1.61	50.00	3.35E+05	1.093
2,4'-DDT	12.12	1.65	50.00	2.23E+05	1.187
4,4'-DDT	12.56	1.70	50.00	1.93E+05	1.029
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.54	250.00	5.49E+06	0.666
4,4'-DDD, 13C12-	12.05	1.57	250.00	1.53E+06	0.186
4,4'-DDT, 13C12-	12.55	1.58	250.00	9.39E+05	0.114

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-073**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180906B05
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 06-Sep-2018 18:31

Approved: *Ella Gdyczynski*
 --e-signature--
 10-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.86	1.54	150.00	6.51E+06	1.542
4,4'-DDE	11.39	1.56	150.00	4.92E+06	1.165
2,4'-DDD	11.56	1.62	150.00	1.56E+06	1.330
4,4'-DDD	12.07	1.61	150.00	1.34E+06	1.143
2,4'-DDT	12.13	1.66	150.00	8.30E+05	1.214
4,4'-DDT	12.57	1.63	150.00	7.46E+05	1.092
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.55	250.00	7.04E+06	0.673
4,4'-DDD, 13C12-	12.06	1.57	250.00	1.95E+06	0.186
4,4'-DDT, 13C12-	12.56	1.56	250.00	1.14E+06	0.109

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-073**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180906B04
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 06-Sep-2018 18:11

Approved: *Ella Gdyczynski*
 --e-signature--
 10-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.55	400.00	1.74E+07	1.530
4,4'-DDE	11.38	1.54	400.00	1.28E+07	1.120
2,4'-DDD	11.55	1.62	400.00	4.09E+06	1.288
4,4'-DDD	12.06	1.61	400.00	3.56E+06	1.123
2,4'-DDT	12.12	1.61	400.00	2.13E+06	1.173
4,4'-DDT	12.56	1.61	400.00	1.89E+06	1.043
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.53	250.00	7.11E+06	0.677
4,4'-DDD, 13C12-	12.06	1.57	250.00	1.98E+06	0.189
4,4'-DDT, 13C12-	12.56	1.56	250.00	1.14E+06	0.108

ALS Life sciences

Calibration Summary Report

Calibration Level	Filename	Run Date
CS-1	6-180908B08	08-Sep-2018 16:06
CS-2	6-180908B07	08-Sep-2018 15:45
CS-3	6-180908B06	08-Sep-2018 15:25
CS-4	6-180908B05	08-Sep-2018 15:05
CS-5	6-180908B04	08-Sep-2018 14:45
CS-6	6-180908B03	08-Sep-2018 14:25

Approved: *Ella Gdyczynski*
 --e-signature--
 12-Sep-2018

Target Analytes	Relative Response Factors							Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5	CS-6	CS-7		
2,4'-DDE	1.390	1.580	1.415	1.535	1.634	1.600	0.000	1.526	7%
4,4'-DDE	1.048	1.198	1.079	1.148	1.192	1.150	0.000	1.136	5%
2,4'-DDD	1.212	1.343	1.244	1.335	1.380	1.341	0.000	1.309	5%
4,4'-DDD	1.084	1.170	1.069	1.141	1.190	1.147	0.000	1.134	4%
2,4'-DDT	1.269	1.473	1.297	1.361	1.381	1.353	0.000	1.356	5%
4,4'-DDT	0.984	1.103	0.983	1.046	1.087	1.069	0.000	1.045	5%
Extraction Standards									
4,4'-DDE, 13C12-	0.944	0.982	0.981	0.933	0.953	0.962	0.000	0.959	2%
4,4'-DDD, 13C12-	0.659	0.686	0.653	0.608	0.614	0.660	0.000	0.647	5%
4,4'-DDT, 13C12-	0.379	0.389	0.374	0.340	0.331	0.330	0.000	0.357	7%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-074**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180908B08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 08-Sep-2018 16:06

Approved: *Ella Gdyczynski*
 --e-signature--
 12-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.50	2.00	9.30E+04	1.390
4,4'-DDE	11.38	1.68	2.00	7.02E+04	1.048
2,4'-DDD	11.55	1.56	2.00	5.66E+04	1.212
4,4'-DDD	12.07	1.75	2.00	5.07E+04	1.084
2,4'-DDT	12.12	1.39	2.00	3.42E+04	1.269
4,4'-DDT	12.56	1.49	2.00	2.65E+04	0.984
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.55	250.00	8.37E+06	0.944
4,4'-DDD, 13C12-	12.06	1.59	250.00	5.84E+06	0.659
4,4'-DDT, 13C12-	12.56	1.58	250.00	3.37E+06	0.379
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.82	100.00	3.55E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-074**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180908B07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 08-Sep-2018 15:45

Approved: *Ella Gdyczynski*
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 12-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.58	7.50	4.15E+05	1.580
4,4'-DDE	11.37	1.62	7.50	3.15E+05	1.198
2,4'-DDD	11.54	1.64	7.50	2.46E+05	1.343
4,4'-DDD	12.05	1.64	7.50	2.15E+05	1.170
2,4'-DDT	12.11	1.68	7.50	1.53E+05	1.473
4,4'-DDT	12.55	1.62	7.50	1.15E+05	1.103
Extraction Standards					
4,4'-DDE, 13C12-	11.36	1.56	250.00	8.75E+06	0.982
4,4'-DDD, 13C12-	12.05	1.57	250.00	6.12E+06	0.686
4,4'-DDT, 13C12-	12.55	1.58	250.00	3.47E+06	0.389
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.49	0.80	100.00	3.56E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-074**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180908B06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 08-Sep-2018 15:25

Approved: *Ella Gdyczynski*
 --e-signature--
 12-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.58	20.00	9.84E+05	1.415
4,4'-DDE	11.37	1.57	20.00	7.51E+05	1.079
2,4'-DDD	11.54	1.62	20.00	5.77E+05	1.244
4,4'-DDD	12.06	1.69	20.00	4.95E+05	1.069
2,4'-DDT	12.11	1.49	20.00	3.44E+05	1.297
4,4'-DDT	12.55	1.64	20.00	2.61E+05	0.983
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.55	250.00	8.69E+06	0.981
4,4'-DDD, 13C12-	12.05	1.57	250.00	5.79E+06	0.653
4,4'-DDT, 13C12-	12.55	1.59	250.00	3.31E+06	0.374
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.81	100.00	3.55E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-074**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180908B05
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 08-Sep-2018 15:05

Approved: *Ella Gdyczynski*
 --e-signature--
 12-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.55	50.00	2.45E+06	1.535
4,4'-DDE	11.38	1.54	50.00	1.83E+06	1.148
2,4'-DDD	11.55	1.63	50.00	1.39E+06	1.335
4,4'-DDD	12.06	1.65	50.00	1.19E+06	1.141
2,4'-DDT	12.11	1.68	50.00	7.92E+05	1.361
4,4'-DDT	12.56	1.61	50.00	6.08E+05	1.046
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.55	250.00	7.98E+06	0.933
4,4'-DDD, 13C12-	12.05	1.59	250.00	5.20E+06	0.608
4,4'-DDT, 13C12-	12.55	1.58	250.00	2.91E+06	0.340
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.81	100.00	3.42E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-074**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180908B04
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 08-Sep-2018 14:45

Approved: *Ella Gdyczynski*
 --e-signature--
 12-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.56	150.00	7.95E+06	1.634
4,4'-DDE	11.38	1.57	150.00	5.80E+06	1.192
2,4'-DDD	11.56	1.62	150.00	4.33E+06	1.380
4,4'-DDD	12.07	1.62	150.00	3.73E+06	1.190
2,4'-DDT	12.12	1.63	150.00	2.34E+06	1.381
4,4'-DDT	12.57	1.59	150.00	1.84E+06	1.087
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.58	250.00	8.11E+06	0.953
4,4'-DDD, 13C12-	12.06	1.59	250.00	5.23E+06	0.614
4,4'-DDT, 13C12-	12.56	1.59	250.00	2.82E+06	0.331
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.79	100.00	3.41E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-074**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180908B03
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 08-Sep-2018 14:25

Approved: *Ella Gdyczynski*
 --e-signature--
 12-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.56	400.00	2.48E+07	1.600
4,4'-DDE	11.38	1.55	400.00	1.78E+07	1.150
2,4'-DDD	11.55	1.63	400.00	1.43E+07	1.341
4,4'-DDD	12.06	1.63	400.00	1.22E+07	1.147
2,4'-DDT	12.12	1.64	400.00	7.20E+06	1.353
4,4'-DDT	12.56	1.63	400.00	5.69E+06	1.069
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.55	250.00	9.69E+06	0.962
4,4'-DDD, 13C12-	12.05	1.59	250.00	6.65E+06	0.660
4,4'-DDT, 13C12-	12.55	1.60	250.00	3.33E+06	0.330
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.82	100.00	4.03E+06	

ALS Life sciences

Calibration Summary Report

Calibration Level	Filename	Run Date
CS-1	6-180901A05	01-Sep-2018 22:06
CS-2	6-180901A04	01-Sep-2018 21:46
CS-3	6-180901A09	01-Sep-2018 23:27
CS-4	6-180901A08	01-Sep-2018 23:07
CS-5	6-180901A07	01-Sep-2018 22:46
CS-6	6-180901A06	01-Sep-2018 22:26

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Relative Response Factors						Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5	CS-6		
2,4'-DDE	1.285	1.428	1.287	1.463	1.594	1.548	1.434	9%
4,4'-DDE	1.036	1.130	1.005	1.099	1.159	1.086	1.086	5%
2,4'-DDD	1.162	1.257	1.114	1.197	1.268	1.196	1.199	5%
4,4'-DDD	1.110	1.213	1.103	1.147	1.239	1.157	1.162	5%
2,4'-DDT	1.166	1.259	1.109	1.182	1.207	1.229	1.192	4%
4,4'-DDT	1.011	1.106	0.986	1.027	1.079	1.045	1.042	4%
Extraction Standards								
4,4'-DDE, 13C12-	0.457	0.440	0.457	0.430	0.442	0.453	0.447	2%
4,4'-DDD, 13C12-	0.431	0.408	0.476	0.457	0.507	0.536	0.469	10%
4,4'-DDT, 13C12-	0.291	0.275	0.338	0.314	0.355	0.367	0.323	11%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-069**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180901A05
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 01-Sep-2018 22:06

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.56	2.00	2.59E+04	1.285
4,4'-DDE	11.4	1.51	2.00	2.09E+04	1.036
2,4'-DDD	11.57	1.68	2.00	2.21E+04	1.162
4,4'-DDD	12.08	1.55	2.00	2.11E+04	1.110
2,4'-DDT	12.13	1.67	2.00	1.50E+04	1.166
4,4'-DDT	12.58	1.67	2.00	1.30E+04	1.011
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.54	250.00	2.52E+06	0.457
4,4'-DDD, 13C12-	12.07	1.55	250.00	2.38E+06	0.431
4,4'-DDT, 13C12-	12.57	1.55	250.00	1.60E+06	0.291
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	2.21E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-069**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180901A04
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 01-Sep-2018 21:46

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.86	1.57	7.50	1.18E+05	1.428
4,4'-DDE	11.39	1.63	7.50	9.36E+04	1.130
2,4'-DDD	11.56	1.59	7.50	9.67E+04	1.257
4,4'-DDD	12.07	1.60	7.50	9.33E+04	1.213
2,4'-DDT	12.13	1.56	7.50	6.52E+04	1.259
4,4'-DDT	12.57	1.58	7.50	5.73E+04	1.106
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.52	250.00	2.76E+06	0.440
4,4'-DDD, 13C12-	12.07	1.57	250.00	2.56E+06	0.408
4,4'-DDT, 13C12-	12.56	1.57	250.00	1.73E+06	0.275
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.78	100.00	2.51E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-069**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180901A09
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 01-Sep-2018 23:27

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.86	1.56	20.00	2.78E+05	1.287
4,4'-DDE	11.39	1.53	20.00	2.17E+05	1.005
2,4'-DDD	11.57	1.63	20.00	2.50E+05	1.114
4,4'-DDD	12.07	1.60	20.00	2.48E+05	1.103
2,4'-DDT	12.13	1.60	20.00	1.77E+05	1.109
4,4'-DDT	12.57	1.64	20.00	1.58E+05	0.986
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.51	250.00	2.70E+06	0.457
4,4'-DDD, 13C12-	12.07	1.57	250.00	2.81E+06	0.476
4,4'-DDT, 13C12-	12.57	1.55	250.00	2.00E+06	0.338
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	2.36E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-069**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180901A08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 01-Sep-2018 23:07

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.56	50.00	6.42E+05	1.463
4,4'-DDE	11.4	1.56	50.00	4.82E+05	1.099
2,4'-DDD	11.57	1.62	50.00	5.59E+05	1.197
4,4'-DDD	12.08	1.61	50.00	5.36E+05	1.147
2,4'-DDT	12.14	1.61	50.00	3.80E+05	1.182
4,4'-DDT	12.58	1.61	50.00	3.30E+05	1.027
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.52	250.00	2.19E+06	0.430
4,4'-DDD, 13C12-	12.07	1.57	250.00	2.34E+06	0.457
4,4'-DDT, 13C12-	12.57	1.56	250.00	1.61E+06	0.314
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.79	100.00	2.04E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-069**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180901A07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 01-Sep-2018 22:46

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.54	150.00	2.70E+06	1.594
4,4'-DDE	11.4	1.56	150.00	1.96E+06	1.159
2,4'-DDD	11.57	1.60	150.00	2.46E+06	1.268
4,4'-DDD	12.08	1.61	150.00	2.41E+06	1.239
2,4'-DDT	12.13	1.59	150.00	1.64E+06	1.207
4,4'-DDT	12.57	1.58	150.00	1.47E+06	1.079
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.51	250.00	2.82E+06	0.442
4,4'-DDD, 13C12-	12.07	1.56	250.00	3.24E+06	0.507
4,4'-DDT, 13C12-	12.57	1.56	250.00	2.27E+06	0.355
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.79	100.00	2.56E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-069**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180901A06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 01-Sep-2018 22:26

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.86	1.54	400.00	7.87E+06	1.548
4,4'-DDE	11.39	1.55	400.00	5.52E+06	1.086
2,4'-DDD	11.56	1.60	400.00	7.19E+06	1.196
4,4'-DDD	12.07	1.60	400.00	6.95E+06	1.157
2,4'-DDT	12.13	1.61	400.00	5.06E+06	1.229
4,4'-DDT	12.57	1.61	400.00	4.30E+06	1.045
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.52	250.00	3.18E+06	0.453
4,4'-DDD, 13C12-	12.07	1.55	250.00	3.76E+06	0.536
4,4'-DDT, 13C12-	12.56	1.56	250.00	2.57E+06	0.367
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.78	100.00	2.80E+06	

ALS Life sciences

Calibration Summary Report

Calibration Level	Filename	Run Date
CS-1	6-180911B03	11-Sep-2018 17:39
CS-2	6-180911B08	11-Sep-2018 19:20
CS-3	6-180911B07	11-Sep-2018 19:00
CS-4	6-180911B06	11-Sep-2018 18:40
CS-5	6-180911B05	11-Sep-2018 18:20
CS-6	6-180911B04	11-Sep-2018 17:59

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Relative Response Factors						Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5	CS-6		
2,4'-DDE	0.946	1.026	0.984	1.062	1.131	1.096	1.041	7%
4,4'-DDE	0.769	0.815	0.755	0.801	0.894	0.855	0.815	6%
2,4'-DDD	0.797	0.838	0.732	0.837	0.888	0.854	0.824	7%
4,4'-DDD	0.814	0.792	0.742	0.787	0.926	0.830	0.815	8%
2,4'-DDT	0.821	0.828	0.736	0.852	0.808	0.829	0.812	5%
4,4'-DDT	0.781	0.710	0.662	0.718	0.796	0.784	0.742	7%
Extraction Standards								
4,4'-DDE, 13C12-	0.310	0.295	0.307	0.290	0.318	0.314	0.306	4%
4,4'-DDD, 13C12-	0.223	0.217	0.229	0.206	0.262	0.255	0.232	9%
4,4'-DDT, 13C12-	0.158	0.155	0.167	0.142	0.199	0.194	0.169	13%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-075**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180911B03
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 11-Sep-2018 17:39

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.41	2.00	1.02E+04	0.946
4,4'-DDE	11.39	1.45	2.00	8.28E+03	0.769
2,4'-DDD	11.56	1.49	2.00	6.18E+03	0.797
4,4'-DDD	12.07	1.62	2.00	6.31E+03	0.814
2,4'-DDT	12.13	1.60	2.00	4.49E+03	0.821
4,4'-DDT	12.57	1.60	2.00	4.27E+03	0.781

Extraction Standards

4,4'-DDE, 13C12-	11.38	1.46	250.00	1.35E+06	0.310
4,4'-DDD, 13C12-	12.06	1.57	250.00	9.69E+05	0.223
4,4'-DDT, 13C12-	12.56	1.51	250.00	6.84E+05	0.158

Labeled Injection Standards

13C12-PCB-52 (IS)	9.52	0.78	100.00	1.74E+06	
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ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-075**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180911B08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 11-Sep-2018 19:20

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.52	7.50	2.97E+04	1.026
4,4'-DDE	11.38	1.49	7.50	2.36E+04	0.815
2,4'-DDD	11.55	1.49	7.50	1.78E+04	0.838
4,4'-DDD	12.06	1.49	7.50	1.68E+04	0.792
2,4'-DDT	12.12	1.68	7.50	1.25E+04	0.828
4,4'-DDT	12.56	1.53	7.50	1.08E+04	0.710
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.47	250.00	9.64E+05	0.295
4,4'-DDD, 13C12-	12.06	1.54	250.00	7.09E+05	0.217
4,4'-DDT, 13C12-	12.56	1.51	250.00	5.05E+05	0.155
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.75	100.00	1.31E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-075**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180911B07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 11-Sep-2018 19:00

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.47	20.00	1.15E+05	0.984
4,4'-DDE	11.38	1.55	20.00	8.83E+04	0.755
2,4'-DDD	11.55	1.55	20.00	6.38E+04	0.732
4,4'-DDD	12.07	1.50	20.00	6.47E+04	0.742
2,4'-DDT	12.12	1.52	20.00	4.69E+04	0.736
4,4'-DDT	12.56	1.56	20.00	4.22E+04	0.662
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.46	250.00	1.46E+06	0.307
4,4'-DDD, 13C12-	12.06	1.46	250.00	1.09E+06	0.229
4,4'-DDT, 13C12-	12.56	1.52	250.00	7.97E+05	0.167
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.76	100.00	1.91E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-075**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180911B06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 11-Sep-2018 18:40

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.59	50.00	1.62E+05	1.062
4,4'-DDE	11.38	1.48	50.00	1.22E+05	0.801
2,4'-DDD	11.55	1.53	50.00	9.07E+04	0.837
4,4'-DDD	12.06	1.57	50.00	8.53E+04	0.787
2,4'-DDT	12.12	1.50	50.00	6.36E+04	0.852
4,4'-DDT	12.56	1.53	50.00	5.36E+04	0.718
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.46	250.00	7.61E+05	0.290
4,4'-DDD, 13C12-	12.06	1.45	250.00	5.42E+05	0.206
4,4'-DDT, 13C12-	12.56	1.49	250.00	3.73E+05	0.142
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.76	100.00	1.05E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-075**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180911B05
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 11-Sep-2018 18:20

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.49	150.00	1.33E+06	1.131
4,4'-DDE	11.38	1.49	150.00	1.05E+06	0.894
2,4'-DDD	11.55	1.60	150.00	8.61E+05	0.888
4,4'-DDD	12.06	1.56	150.00	8.98E+05	0.926
2,4'-DDT	12.12	1.52	150.00	5.96E+05	0.808
4,4'-DDT	12.56	1.51	150.00	5.87E+05	0.796
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.48	250.00	1.96E+06	0.318
4,4'-DDD, 13C12-	12.05	1.52	250.00	1.62E+06	0.262
4,4'-DDT, 13C12-	12.55	1.51	250.00	1.23E+06	0.199
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.75	100.00	2.47E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-075**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180911B04
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 11-Sep-2018 17:59

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.47	400.00	2.81E+06	1.096
4,4'-DDE	11.37	1.49	400.00	2.20E+06	0.855
2,4'-DDD	11.54	1.51	400.00	1.78E+06	0.854
4,4'-DDD	12.05	1.50	400.00	1.73E+06	0.830
2,4'-DDT	12.11	1.51	400.00	1.31E+06	0.829
4,4'-DDT	12.55	1.50	400.00	1.24E+06	0.784
Extraction Standards					
4,4'-DDE, 13C12-	11.36	1.45	250.00	1.61E+06	0.314
4,4'-DDD, 13C12-	12.05	1.48	250.00	1.30E+06	0.255
4,4'-DDT, 13C12-	12.55	1.50	250.00	9.90E+05	0.194
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.49	0.76	100.00	2.04E+06	

ALS Life sciences

Calibration Summary Report

Calibration Level	Filename	Run Date
CS-1	6-180912A09	12-Sep-2018 11:45
CS-2	6-180912A08	12-Sep-2018 11:25
CS-3	6-180912A07	12-Sep-2018 11:05
CS-4	6-180912A06	12-Sep-2018 10:44
CS-5	6-180912A05	12-Sep-2018 10:24
CS-6	6-180912A04	12-Sep-2018 10:04

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Relative Response Factors						Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5	CS-6		
2,4'-DDE	1.099	1.113	0.992	1.098	1.169	1.119	1.098	5%
4,4'-DDE	0.900	0.881	0.786	0.839	0.906	0.864	0.863	5%
2,4'-DDD	0.912	0.901	0.752	0.826	0.902	0.904	0.866	7%
4,4'-DDD	0.961	0.907	0.762	0.799	0.913	0.908	0.875	9%
2,4'-DDT	0.867	0.883	0.739	0.850	0.855	0.842	0.839	6%
4,4'-DDT	0.936	0.820	0.687	0.740	0.839	0.810	0.805	11%
Extraction Standards								
4,4'-DDE, 13C12-	0.386	0.378	0.347	0.338	0.403	0.410	0.377	8%
4,4'-DDD, 13C12-	0.268	0.261	0.244	0.236	0.336	0.328	0.279	15%
4,4'-DDT, 13C12-	0.173	0.169	0.159	0.154	0.234	0.221	0.185	18%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-076**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180912A09
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 12-Sep-2018 11:45

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.52	2.00	1.87E+04	1.099
4,4'-DDE	11.38	1.44	2.00	1.53E+04	0.900
2,4'-DDD	11.55	1.61	2.00	1.08E+04	0.912
4,4'-DDD	12.06	1.43	2.00	1.13E+04	0.961
2,4'-DDT	12.12	1.49	2.00	6.61E+03	0.867
4,4'-DDT	12.56	1.41	2.00	7.13E+03	0.936
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.47	250.00	2.12E+06	0.386
4,4'-DDD, 13C12-	12.06	1.47	250.00	1.48E+06	0.268
4,4'-DDT, 13C12-	12.56	1.50	250.00	9.53E+05	0.173
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.80	100.00	2.20E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-076**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180912A08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 12-Sep-2018 11:25

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.45	7.50	7.65E+04	1.113
4,4'-DDE	11.37	1.55	7.50	6.06E+04	0.881
2,4'-DDD	11.55	1.62	7.50	4.29E+04	0.901
4,4'-DDD	12.06	1.51	7.50	4.32E+04	0.907
2,4'-DDT	12.11	1.54	7.50	2.72E+04	0.883
4,4'-DDT	12.56	1.66	7.50	2.53E+04	0.820
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.45	250.00	2.29E+06	0.378
4,4'-DDD, 13C12-	12.05	1.49	250.00	1.59E+06	0.261
4,4'-DDT, 13C12-	12.55	1.50	250.00	1.03E+06	0.169
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.82	100.00	2.43E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-076**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180912A07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 12-Sep-2018 11:05

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.48	20.00	1.92E+05	0.992
4,4'-DDE	11.38	1.55	20.00	1.52E+05	0.786
2,4'-DDD	11.55	1.46	20.00	1.02E+05	0.752
4,4'-DDD	12.06	1.52	20.00	1.04E+05	0.762
2,4'-DDT	12.12	1.54	20.00	6.54E+04	0.739
4,4'-DDT	12.56	1.56	20.00	6.09E+04	0.687
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.46	250.00	2.42E+06	0.347
4,4'-DDD, 13C12-	12.06	1.48	250.00	1.70E+06	0.244
4,4'-DDT, 13C12-	12.56	1.49	250.00	1.11E+06	0.159
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.77	100.00	2.79E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-076**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180912A06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 12-Sep-2018 10:44

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.50	50.00	2.65E+05	1.098
4,4'-DDE	11.38	1.53	50.00	2.02E+05	0.839
2,4'-DDD	11.55	1.53	50.00	1.39E+05	0.826
4,4'-DDD	12.06	1.53	50.00	1.35E+05	0.799
2,4'-DDT	12.12	1.58	50.00	9.32E+04	0.850
4,4'-DDT	12.56	1.59	50.00	8.11E+04	0.740
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.46	250.00	1.21E+06	0.338
4,4'-DDD, 13C12-	12.06	1.49	250.00	8.42E+05	0.236
4,4'-DDT, 13C12-	12.56	1.52	250.00	5.48E+05	0.154
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.77	100.00	1.43E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-076**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180912A05
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 12-Sep-2018 10:24

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.48	150.00	2.56E+06	1.169
4,4'-DDE	11.38	1.48	150.00	1.99E+06	0.906
2,4'-DDD	11.55	1.55	150.00	1.65E+06	0.902
4,4'-DDD	12.06	1.52	150.00	1.67E+06	0.913
2,4'-DDT	12.12	1.53	150.00	1.09E+06	0.855
4,4'-DDT	12.56	1.56	150.00	1.07E+06	0.839
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.49	250.00	3.66E+06	0.403
4,4'-DDD, 13C12-	12.06	1.50	250.00	3.04E+06	0.336
4,4'-DDT, 13C12-	12.56	1.49	250.00	2.12E+06	0.234
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.77	100.00	3.63E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-076**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180912A04
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 12-Sep-2018 10:04

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.48	400.00	3.48E+06	1.119
4,4'-DDE	11.38	1.48	400.00	2.68E+06	0.864
2,4'-DDD	11.55	1.54	400.00	2.24E+06	0.904
4,4'-DDD	12.07	1.56	400.00	2.25E+06	0.908
2,4'-DDT	12.12	1.54	400.00	1.41E+06	0.842
4,4'-DDT	12.57	1.54	400.00	1.35E+06	0.810
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.46	250.00	1.94E+06	0.410
4,4'-DDD, 13C12-	12.06	1.49	250.00	1.55E+06	0.328
4,4'-DDT, 13C12-	12.56	1.56	250.00	1.05E+06	0.221
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.80	100.00	1.89E+06	

ALS Life sciences

Calibration Summary Report

Calibration Level	Filename	Run Date
CS-1	6-180913A10	13-Sep-2018 03:34
CS-2	6-180913A09	13-Sep-2018 03:14
CS-3	6-180913A08	13-Sep-2018 02:54
CS-4	6-180913A07	13-Sep-2018 02:34
CS-5	6-180913A06	13-Sep-2018 02:14
CS-6	6-180913A05	13-Sep-2018 01:54

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Relative Response Factors						Mean	% RSD
	CS-1	CS-2	CS-3	CS-4	CS-5	CS-6		
2,4'-DDE	1.196	1.228	1.115	1.239	1.264	1.203	1.208	4%
4,4'-DDE	0.876	0.882	0.813	0.879	0.904	0.850	0.867	4%
2,4'-DDD	1.065	0.994	0.933	0.959	1.003	0.918	0.979	5%
4,4'-DDD	1.036	0.902	0.840	0.864	0.920	0.862	0.904	8%
2,4'-DDT	1.023	0.997	0.918	0.966	0.948	0.917	0.962	4%
4,4'-DDT	0.973	0.821	0.765	0.802	0.794	0.771	0.821	9%
Extraction Standards								
4,4'-DDE, 13C12-	0.456	0.415	0.449	0.412	0.403	0.398	0.422	6%
4,4'-DDD, 13C12-	0.264	0.242	0.257	0.265	0.254	0.309	0.265	9%
4,4'-DDT, 13C12-	0.177	0.160	0.165	0.169	0.167	0.194	0.172	7%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-077**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180913A10
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 13-Sep-2018 03:34

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.65	2.00	2.84E+04	1.196
4,4'-DDE	11.37	1.53	2.00	2.08E+04	0.876
2,4'-DDD	11.54	1.66	2.00	1.46E+04	1.065
4,4'-DDD	12.05	1.57	2.00	1.43E+04	1.036
2,4'-DDT	12.11	1.58	2.00	9.41E+03	1.023
4,4'-DDT	12.55	1.62	2.00	8.94E+03	0.973

Extraction Standards

4,4'-DDE, 13C12-	11.36	1.45	250.00	2.97E+06	0.456
4,4'-DDD, 13C12-	12.05	1.51	250.00	1.72E+06	0.264
4,4'-DDT, 13C12-	12.55	1.54	250.00	1.15E+06	0.177

Labeled Injection Standards

13C12-PCB-52 (IS)	9.49	0.80	100.00	2.60E+06	
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ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-077**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180913A09
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 13-Sep-2018 03:14

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.47	7.50	1.09E+05	1.228
4,4'-DDE	11.37	1.51	7.50	7.84E+04	0.882
2,4'-DDD	11.54	1.66	7.50	5.14E+04	0.994
4,4'-DDD	12.05	1.58	7.50	4.67E+04	0.902
2,4'-DDT	12.11	1.45	7.50	3.42E+04	0.997
4,4'-DDT	12.55	1.66	7.50	2.82E+04	0.821
Extraction Standards					
4,4'-DDE, 13C12-	11.36	1.48	250.00	2.96E+06	0.415
4,4'-DDD, 13C12-	12.05	1.51	250.00	1.73E+06	0.242
4,4'-DDT, 13C12-	12.55	1.52	250.00	1.14E+06	0.160
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.49	0.78	100.00	2.86E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-077**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180913A08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 13-Sep-2018 02:54

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.49	20.00	2.24E+05	1.115
4,4'-DDE	11.37	1.52	20.00	1.63E+05	0.813
2,4'-DDD	11.55	1.57	20.00	1.07E+05	0.933
4,4'-DDD	12.06	1.62	20.00	9.66E+04	0.840
2,4'-DDT	12.11	1.50	20.00	6.79E+04	0.918
4,4'-DDT	12.56	1.52	20.00	5.66E+04	0.765
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.44	250.00	2.51E+06	0.449
4,4'-DDD, 13C12-	12.05	1.49	250.00	1.44E+06	0.257
4,4'-DDT, 13C12-	12.55	1.51	250.00	9.25E+05	0.165
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.80	100.00	2.24E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-077**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180913A07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 13-Sep-2018 02:34

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.49	50.00	1.03E+06	1.239
4,4'-DDE	11.38	1.51	50.00	7.32E+05	0.879
2,4'-DDD	11.55	1.55	50.00	5.14E+05	0.959
4,4'-DDD	12.06	1.57	50.00	4.63E+05	0.864
2,4'-DDT	12.12	1.57	50.00	3.29E+05	0.966
4,4'-DDT	12.56	1.58	50.00	2.73E+05	0.802
Extraction Standards					
4,4'-DDE, 13C12-	11.37	1.49	250.00	4.16E+06	0.412
4,4'-DDD, 13C12-	12.05	1.53	250.00	2.68E+06	0.265
4,4'-DDT, 13C12-	12.55	1.49	250.00	1.70E+06	0.169
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.5	0.77	100.00	4.04E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-077**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180913A06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 13-Sep-2018 02:14

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.85	1.48	150.00	1.97E+06	1.264
4,4'-DDE	11.38	1.48	150.00	1.41E+06	0.904
2,4'-DDD	11.56	1.57	150.00	9.86E+05	1.003
4,4'-DDD	12.07	1.55	150.00	9.05E+05	0.920
2,4'-DDT	12.12	1.55	150.00	6.13E+05	0.948
4,4'-DDT	12.57	1.55	150.00	5.14E+05	0.794
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.48	250.00	2.60E+06	0.403
4,4'-DDD, 13C12-	12.06	1.51	250.00	1.64E+06	0.254
4,4'-DDT, 13C12-	12.56	1.52	250.00	1.08E+06	0.167
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.78	100.00	2.58E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-077**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180913A05
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 13-Sep-2018 01:54

Approved: *Ella Gdyczynski*
 --e-signature--
 13-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.84	1.48	400.00	1.13E+07	1.203
4,4'-DDE	11.37	1.49	400.00	8.02E+06	0.850
2,4'-DDD	11.55	1.52	400.00	6.71E+06	0.918
4,4'-DDD	12.06	1.53	400.00	6.30E+06	0.862
2,4'-DDT	12.12	1.52	400.00	4.21E+06	0.917
4,4'-DDT	12.56	1.55	400.00	3.54E+06	0.771

Extraction Standards

4,4'-DDE, 13C12-	11.37	1.46	250.00	5.90E+06	0.398
4,4'-DDD, 13C12-	12.05	1.52	250.00	4.57E+06	0.309
4,4'-DDT, 13C12-	12.55	1.51	250.00	2.87E+06	0.194

Labeled Injection Standards

13C12-PCB-52 (IS)	9.5	0.79	100.00	5.92E+06	
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ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0869	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 10-Sep-2018

Run Information	Run 1
Filename	6-180901A39
Run Date	02-Sep-18 09:30
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	50	10.87	101	75-125
4,4'-DDE	50	11.40	102	75-125
2,4'-DDD	50	11.57	101	75-125
4,4'-DDD	50	12.08	101	75-125
2,4'-DDT	50	12.14	105	75-125
4,4'-DDT	50	12.58	103	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.39	92	70-130
4,4'-DDD, 13C12-	250	12.08	93	70-130
4,4'-DDT, 13C12-	250	12.57	89	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0870	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 10-Sep-2018

Run Information	Run 1
Filename	6-180901A55
Run Date	02-Sep-18 14:52
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	50	10.86	104	75-125
4,4'-DDE	50	11.39	103	75-125
2,4'-DDD	50	11.56	105	75-125
4,4'-DDD	50	12.07	103	75-125
2,4'-DDT	50	12.13	106	75-125
4,4'-DDT	50	12.57	101	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.38	96	70-130
4,4'-DDD, 13C12-	250	12.06	91	70-130
4,4'-DDT, 13C12-	250	12.56	87	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0892	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 10-Sep-2018

Run Information	Run 1
Filename	6-180906B11
Run Date	06-Sep-18 20:35
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	50	10.85	103	75-125
4,4'-DDE	50	11.38	102	75-125
2,4'-DDD	50	11.55	103	75-125
4,4'-DDD	50	12.06	98	75-125
2,4'-DDT	50	12.12	114	75-125
4,4'-DDT	50	12.56	103	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.38	99	70-130
4,4'-DDD, 13C12-	250	12.06	118	70-130
4,4'-DDT, 13C12-	250	12.56	117	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0894	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 10-Sep-2018

Run Information	Run 1
Filename	6-180906B36
Run Date	07-Sep-18 04:55
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.		Limits	
		Time	% Rec	Flags	
2,4'-DDE	50	10.85	102	75-125	
4,4'-DDE	50	11.39	102	75-125	
2,4'-DDD	50	11.56	106	75-125	
4,4'-DDD	50	12.07	105	75-125	
2,4'-DDT	50	12.12	111	75-125	
4,4'-DDT	50	12.57	102	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.38	103	70-130	
4,4'-DDD, 13C12-	250	12.06	180	70-130	
4,4'-DDT, 13C12-	250	12.56	166	70-130	

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CVS	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-069	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: R. Bakhtiari --e-signature-- 04-Sep-2018

Run Information	Run 1
Filename	6-180901A10
Run Date	01-Sep-18 23:47
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	0			
4,4'-DDE	150	11.40	96	75-125
2,4'-DDD	0			
4,4'-DDD	150	12.08	97	75-125
2,4'-DDT	0			
4,4'-DDT	150	12.58	96	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.40	100	70-130
4,4'-DDD, 13C12-	250	12.08	105	70-130
4,4'-DDT, 13C12-	250	12.57	108	70-130

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CVS	Sampling Date	n/a	
ALS Sample ID	H6-18-RS#1-073	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 10-Sep-2018

Run Information	Run 1
Filename	6-180906B10
Run Date	06-Sep-18 20:12
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	0			
4,4'-DDE	150	11.38	96	75-125
2,4'-DDD	0			
4,4'-DDD	150	12.06	105	75-125
2,4'-DDT	0			
4,4'-DDT	150	12.56	99	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.38	101	70-130
4,4'-DDD, 13C12-	250	12.06	120	70-130
4,4'-DDT, 13C12-	250	12.56	113	70-130

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CVS	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-075	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180911B10
Run Date	11-Sep-18 20:00
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	0			
4,4'-DDE	150	11.38	97	75-125
2,4'-DDD	0			
4,4'-DDD	150	12.06	97	75-125
2,4'-DDT	0			
4,4'-DDT	150	12.56	98	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.37	97	70-130
4,4'-DDD, 13C12-	250	12.06	98	70-130
4,4'-DDT, 13C12-	250	12.56	94	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0910	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180911B11
Run Date	11-Sep-18 20:22
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.			Limits	
		Time	% Rec		Flags	
2,4'-DDE	50	10.85	100	75-125		
4,4'-DDE	50	11.38	97	75-125		
2,4'-DDD	50	11.55	98	75-125		
4,4'-DDD	50	12.06	91	75-125		
2,4'-DDT	50	12.12	103	75-125		
4,4'-DDT	50	12.56	93	75-125		
Extraction Standards	ng / mL					
4,4'-DDE, 13C12-	250	11.37	95	70-130		
4,4'-DDD, 13C12-	250	12.06	92	70-130		
4,4'-DDT, 13C12-	250	12.56	89	70-130		

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0912	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180911B34
Run Date	12-Sep-18 04:01
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.		Limits	
		Time	% Rec	Flags	
2,4'-DDE	50	10.84	105	75-125	
4,4'-DDE	50	11.37	100	75-125	
2,4'-DDD	50	11.54	102	75-125	
4,4'-DDD	50	12.06	103	75-125	
2,4'-DDT	50	12.11	99	75-125	
4,4'-DDT	50	12.56	99	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.37	102	70-130	
4,4'-DDD, 13C12-	250	12.05	92	70-130	
4,4'-DDT, 13C12-	250	12.55	81	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0914	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180911B47
Run Date	12-Sep-18 08:23
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	50	10.84	104	75-125
4,4'-DDE	50	11.37	103	75-125
2,4'-DDD	50	11.54	107	75-125
4,4'-DDD	50	12.05	101	75-125
2,4'-DDT	50	12.11	112	75-125
4,4'-DDT	50	12.55	99	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.36	124	70-130
4,4'-DDD, 13C12-	250	12.05	100	70-130
4,4'-DDT, 13C12-	250	12.55	77	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0922	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180913A12
Run Date	13-Sep-18 04:16
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.			Limits	
		Time	% Rec		Flags	
2,4'-DDE	50	10.85	100	75-125		
4,4'-DDE	50	11.38	100	75-125		
2,4'-DDD	50	11.55	100	75-125		
4,4'-DDD	50	12.06	101	75-125		
2,4'-DDT	50	12.12	100	75-125		
4,4'-DDT	50	12.56	97	75-125		
Extraction Standards	ng / mL					
4,4'-DDE, 13C12-	250	11.37	102	70-130		
4,4'-DDD, 13C12-	250	12.05	101	70-130		
4,4'-DDT, 13C12-	250	12.55	104	70-130		

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CVS	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-074	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 12-Sep-2018

Run Information	Run 1
Filename	6-180908B09
Run Date	08-Sep-18 16:26
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	0			
4,4'-DDE	150	11.38	97	75-125
2,4'-DDD	0			
4,4'-DDD	150	12.06	99	75-125
2,4'-DDT	0			
4,4'-DDT	150	12.56	96	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.37	99	70-130
4,4'-DDD, 13C12-	250	12.06	118	70-130
4,4'-DDT, 13C12-	250	12.56	124	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0898	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 12-Sep-2018

Run Information	Run 1
Filename	6-180908B10
Run Date	08-Sep-18 16:47
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	50	10.84	104	75-125
4,4'-DDE	50	11.37	103	75-125
2,4'-DDD	50	11.54	100	75-125
4,4'-DDD	50	12.05	98	75-125
2,4'-DDT	50	12.11	104	75-125
4,4'-DDT	50	12.55	103	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.36	98	70-130
4,4'-DDD, 13C12-	250	12.05	115	70-130
4,4'-DDT, 13C12-	250	12.55	123	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0900	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 12-Sep-2018

Run Information	Run 1
Filename	6-180908B35
Run Date	09-Sep-18 01:11
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	50	10.84	100	75-125
4,4'-DDE	50	11.37	102	75-125
2,4'-DDD	50	11.54	98	75-125
4,4'-DDD	50	12.05	103	75-125
2,4'-DDT	50	12.11	95	75-125
4,4'-DDT	50	12.55	99	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.36	98	70-130
4,4'-DDD, 13C12-	250	12.05	118	70-130
4,4'-DDT, 13C12-	250	12.55	127	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0902	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 12-Sep-2018

Run Information	Run 1
Filename	6-180908B41
Run Date	09-Sep-18 03:14
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.		Limits	
		Time	% Rec	Flags	
2,4'-DDE	50	10.84	102	75-125	
4,4'-DDE	50	11.37	104	75-125	
2,4'-DDD	50	11.55	101	75-125	
4,4'-DDD	50	12.06	105	75-125	
2,4'-DDT	50	12.11	97	75-125	
4,4'-DDT	50	12.56	103	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.37	103	70-130	
4,4'-DDD, 13C12-	250	12.05	130	70-130	
4,4'-DDT, 13C12-	250	12.55	144	70-130	

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-075	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180912A10
Run Date	12-Sep-18 12:05
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	0			
4,4'-DDE	150	11.38	95	75-125
2,4'-DDD	0			
4,4'-DDD	150	12.06	94	75-125
2,4'-DDT	0			
4,4'-DDT	150	12.56	93	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.37	103	70-130
4,4'-DDD, 13C12-	250	12.06	98	70-130
4,4'-DDT, 13C12-	250	12.56	94	70-130

R Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0916	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180912A11
Run Date	12-Sep-18 12:27
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	50	10.85	102	75-125
4,4'-DDE	50	11.38	97	75-125
2,4'-DDD	50	11.55	108	75-125
4,4'-DDD	50	12.06	94	75-125
2,4'-DDT	50	12.12	108	75-125
4,4'-DDT	50	12.56	93	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.37	94	70-130
4,4'-DDD, 13C12-	250	12.05	84	70-130
4,4'-DDT, 13C12-	250	12.55	77	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0918	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180912A34
Run Date	12-Sep-18 20:11
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.		Limits	
		Time	% Rec	Flags	
2,4'-DDE	50	10.85	105	75-125	
4,4'-DDE	50	11.38	98	75-125	
2,4'-DDD	50	11.56	125	75-125	
4,4'-DDD	50	12.07	112	75-125	
2,4'-DDT	50	12.12	114	75-125	
4,4'-DDT	50	12.57	205	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.38	104	70-130	
4,4'-DDD, 13C12-	250	12.06	66	70-130	
4,4'-DDT, 13C12-	250	12.56	57	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0920	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180912A45
Run Date	12-Sep-18 23:53
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.		Limits	
		Time	% Rec	Flags	
2,4'-DDE	50	10.84	110	75-125	
4,4'-DDE	50	11.37	102	75-125	
2,4'-DDD	50	11.54	111	75-125	
4,4'-DDD	50	12.06	100	75-125	
2,4'-DDT	50	12.11	117	75-125	
4,4'-DDT	50	12.55	101	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.37	108	70-130	
4,4'-DDD, 13C12-	250	12.05	79	70-130	
4,4'-DDT, 13C12-	250	12.55	65	70-130	

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-077	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: Ella Gdyczynski --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180913A11
Run Date	13-Sep-18 03:54
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.	Limits		Flags
		Time	% Rec		
2,4'-DDE	0				
4,4'-DDE	150	11.37	94	75-125	M
2,4'-DDD	0				
4,4'-DDD	150	12.06	94	75-125	
2,4'-DDT	0				
4,4'-DDT	150	12.56	91	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.37	100	70-130	
4,4'-DDD, 13C12-	250	12.05	101	70-130	
4,4'-DDT, 13C12-	250	12.55	103	70-130	

M Indicates that a peak has been manually integrated.

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0924	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180913A39
Run Date	13-Sep-18 13:29
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.		Limits	
		Time	% Rec	Flags	
2,4'-DDE	50	10.84	100	75-125	
4,4'-DDE	50	11.37	103	75-125	
2,4'-DDD	50	11.54	101	75-125	
4,4'-DDD	50	12.06	102	75-125	
2,4'-DDT	50	12.11	103	75-125	
4,4'-DDT	50	12.56	100	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.37	110	70-130	
4,4'-DDD, 13C12-	250	12.05	103	70-130	
4,4'-DDT, 13C12-	250	12.55	96	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0922	Extraction Date	n/a	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	CCV	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180913A12
Run Date	13-Sep-18 04:16
Final Volume	1000 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng / mL	Ret.		Limits	
		Time	% Rec	Flags	
2,4'-DDE	50	10.85	100	75-125	
4,4'-DDE	50	11.38	100	75-125	
2,4'-DDD	50	11.55	100	75-125	
4,4'-DDD	50	12.06	101	75-125	
2,4'-DDT	50	12.12	100	75-125	
4,4'-DDT	50	12.56	97	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.37	102	70-130	
4,4'-DDD, 13C12-	250	12.05	101	70-130	
4,4'-DDT, 13C12-	250	12.55	104	70-130	

SVOC DATA PACKAGE

SECTION 5: QC SAMPLE DATA

Including:

- Laboratory Method Blank Analysis Reports
- Laboratory Control Sample Analysis Reports
- Matrix Spike Analysis Reports
- Other QC Sample Analysis Reports (where applicable)

ALS Life sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 10-Sep-2018
ALS Sample ID	WG2851440-1	Extraction Date	27-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	6.21 g	
Analysis Type	Blank	Percent Solid	99.8%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180901A44
Run Date	02-Sep-18 11:10
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.88	<0.089	0.068	M,J,R	0.089	1.6
4,4'-DDE	NotFnd	<0.090	0.090	U		1.6
2,4'-DDD	NotFnd	<0.12	0.12	U		1.6
4,4'-DDD	NotFnd	<0.046	0.046	U		1.6
2,4'-DDT	NotFnd	<0.045	0.045	U		1.6
4,4'-DDT	12.58	0.425	0.12	M,J		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	15	21-125		
4,4'-DDD, 13C12-	125	12.08	37	5-150		
4,4'-DDT, 13C12-	125	12.57	21	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 10-Sep-2018
ALS Sample ID	WG2851440-2	Extraction Date	27-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	1 n/a	
Analysis Type	LCS	Percent Solid	49.8%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180901A41
Run Date	02-Sep-18 10:10
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng	Ret.			Limits	
		Time	% Rec		Flags	
2,4'-DDE	25	10.87	117	50-120		
4,4'-DDE	25	11.40	95	50-120		
2,4'-DDD	25	11.57	112	42-120	M	
4,4'-DDD	25	12.08	98	42-120		
2,4'-DDT	25	12.13	58	50-120		
4,4'-DDT	25	12.57	55	50-120		
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	64	21-125		
4,4'-DDD, 13C12-	125	12.07	72	13-200		
4,4'-DDT, 13C12-	125	12.57	121	13-200		

M Indicates that a peak has been manually integrated.

ALS Life sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	L	Approved: <i>Ella Gdyczynski</i> --e-signature-- 10-Sep-2018
ALS Sample ID	WG2853964-1	Extraction Date	20-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	1		
Analysis Type	Blank	Percent Solid	n/a		
Sample Matrix	QC	Split Ratio	1		

Run Information	Run 1
Filename	6-180906B17
Run Date	06-Sep-18 22:33
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/L
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / L	EDL ng / L	Flags	EMPC ng / L	LQL
2,4'-DDE	NotFnd	<0.025	0.025	U		10
4,4'-DDE	NotFnd	<0.033	0.033	U		10
2,4'-DDD	NotFnd	<0.035	0.035	U		10
4,4'-DDD	NotFnd	<0.057	0.057	U		10
2,4'-DDT	NotFnd	<0.055	0.055	U		10
4,4'-DDT	NotFnd	<0.12	0.12	U		10
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	39	21-125		
4,4'-DDD, 13C12-	125	12.06	85	5-150		
4,4'-DDT, 13C12-	125	12.56	71	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U	Indicates that this compound was not detected above the EDL.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 10-Sep-2018
ALS Sample ID	WG2853964-2	Extraction Date	20-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	1 n/a	
Analysis Type	LCS	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180906B14
Run Date	06-Sep-18 21:32
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	25	10.85	142	50-120
4,4'-DDE	25	11.38	96	50-120
2,4'-DDD	25	11.55	101	42-120
4,4'-DDD	25	12.06	105	42-120
2,4'-DDT	25	12.12	79	50-120
4,4'-DDT	25	12.56	98	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.38	20	21-125
4,4'-DDD, 13C12-	125	12.06	61	13-200
4,4'-DDT, 13C12-	125	12.56	39	13-200

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Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	WG2856784-1	Extraction Date	29-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	10.09 g	
Analysis Type	Blank	Percent Solid	99.9%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180911B17
Run Date	11-Sep-18 22:21
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.084	0.084	U		0.99
4,4'-DDE	NotFnd	<0.11	0.11	U		0.99
2,4'-DDD	NotFnd	<0.093	0.093	U		0.99
4,4'-DDD	NotFnd	<0.090	0.090	U		0.99
2,4'-DDT	NotFnd	<0.091	0.091	U		0.99
4,4'-DDT	NotFnd	<0.17	0.17	U		0.99
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	61	21-125		
4,4'-DDD, 13C12-	125	12.05	82	5-150		
4,4'-DDT, 13C12-	125	12.55	57	5-120		

EDL Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.

LQL Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.

U Indicates that this compound was not detected above the EDL.

EMPC Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	
ALS Sample ID	WG2856784-2	Extraction Date	29-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5	n/a
Analysis Type	LCS	Percent Solid	50.7%	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018

Run Information	Run 1
Filename	6-180911B14
Run Date	11-Sep-18 21:20
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

		Ret.	Limits	
Target Analytes	ng	Time	% Rec	Flags
2,4'-DDE	25	10.85	151	50-120
4,4'-DDE	25	11.38	99	50-120
2,4'-DDD	25	11.55	112	42-120
4,4'-DDD	25	12.06	108	42-120
2,4'-DDT	25	12.12	118	50-120
4,4'-DDT	25	12.56	120	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.37	22	21-125
4,4'-DDD, 13C12-	125	12.06	54	13-200
4,4'-DDT, 13C12-	125	12.56	28	13-200

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Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 12-Sep-2018
ALS Sample ID	WG2855004-1	Extraction Date	28-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	10.07 g	
Analysis Type	Blank	Percent Solid	n/a	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180908B16
Run Date	08-Sep-18 18:47
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.0022	0.0022	U		0.99
4,4'-DDE	NotFnd	<0.0030	0.0030	U		0.99
2,4'-DDD	11.55	0.0175	0.0037	J		0.99
4,4'-DDD	12.06	0.0270	0.0051	M,J		0.99
2,4'-DDT	NotFnd	<0.0043	0.0043	U		0.99
4,4'-DDT	12.56	0.0261	0.0082	J		0.99
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	82	21-125		
4,4'-DDD, 13C12-	125	12.05	91	5-150		
4,4'-DDT, 13C12-	125	12.55	100	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

ALS Life sciences

Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	
ALS Sample ID	WG2855004-2	Extraction Date	28-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5.05	n/a
Analysis Type	LCS	Percent Solid	50.4%	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>Ella Gdyczynski</i> --e-signature-- 12-Sep-2018

Run Information	Run 1
Filename	6-180908B13
Run Date	08-Sep-18 17:46
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	25	10.85	103	50-120
4,4'-DDE	25	11.38	99	50-120
2,4'-DDD	25	11.55	108	42-120
4,4'-DDD	25	12.06	99	42-120
2,4'-DDT	25	12.12	95	50-120
4,4'-DDT	25	12.56	99	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.37	77	21-125
4,4'-DDD, 13C12-	125	12.05	84	13-200
4,4'-DDT, 13C12-	125	12.55	90	13-200

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Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	WG2855028-1	Extraction Date	28-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	10.09 g	
Analysis Type	Blank	Percent Solid	100.0%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180912A17
Run Date	12-Sep-18 14:27
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	NotFnd	<0.14	0.14	U		0.99
4,4'-DDE	NotFnd	<0.18	0.18	U		0.99
2,4'-DDD	NotFnd	<0.16	0.16	U		0.99
4,4'-DDD	NotFnd	<0.083	0.083	U		0.99
2,4'-DDT	NotFnd	<0.087	0.087	U		0.99
4,4'-DDT	NotFnd	<0.24	0.24	U		0.99
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.37	25	21-125		
4,4'-DDD, 13C12-	125	12.06	56	5-150		
4,4'-DDT, 13C12-	125	12.55	29	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
U	Indicates that this compound was not detected above the EDL.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	WG2855028-2	Extraction Date	28-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5 n/a	
Analysis Type	LCS	Percent Solid	50.7%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180912A14
Run Date	12-Sep-18 13:26
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	25	10.85	140	50-120
4,4'-DDE	25	11.38	109	50-120
2,4'-DDD	25	11.55	120	42-120
4,4'-DDD	25	12.06	106	42-120
2,4'-DDT	25	12.11	106	50-120
4,4'-DDT	25	12.56	109	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.37	30	21-125
4,4'-DDD, 13C12-	125	12.05	63	13-200
4,4'-DDT, 13C12-	125	12.55	38	13-200

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Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	WG2856797-1	Extraction Date	30-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	10.09 g	
Analysis Type	Blank	Percent Solid	100.0%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180913A37
Run Date	13-Sep-18 12:48
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	ng/g
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	Ret. Time	Conc. ng / g	EDL ng / g	Flags	EMPC ng / g	LQL
2,4'-DDE	10.86	0.0166	0.0060	M,J		0.99
4,4'-DDE	11.39	<0.029	0.0083	M,J,R	0.029	0.99
2,4'-DDD	11.56	0.0789	0.0072	J		0.99
4,4'-DDD	12.07	0.119	0.0078	M,J		0.99
2,4'-DDT	12.13	<0.025	0.0073	M,J,R	0.025	0.99
4,4'-DDT	12.57	0.158	0.017	J		0.99
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	49	21-125		
4,4'-DDD, 13C12-	125	12.06	70	5-150		
4,4'-DDT, 13C12-	125	12.56	49	5-120		

EDL	Indicates the Estimated Detection Limit, based on the measured background noise for this target in this sample.
LQL	Lower Quantification Limit, based on the lowest calibration level corrected for sample size, splits and dilutions.
M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the EDL.
J	indicates that a target analyte was detected below the calibrated range.
R	Indicates that the ion abundance ratio for this compound did not meet the acceptance criterion.
EMPC	Estimated Maximum Possible Concentration – elevated detection limit due to interference or positive id criterion failure

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Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	Approved: <i>Ella Gdyczynski</i> --e-signature-- 13-Sep-2018
ALS Sample ID	WG2856797-2	Extraction Date	30-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5 n/a	
Analysis Type	LCS	Percent Solid	50.3%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180913A38
Run Date	13-Sep-18 13:08
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	25	10.84	123	50-120
4,4'-DDE	25	11.37	96	50-120
2,4'-DDD	25	11.54	112	42-120
4,4'-DDD	25	12.05	106	42-120
2,4'-DDT	25	12.11	89	50-120
4,4'-DDT	25	12.55	116	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.36	16	21-125
4,4'-DDD, 13C12-	125	12.05	31	13-200
4,4'-DDT, 13C12-	125	12.55	17	13-200

SVOC DATA PACKAGE

SECTION 6: INTERNAL RECORDS

Including:

- Prep Logs
- Independent calculation checks
- Others as listed below:

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Sample Calculation Report

CS3 RRF Check

Approved: Ella Gdyczynski
--e-signature--
10-Sep-2018

$$\text{RRF} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{Concentration of 13C2-4,4'DDE}}{\text{Concentration of DDE}}$$

Calculated Value Value from TargetLynx

$$\text{RRF} = \frac{566581.30}{6761095.80} \times \frac{250.00}{20} = 1.05 \quad 1.05$$

Calculation of 4,4'-DDE amount in L2148686-2

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{3333}{189755} \times \frac{125}{1.11 \times 8.68} = 0.228 \quad 0.228$$

Calculation of 13C12-4,4'-DDE Recovery in L2148686-2

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{189755}{597074.2} \times \frac{50 \times 100}{0.68 \times 125} = 19 \quad 19 \%$$

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Sample Calculation Report

CS3 RRF Check

Approved: Ella Gdyczynski
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10-Sep-2018

$$\text{RRF} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{Concentration of 13C2-4,4'DDE}}{\text{Concentration of DDE}}$$

Calculated Value Value from TargetLynx

$$\text{RRF} = \frac{566581.30}{6761095.80} \times \frac{250.00}{20} = 1.05 \quad 1.05$$

Calculation of 4,4'-DDD amount in L2148686-13

$$\text{ng} = \frac{\text{Response of 4,4'-DDD}}{\text{Response of 13C12-4,4'DDD}} \times \frac{\text{ng of 13C12-4,4'-DDD spiked}}{\text{Mean RRF} * \text{Sample Size}}$$

$$\text{ng/g} = \frac{9368.6}{773729.8} \times \frac{125}{1.08 * 0.97} = 1.44 \quad 1.44$$

Calculation of 13C12-4,4'-DDE Recovery in L2148686-13

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} * 100}{\text{Mean RRF} * \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{952113.5}{1857713.3} \times \frac{50 * 100}{0.68 * 125} = 30 \quad 30 \%$$

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Sample Calculation Report

CS3 RRF Check

Approved: *Ella Gdyczynski*
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13-Sep-2018

$$\text{RRF} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{Concentration of 13C2-4,4'DDE}}{\text{Concentration of DDE}}$$

Calculated Value Value from TargetLynx

$$\text{RRF} = \frac{88272.30}{1461490.80} \times \frac{250.00}{20} = 0.755 \quad 0.755$$

Calculation of 4,4'-DDE amount in L2148686-57

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{28443.1}{11290.5} \times \frac{125}{0.81 \times 5.20} = 74.3 \quad 74.3$$

Calculation of 13C12-4,4'-DDE Recovery in L2148686-57

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{11290.5}{29874.4} \times \frac{50 \times 100}{0.31 \times 125} = 49 \quad 49 \%$$

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Sample Calculation Report

CS3 RRF Check

Approved: *Ella Gdyczynski*
--e-signature--
12-Sep-2018

$$\text{RRF} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{Concentration of 13C2-4,4'DDE}}{\text{Concentration of DDE}}$$

Calculated Value Value from TargetLynx

$$\text{RRF} = \frac{750617.90}{8694599.30} \times \frac{250.00}{20} = 1.08 \quad 1.08$$

Calculation of 4,4'-DDE amount in L2148686-17

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{23040}{1278610.8} \times \frac{125}{1.14 \times 7.93} = 0.250 \quad 0.250$$

Calculation of 13C12-4,4'-DDE Recovery in L2148686-17

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{1278610.8}{492655} \times \frac{50 \times 100}{0.96 \times 125} = 108 \quad 108 \%$$

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Sample Calculation Report

CS3 RRF Check

Approved: *Ella Gdyczynski*
--e-signature--
13-Sep-2018

$$\text{RRF} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{Concentration of 13C2-4,4'DDE}}{\text{Concentration of DDE}}$$

Calculated Value Value from TargetLynx

$$\text{RRF} = \frac{152244.70}{2419794.70} \times \frac{250.00}{20} = 0.79 \quad 0.79$$

Calculation of 4,4'-DDE amount in L2148686-37

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{1451.3}{85229.9} \times \frac{125}{0.86 \times 7.80} = 0.316 \quad 0.316$$

Calculation of 13C12-4,4'-DDE Recovery in L2148686-37

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{85229.9}{161283.4} \times \frac{50 \times 100}{0.38 \times 125} = 56 \quad 56 \%$$

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved: *Ella Gdyczynski*
--e-signature--
13-Sep-2018

$$\text{RRF} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{Concentration of 13C2-4,4'DDE}}{\text{Concentration of DDE}}$$

Calculated Value Value from TargetLynx

$$\text{RRF} = \frac{163490.00}{2514686.10} \times \frac{250.00}{20} = 0.81 \quad 0.81$$

Calculation of 4,4'-DDE amount in L2148686-78

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} * \text{Sample Size}}$$

$$\text{ng/g} = \frac{63040.7}{166739.6} \times \frac{125}{0.87 * 5.80} = 9.395 \quad 9.40$$

Calculation of 13C12-4,4'-DDE Recovery in L2148686-78

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} * 100}{\text{Mean RRF} * \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{166739.6}{973509.6} \times \frac{50 * 100}{0.42 * 125} = 16 \quad 16 \%$$

SVOC DATA PACKAGE

SECTION 7: SHIPPING/RECEIVING DOCUMENTS

Including:

- Airbills
- Chain-of-Custody Records
- Sample Log-in Sheet(s) - where applicable
- Others as listed below:

Extraction Workup Sheet

Batch ID: WG2851440

Analysis: Sediments - OCP

BU-TM-1110 Overall HR Prep

Analyst: *Reethika Menon*

Date: *27-Aug-2018*

SUBSAMPLING		
Sample I.D.	Client I.D.	Subsample Size (g)
WG2851440-1	Method Blank	10.15
WG2851440-2	Laboratory Control Sample	10.06
WG2851440-3	Extraction and Injection STD.	—
L2146267-55	PDI-SC-S015-0TO2	10.15
L2146267-56	PDI-SC-S015-2TO4	10.17
L2146267-57	PDI-SC-S015-4TO6	10.16
L2146267-58	PDI-SC-S015-6TO8	10.14
L2146267-59	PDI-SC-S015-8TO10	10.30
L2146267-60	PDI-SC-S015-10TO11.4	10.16
L2146267-61	PDI-SC-S015-11.4TO12.4	10.14
L2148686-1	PDI-SC-S109-0TO2	10.17
WG2851440-4	Duplicate(L2148686-1)	10.19
L2148686-2	PDI-SC-S109-2TO4	10.11
L2148686-3	PDI-SC-S109-4TO6	10.32
L2148686-4	PDI-SC-S109-6TO8	10.00
L2148686-5	PDI-SC-S109-8TO10	10.16
L2148686-6	PDI-SC-S109-10TO11.3	10.00
L2148686-7	PDI-SC-S131-0TO2	10.23
L2148686-8	PDI-SC-S131-2TO4	10.14
L2148686-9	PDI-SC-S131-4TO6	10.22
L2148686-10	PDI-SC-S131-6TO8	10.20
L2148686-11	PDI-SC-S256-0TO2	10.00
L2148686-12	PDI-SC-S256-2TO4	10.21
L2148686-16	PDI-SC-S113(A)-0TO2.2	10.04

BATCH TRACKING

	Date/Time/Initials
Subsampling:	<i>RM 1:00pm 27-Aug-18</i>
Balance ID	<i>3955</i>
Client Labels Checked:	<i>RM 1:00pm 27-Aug-18</i>
Samples Spiked	<i>MM 27-Aug-2018 3:45pm</i>
Soxhlet start time:	<i>27-Aug-2018 4:15pm</i>
Soxhlet reflux properly:	<i>MM</i>
Soxhlet end time:	<i>RM 8:30AM 28-Aug-2018</i>
Rotovap + temp check:	<i>JA2 29-Aug-2018</i>
Sili Column:	<i>JA2 29-Aug-2018</i>
Mini Acid	<i>NA 30-Aug-18</i>
	<i>—</i>
	<i>—</i>
Robo-Vialing:	<i>NA 30-Aug-18</i>
Update to LIMS:	<i>NA 30-Aug-18</i>

** See special submission instructions*

Batch ID: WG2851440

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851440-1	20	✓
WG2851440-2	20	✓
WG2851440-3	20	✓
L2146267-55	20	✓
L2146267-56	20	✓
L2146267-57	20	✓
L2146267-58	20	✓
L2146267-59	20	✓
L2146267-60	20	✓
L2146267-61	20	✓
L2148686-1	20	✓ *
WG2851440-4	20	✓ *
L2148686-2	20	✓ *
L2148686-3	20	✓ *
L2148686-4	20	✓ *
L2148686-5	20	✓ *
L2148686-6	20	✓ *
L2148686-7	20	✓ *
L2148686-8	20	✓ *
L2148686-9	20	✓ *
L2148686-10	20	✓ *
L2148686-11	20	✓ *
L2148686-12	20	✓ *
L2148686-16	20	✓ *
	20	

Syringe ID

137

Standard:

HROCP_DDX-ES#1-001E

Spike Date:

27-Aug-2018

Spike Witnessing

Chemist's Initials

Chemist:

MM

Witness's Initials

Witness:

NB

Witness's Initials

Correct Syringe Obtained:

NB

Witness's Initials

Correct Standard Obtained:

NB

Witness's Initials

Correct Technique Followed:

NB

Batch ID:	WG2851440
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Syringe ID	202
Standard:	HROCP-NS#2- 001A
Date & Initials:	27-Aug-2018 MM

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851440-2	20	✓
WG2851440-3	20	✓
	20	
	20	

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851440-1	20	✓
WG2851440-2	20	✓
WG2851440-3	20	✓
L2146267-55	20	✓
L2146267-56	20	✓
L2146267-57	20	✓
L2146267-58	20	✓
L2146267-59	20	✓
L2146267-60	20	✓
L2146267-61	20	✓
L2148686-1	20	✓
WG2851440-4	20	✓
L2148686-2	20	✓
L2148686-3	20	✓
L2148686-4	20	✓
L2148686-5	20	✓
L2148686-6	20	✓
L2148686-7	20	✓
L2148686-8	20	✓
L2148686-9	20	✓
L2148686-10	20	✓
L2148686-11	20	✓
L2148686-12	20	✓
L2148686-16	20	✓
	20	

Syringe ID	335
Standard:	HROCP-IS#1- 0158
Date & Initials:	30-Aug-18 NA

Correct Syringe Obtained:	Chemist's Initials NA
Correct Standard Obtained:	Chemist's Initials NA
Correct Technique Followed:	Chemist's Initials NA

Procedure:

This batchsheet is a guideline only. Please see test procedure for complete set of instructions.

SubSampling

☐☐

Subsample 10g weight wet (5g dry weight)

☐

Spike the samples with Extraction/Native Standards.

☐

Soxhlet extract in DCM for 16 hours.

☐

Rotovap down to ~4mL. Transfer with hexane rinses to tube.

☐

Reduce gently to 1mL

Sili Column (Column does not contain carbon)

- Load sample with 3x1mL hexane rinses

- F1 = 25 mL of Hexane

- F2 = 50mL of 1:1 DCM:Hexane

- Reduce sili-column F2 to 1mL.

Mini Acid Silica Column

- Load sample with 3x1mL hexane rinses

- Elute with 15 ml of DCM

Robo-vial

- ~~Reduce to 1mL~~

- ~~Vortex well and transfer to robo-vial without rinses.~~

- ~~Spike with Injection standard. Mark level and submit. FV=1020ul~~

msm 27-Aug-18

- Reduce to 5mL and spike IS

- remove 1mL and transfer to a robovial and submit

- Archive remaining 4mL in a syeko vial.

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	103258	
Hexane	183283	
DCM	103253	
Toluene	103443	
Nonane	ORG-WAKONON- 040	
1:1 DCM:HEX	ORG-DH2- 508	
Sodium Sulphate	ORG-SSU- 1915	
Acid Silica	ORG-ASI- 7850	
Neutral Silica	ORG-NSI- 1744	
Alumina	ORG-ALU- /	
Chromacarb	ORG-CC- /	
Corn Oil	ORG-CO- /	

Comments:

WG:			Prep Analyst:		
Analysis:			Date:		
	Very Good	Meets Method Req	Some Outliers	Very Poor	Comments / Was spl/batch sent for rework? Why?
MB					
LCS					
DUP					
ES rec					

Batch ID:

WG2853964

Procedure:

Extraction:

***Note: this batchsheet is a guideline only. See Test Procedure for complete set of instructions.**

- Sample Size = 1L (Mark bottle so that exact volume can be determined.)
- Standards added to 1mL Acetone, and then added to sep funnel with 2 acetone rinses, then swirled.
- Extracted with 3x 100mL DCM, then dried over sodium sulphate.
- Reduce to ~5mL (Don't go below 5mL in volume on the roto-vap)
- Transfer to a c-tube (calibrated at 1ml level) with 3x2mL DCM.
- Blow down to exactly 1mL.

-Sili Column - Load sample with 3x1mL hexane rinses

- F1 = 25 mL of Hexane
- F2 =50mL of 1:1 DCM:Hexane

-reduce F2 to 1ml**Mini Acid Silica Column**

- Load sample with 3x1mL hexane rinses
- Elute with 15 ml of DCM
- Reduce to 1ml, vortex and transfer to robovial (without rinses) Mark level.
- Spike injection standard and submit FV=1020ul ✓

Approval of Deviation from Standard Method

☐ Procedure does not deviate from Standard Method.

(Batch Writer): _____

☐ Procedure does deviate from Standard Method.

Approved (Supervisor/Manager): _____

Comments:

**** Protect samples from light as much as possible. ****

**** Samples must submit to instruments within 5 days of extraction ****

WG:			Prep Analyst:		
Analysis:			Date:		
	Very Good	Meets Method Req	Some Outliers	Very Poor	Comments / Was spl/batch sent for rework? Why?
MB					
LCS					
DUP					
ES rec					

Extraction Workup Sheet

Batch ID: WG2855004

Analysis: Sediments - OCP

BU-TM-1110 Overall HR Prep

Analyst: Rachika Mehron

Date: 28-Aug-2018

SUBSAMPLING

Sample I.D.	Client I.D.	Subsample Size (g)
WG2855004-1	Method Blank	10.07
WG2855004-2	Laboratory Control Sample	10.02
WG2855004-3	Extraction and Injection STD.	—
L2148686-17	PDI-SC-S113(A)-2.2TO4.6	10.08
WG2855004-4	Duplicate(L2148686-17)	10.01
L2148686-18	PDI-SC-S113(A)-2.2TO4.6D	10.00
L2148686-19	PDI-SC-S113(B)-3.6TO5.6	10.08
L2148686-20	PDI-SC-S113(B)-5.6TO7.4	10.16
L2148686-21	PDI-SC-S113(B)-7.4TO10	10.28
L2148686-22	PDI-SC-S113(B)-10TO12	10.18
L2148686-23	PDI-SC-S113(B)-12TO13.8	10.08
L2148686-24	PDI-SC-S065-4TO6	10.26
L2148686-25	PDI-SC-S065-6TO8	10.26
L2148686-26	PDI-SC-S065-8TO10	10.26
L2148686-27	PDI-SC-S065-12TO14.3	10.30
L2148686-28	PDI-SC-S070-0TO1.1	10.00
L2148686-29	PDI-SC-S070-1.1TO2.4	10.21
L2148686-30	PDI-SC-S070-2.4TO4.4	10.19
L2148686-31	PDI-SC-S070-4.4TO6.4	10.26
L2148686-32	PDI-SC-S070-6.4TO8.4	10.17
L2148686-33	PDI-SC-S070-8.4TO10.4	10.26
L2148686-34	PDI-SC-S065-10TO12	10.08
L2148686-35	PDI-SC-S070-10.4TO12.6	10.22
L2148686-36	PDI-SC-S150-7.7TO9.7	10.09
See Special submission instructions		

BATCH TRACKING

	Date/Time/Initials
Subsampling:	RM 11:30 AM 28-Aug-18
Balance ID	3955
Client Labels Checked:	RM 11:30 AM 28-Aug-18
Samples Spiked	MM 28-Aug-2018
Soxhlet start time:	28-Aug-2018 3:00 pm
Soxhlet reflux properly:	MM
Soxhlet end time:	RM 24-Aug-2018 7:00 AM
Rotovap + temp check:	AP 30-Aug-18
Sili Column:	AP 30-Aug-18
Mini Acid	AP 31-Aug-18

Robo-Vialing:	AP 31-Aug-18
Update to LIMS:	AP 31-Aug-18

Batch ID: WG2855004

DX Extraction Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG2855004-1	20	✓
WG2855004-2	20	✓
WG2855004-3	20	✓
L2148686-17	20	✓
WG2855004-4	20	✓
L2148686-18	20	✓
L2148686-19	20	✓
L2148686-20	20	✓
L2148686-21	20	✓
L2148686-22	20	✓
L2148686-23	20	✓
L2148686-24	20	✓
L2148686-25	20	✓
L2148686-26	20	✓
L2148686-27	20	✓
L2148686-28	20	✓
L2148686-29	20	✓
L2148686-30	20	✓
L2148686-31	20	✓
L2148686-32	20	✓
L2148686-33	20	✓
L2148686-34	20	✓
L2148686-35	20	✓
L2148686-36	20	✓
	20	

Syringe ID

137

Standard:

HROCP_DDX-ES#1-0010

Spike Date:

08-Aug-18

Spike Witnessing

Chemist: MH Chemist's Initials

Witness: AP Witness's Initials

Correct Syringe Obtained: AP Witness's Initials

Correct Standard Obtained: AP Witness's Initials

Correct Technique Followed: AP Witness's Initials

Batch ID: WG2855004

DX Native Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG2855004-2	20	✓
WG2855004-3	20	✓
	20	
	20	

Syringe ID

202

Standard:

HROCP-NS2-001A

Date &
Initials:

28-Aug-18 MN

DX Injection Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG2855004-1	20	✓
WG2855004-2	20	✓
WG2855004-3	20	✓
L2148686-17	20	✓
WG2855004-4	20	✓
L2148686-18	20	✓
L2148686-19	20	✓
L2148686-20	20	✓
L2148686-21	20	✓
L2148686-22	20	✓
L2148686-23	20	✓
L2148686-24	20	✓
L2148686-25	20	✓
L2148686-26	20	✓
L2148686-27	20	✓
L2148686-28	20	✓
L2148686-29	20	✓
L2148686-30	20	✓
L2148686-31	20	✓
L2148686-32	20	✓
L2148686-33	20	✓
L2148686-34	20	✓
L2148686-35	20	✓
L2148686-36	20	✓
	20	

Syringe ID

217 * rinsed 10x each.

Standard:

HROCP-IS#1-015A

Date &
Initials:

31-Aug-18 AP

Correct Syringe Obtained:

Chemist's Initials

AP

Correct Standard Obtained:

Chemist's Initials

AP

Correct Technique Followed:

Chemist's Initials

AP

Procedure:

This batchsheet is a guideline only. Please see test procedure for complete set of instructions.

SubSampling☐☐

Subsample 10g weight wet (5g dry weight)

☐

Spike the samples with Extraction/Native Standards.

☐

Soxhlet extract in DCM for 16 hours.

☐

Rotovap down to ~4ml. Transfer with hexane rinses to ctube.

☐

Reduce gently to 1mL

Sili Column (Column does not contain carbon)

- Load sample with 3x1mL hexane rinses

- **F1** = 25 mL of Hexane

- **F2** = 50mL of 1:1 DCM:Hexane

- Reduce sili-column F2 to 1mL.

Mini Acid Silica Column

- Load sample with 3x1mL hexane rinses

- Elute with 15 ml of DCM

Robo-vial

- Reduce to 5mL

-Spike IS standard and mix thoroughly

-Remove 1ml from C-tube and transfer to a robovial and submit FV=1000ul

- Transfer remaining 4ml to a supelco vial and archive

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	182516	
Hexane	182263	
DCM	163443	
Toluene	163253	
Nonane	ORG-WAKONON-	
1:1 DCM:HEX	ORG-DH2-510	
Sodium Sulphate	ORG-SSU-1910, 1920	
Acid Silica	ORG-ASI-7884	
Neutral Silica	ORG-NSI-1745	
Alumina	ORG-ALU-	
Chromacarb	ORG-CC-	
Corn Oil	ORG-CO-	

deactivated silica ORG-DAS290-215

Comments:

Min. Acid column is completely saturated. Samples were mostly a yellow, transparent color. Acid turned to a black color. Proceeded as normal. 31 Aug 18
 No more Supelco vials - Samples left in large c-tubes & stored in solvent shed as per NM. 31 Aug 18 AP.

WG:			Prep Analyst:		
Analysis:			Date:		
	Very Good	Meets Method Req	Some Outliers	Very Poor	Comments / Was spl/batch sent for rework? Why?
MB					
LCS					
DUP					
ES rec					

Extraction Workup Sheet

Batch ID: WG2855028
 BU-TM-1110 Overall HR Prep
 Analyst: Radhika Menon

Analysis: Sediments - OCP
 Date: 28-Aug-2018

SUBSAMPLING		
Sample I.D.	Client I.D.	Subsample Size (g)
WG2855028-1	Method Blank	10.20
WG2855028-2	Laboratory Control Sample	10.00
WG2855028-3	Extraction and Injection STD.	—
L2148686-37	PDI-SC-S150-9.7TO11.1	10.13
WG2855028-4	Duplicate(L2148686-37)	10.10
L2148686-38	PDI-SC-S150-11.1TO12.5	10.08
L2148686-39	PDI-SC-S146-0TO2	10.22
L2148686-40	PDI-SC-S146-2TO4	10.23
L2148686-41	PDI-SC-S146-4TO5	10.16
L2148686-42	PDI-SC-S146-5TO7	10.29
L2148686-43	PDI-SC-S146-7TO8	10.14
L2148686-44	PDI-SC-S146-8TO9.1	10.32
L2148686-45	PDI-SC-S136-0TO2	10.11
L2148686-46	PDI-SC-S136-2TO4	10.11
L2148686-47	PDI-SC-S136-4TO6	10.05
L2148686-48	PDI-SC-S151-2TO4	10.18
L2148686-49	PDI-SC-S151-0TO2	10.28
L2148686-50	PDI-SC-S151-4TO6	10.08
L2148686-51	PDI-SC-S151-6TO8	10.12
L2148686-52	PDI-SC-S151-8TO10	10.18
L2148686-53	PDI-SC-S151-10TO12	10.27
L2148686-54	PDI-SC-S150-0TO2	10.05
L2148686-55	PDI-SC-S150-2TO4	10.19
L2148686-56	PDI-SC-S150-4TO6	10.09
See Special submission instructions		

BATCH TRACKING

	Date/Time/Initials
Subsampling:	RM 12:30pm 28-Aug-2018
Balance ID	3955
Client Labels Checked:	RM 12:30pm 28-Aug-2018
Samples Spiked	RM 12:30pm 28-Aug-2018 2:45pm
Soxhlet start time:	28-Aug-2018 3:00pm
Soxhlet reflux properly:	MM
Soxhlet end time:	RM 7:00pm 29-Aug-2018
Rotovap + temp check:	AP 29-Aug-18
Sili Column:	AP 29-Aug-18
Mini Acid	30-Aug-18 4:00pm / MM
Robo-Vialing:	MM 30-Aug-2018
Update to LIMS:	MM 30-Aug-2018

Batch ID: WG2855028

DX Extraction Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG2855028-1	20	✓
WG2855028-2	20	✓
WG2855028-3	20	✓
L2148686-37	20	✓
WG2855028-4	20	✓
L2148686-38	20	✓
L2148686-39	20	✓
L2148686-40	20	✓
L2148686-41	20	✓
L2148686-42	20	✓
L2148686-43	20	✓
L2148686-44	20	✓
L2148686-45	20	✓
L2148686-46	20	✓
L2148686-47	20	✓
L2148686-48	20	✓
L2148686-49	20	✓
L2148686-50	20	✓
L2148686-51	20	✓
L2148686-52	20	✓
L2148686-53	20	✓
L2148686-54	20	✓
L2148686-55	20	✓
L2148686-56	20	✓
	20	

Syringe ID

137

Standard:

HROCP_DDX-ES#1-001D

Spike Date:

28-Aug-2018

Spike Witnessing

Chemist's Initials

Chemist:

RM

Witness's Initials

Witness:

AP

Witness's Initials

Correct Syringe Obtained:

AP

Witness's Initials

Correct Standard Obtained:

AP

Witness's Initials

Correct Technique Followed:

AP

Batch ID: WG2855028

Syringe ID

202

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2855028-2	20	✓
WG2855028-3	20	✓
	20	
	20	

Standard:

HROCP-NS#2-001A

Date &
Initials:

28-Aug-2018 RM

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2855028-1	20	✓
WG2855028-2	20	✓
WG2855028-3	20	✓
L2148686-37	20	✓
WG2855028-4	20	✓
L2148686-38	20	✓
L2148686-39	20	✓
L2148686-40	20	✓
L2148686-41	20	✓
L2148686-42	20	✓
L2148686-43	20	✓
L2148686-44	20	✓
L2148686-45	20	✓
L2148686-46	20	✓
L2148686-47	20	✓
L2148686-48	20	✓
L2148686-49	20	✓
L2148686-50	20	✓
L2148686-51	20	✓
L2148686-52	20	✓
L2148686-53	20	✓
L2148686-54	20	✓
L2148686-55	20	✓
L2148686-56	20	✓
	20	

Syringe ID

218

Standard:

HROCP-IS#1-0158

Date &
Initials:

30-Aug-2018 MM

Correct Syringe Obtained:

Chemist's Initials

MM

Correct Standard Obtained:

Chemist's Initials

MM

Correct Technique Followed:

Chemist's Initials

MM

Procedure:

This batchsheet is a guideline only. Please see test procedure for complete set of instructions.

SubSampling

- ☐
- ☐ Subsample 10g weight wet (5g dry weight)
- ☐ Spike the samples with Extraction/Native Standards.
- ☐ Soxhlet extract in DCM for 16 hours.
- ☐ Rotovap down to ~4ml. Transfer with hexane rinses to tube.
- ☐ Reduce gently to 1mL

Sili Column (Column does not contain carbon)

- Load sample with 3x1mL hexane rinses
 - F1 = 25 mL of Hexane
 - F2 = 50mL of 1:1 DCM:Hexane
- Reduce sili-column F2 to 1mL.

Mini Acid Silica Column

- Load sample with 3x1mL hexane rinses
 - Elute with 15 ml of DCM

Robo-vial

- Reduce to 5mL
- Spike IS standard and mix thoroughly
- Remove 1ml from C-tube and transfer to a robovial and submit FV=1000ul
- Transfer remaining 4ml to a supelco vial and archive

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	182576	
Hexane	183262	
DCM	103502	
Toluene	103253	
Nonane	ORG-WAKONON-	
1:1 DCM:HEX	ORG-DH2- 508	
Sodium Sulphate	ORG-SSU- 1919	
Acid Silica	ORG-ASI- 7854	
Neutral Silica	ORG-NSI- 1746	
Alumina	ORG-ALU-	
Chromacarb	ORG-CC-	
Corn Oil	ORG-CO-	

deactivated silica ORG-DASIN- 273/204

Comments:

WG:			Prep Analyst:		
Analysis:			Date:		
	Very Good	Meets Method Req	Some Outliers	Very Poor	Comments / Was spl/batch sent for rework? Why?
MB					
LCS					
DUP					
ES rec					

Extraction Workup Sheet

Batch ID: WG2856784

Analysis: Sediments - OCP

BU-TM-1110 Overall HR Prep

Analyst: Radhika Menon

Date: 29-Aug-2018

SUBSAMPLING		
Sample I.D.	Client I.D.	Subsample Size (g)
WG2856784-1	Method Blank	10.10
WG2856784-2	Laboratory Control Sample	10.14
WG2856784-3	Extraction and Injection STD.	—
L2148686-57	PDI-SC-S150-4TO6D	10.20
WG2856784-4	Duplicate(L2148686-57)	10.06
L2148686-58	PDI-SC-S150-6TO7.7	10.26
L2148686-59	PDI-SC-S136-6TO7	10.29
L2148686-60	PDI-SC-S136-7TO9	10.03
L2148686-61	PDI-SC-S136-9TO11.3	10.16
L2148686-62	PDI-SC-S092-0TO2	10.12
L2148686-63	PDI-SC-S092-2TO4	10.16
L2148686-64	PDI-SC-S092-4TO6	10.03
L2148686-65	PDI-SC-S092-4TO6D	10.19
L2148686-66	PDI-SC-S092-6TO8	10.04
L2148686-67	PDI-SC-S092-8TO9.9	10.33
L2148686-68	PDI-SC-S092-9.9TO10.9	10.19
L2148686-69	PDI-SC-S065-0TO2	10.09
L2148686-70	PDI-SC-S065-2TO4	10.11
L2148686-71	PDI-SC-S256-2TO4D	10.23
L2148686-72	PDI-SC-S256-4TO6	10.23
L2148686-73	PDI-SC-S256-6TO8	10.15
L2148686-74	PDI-SC-S256-8TO9.7	10.16
L2148686-75	PDI-SC-S256-9.7TO10.7	10.16
L2148686-77	PDI-SC-S053-0TO2	10.23
See Special submission instructions		

BATCH TRACKING

	Date/Time/Initials
Subsampling:	RM 2:00pm 29-Aug-18
Balance ID	3955
Client Labels Checked:	RM 2:00pm 29-Aug-18
Samples Spiked	RM
Soxhlet start time:	RM 4:30pm 29-Aug-18
Soxhlet reflux properly:	RM
Soxhlet end time:	
Rotovap + temp check:	JA2
Sili Column:	JA2
Mini Acid	NA 31-Aug-18 10:00am
	/
	/
	/
Robo-Vialing:	2:00pm NA 31-Aug-18
Update to LIMS:	3:00pm NA 31-Aug-18

Batch ID: WG2856784

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2856784-1	20	✓
WG2856784-2	20	✓
WG2856784-3	20	✓
L2148686-57	20	✓
WG2856784-4	20	✓
L2148686-58	20	✓
L2148686-59	20	✓
L2148686-60	20	✓
L2148686-61	20	✓
L2148686-62	20	✓
L2148686-63	20	✓
L2148686-64	20	✓
L2148686-65	20	✓
L2148686-66	20	✓ ✱
L2148686-67	20	✓ ✱
L2148686-68	20	✓ ✱
L2148686-69	20	✓ ✱
L2148686-70	20	✓ ✱
L2148686-71	20	✓ ✱
L2148686-72	20	✓ ✱
L2148686-73	20	✓ ✱
L2148686-74	20	✓ ✱
L2148686-75	20	✓ ✱
L2148686-77	20	✓ ✱
	20	

Syringe ID

137

Standard:

HROCP_DDX-ES#1-0010

Spike Date:

29-Aug-2018

Spike Witnessing

Chemist:

Chemist's Initials

RM

Witness:

Witness's Initials

NB

Correct Syringe Obtained:

Witness's Initials

NB

Correct Standard Obtained:

Witness's Initials

NB

Correct Technique Followed:

Witness's Initials

NB

Batch ID: WG2856784

Syringe ID

202

Standard:

HROCP-NS#2-001A

Date &
Initials:

29-Aug-2018 RM

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2856784-2	20	✓
WG2856784-3	20	✓
	20	
	20	

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2856784-1	20	✓
WG2856784-2	20	✓
WG2856784-3	20	✓
L2148686-57	20	✓
WG2856784-4	20	✓
L2148686-58	20	✓
L2148686-59	20	✓
L2148686-60	20	✓
L2148686-61	20	✓
L2148686-62	20	✓
L2148686-63	20	✓
L2148686-64	20	✓
L2148686-65	20	✓
L2148686-66	20	✓
L2148686-67	20	✓
L2148686-68	20	✓
L2148686-69	20	✓
L2148686-70	20	✓
L2148686-71	20	✓
L2148686-72	20	✓
L2148686-73	20	✓
L2148686-74	20	✓
L2148686-75	20	✓
L2148686-77	20	✓
	20	

Syringe ID

218

Standard:

HROCP-IS#1-015B

Date &
Initials:

31-Aug-18 NA

Correct Syringe Obtained:

Chemist's Initials

NA

Correct Standard Obtained:

Chemist's Initials

NA

Correct Technique Followed:

Chemist's Initials

NA

Procedure:

This batchsheet is a guideline only. Please see test procedure for complete set of instructions.

SubSampling☐☐

Subsample 10g weight wet (5g dry weight)

☐

Spike the samples with Extraction/Native Standards.

☐

Soxhlet extract in DCM for 16 hours.

☐

Rotovap down to ~4ml. Transfer with hexane rinses to tube.

☐

Reduce gently to 1mL

Sili Column (Column does not contain carbon)

- Load sample with 3x1mL hexane rinses

- F1 = 25 mL of Hexane

- F2 = 50mL of 1:1 DCM:Hexane

- Reduce sili-column F2 to 1mL.

Mini Acid Silica Column

- Load sample with 3x1mL hexane rinses

- Elute with 15 ml of DCM

Robo-vial

- Reduce to 5mL

-Spike IS standard and mix thoroughly

-Remove 1ml from C-tube and transfer to a robovial and submit FV=1000ul

- Transfer remaining 4ml to a supelco vial and archive

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	103258	
Hexane	183283	
DCM	103443	
Toluene	103283	
Nonane	ORG-WAKONON- 040	
1:1 DCM:HEX	ORG-DH2- 508	
Sodium Sulphate	ORG-SSU- 1915	
Acid Silica	ORG-ASI- 7854	
Neutral Silica	ORG-NSI- 1745	
Alumina	ORG-ALU- 200	
Chromacarb	ORG-CC- -	
Corn Oil	ORG-CO- -	

Comments:

WG:			Prep Analyst:		
Analysis:			Date:		
	Very Good	Meets Method Req	Some Outliers	Very Poor	Comments / Was spl/batch sent for rework? Why?
MB					
LCS					
DUP					
ES rec					

Extraction Workup Sheet

Batch ID: WG2856797

BU-TM-1110 Overall HR Prep

Analysis: Sediments - OCP

Analyst: Radhika Menon

Date: 30-Aug-2018

SUBSAMPLING

Sample I.D.	Client I.D.	Subsample Size (g)
WG2856797-1	Method Blank	10.17
WG2856797-2	Laboratory Control Sample	10.12
WG2856797-3	Extraction and Injection STD.	—
L2148686-78	PDI-SC-S053-2TO4	10.32
L2148686-79	PDI-SC-S053-4TO6	10.62
L2148686-80	PDI-SC-S053-6TO8	10.06
L2148686-81	PDI-SC-S053-8TO10	10.04
L2148686-82	PDI-SC-S053-10TO12.4	10.01
L2150263-1	PDI-SC-S108-8.8TO9.8	10.06
WG2856797-4	Duplicate(L2150263-1)	10.63
L2150263-2	PDI-SC-S108-6.7TO8.8	10.08
L2150263-3	PDI-SC-S108-4.7TO6.7	10.04
L2150263-4	PDI-SC-S108-3TO4.7	10.25
L2150263-5	PDI-SC-S108-1.9TO3	10.22
L2150263-6	PDI-SC-S108-0TO1.9	10.19
L2150263-7	PDI-SC-S232-4TO6.2	10.05
L2150263-8	PDI-SC-S232-2TO4	10.15
L2150263-9	PDI-SC-S232-0TO2	10.11
L2150263-11	PDI-SC-S157-0TO2	10.14
L2150263-12	PDI-SC-S157-3.7TO6	10.14
L2150263-13	PDI-SC-S157-14TO15.9	10.08
L2150263-14	PDI-SC-S157-8TO10	10.01
L2150263-15	PDI-SC-S157-2TO3.7	10.23
L2150263-16	PDI-SC-S157-10TO12.4	10.10
See Special submission instructions		

BATCH TRACKING

	Date/Time/Initials
Subsampling:	RM 11:30 AM 30 Aug 18
Balance ID	3955
Client Labels Checked:	RM 11:30 AM 30 Aug 18
Samples Spiked	RM 3:00 PM 30 Aug 2018
Soxhlet start time:	RM 3:30 PM 30 Aug 2018
Soxhlet reflux properly:	RM
Soxhlet end time:	RM 8:00 AM 31 Aug 2018
Rotovap + temp check:	JAZ 04 Sep 2018
Sili Column:	JAZ 04 Sep 2018
Mini Acid	NA 5:30 PM 28 11:00 AM
	/
	/
Robo-Vialing:	NA 5-Sep-2018 2:00 pm
Update to LIMS:	NA 5-Sep-18 4:00 pm

Batch ID: WG2856797

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2856797-1	20	✓
WG2856797-2	20	✓
WG2856797-3	20	✓
L2148686-78	20	✓
L2148686-79	20	✓
L2148686-80	20	✓
L2148686-81	20	✓
L2148686-82	20	✓
L2150263-1	20	✓
WG2856797-4	20	✓
L2150263-2	20	✓
L2150263-3	20	✓
L2150263-4	20	✓
L2150263-5	20	✓
L2150263-6	20	✓
L2150263-7	20	✓
L2150263-8	20	✓
L2150263-9	20	✓
L2150263-11	20	✓
L2150263-12	20	✓
L2150263-13	20	✓
L2150263-14	20	✓
L2150263-15	20	✓
L2150263-16	20	✓
	20	

Syringe ID

137

Standard:

HROCP_DDX-ES#1-0010

Spike Date:

30-Aug-2018

Spike Witnessing

Chemist's Initials

Chemist:

RM

Witness's Initials

Witness:

NB

Witness's Initials

Correct Syringe Obtained:

NB

Witness's Initials

Correct Standard Obtained:

NB

Witness's Initials

Correct Technique Followed:

NB

Batch ID: WG2856797

DX Native Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG2856797-2	20	✓
WG2856797-3	20	✓
	20	
	20	

Syringe ID

202

Standard:

HROCP-NS#2-001A

Date &
Initials:

30-Aug-2018 RM

DX Injection Standard:

Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG2856797-1	20	✓
WG2856797-2	20	✓
WG2856797-3	20	✓
L2148686-78	20	✓
L2148686-79	20	✓
L2148686-80	20	✓
L2148686-81	20	✓
L2148686-82	20	✓
L2150263-1	20	✓
WG2856797-4	20	✓
L2150263-2	20	✓
L2150263-3	20	✓
L2150263-4	20	✓
L2150263-5	20	✓
L2150263-6	20	✓
L2150263-7	20	✓
L2150263-8	20	✓
L2150263-9	20	✓
L2150263-11	20	✓
L2150263-12	20	✓
L2150263-13	20	✓
L2150263-14	20	✓
L2150263-15	20	✓
L2150263-16	20	✓
	20	✓

Syringe ID

218

Standard:

HROCP-IS#1-015A

Date &
Initials:

5-Sep-2018 NA

Correct Syringe Obtained:

Chemist's Initials

NA

Correct Standard Obtained:

Chemist's Initials

NA

Correct Technique Followed:

Chemist's Initials

NA

Procedure:

This batchsheet is a guideline only. Please see test procedure for complete set of instructions.

SubSampling☐☐

Subsample 10g weight wet (5g dry weight)

☐

Spike the samples with Extraction/Native Standards.

☐

Soxhlet extract in DCM for 16 hours.

☐

Rotovap down to ~4ml. Transfer with hexane rinses to ctube.

☐

Reduce gently to 1mL

Sili Column (Column does not contain carbon)

- Load sample with 3x1mL hexane rinses

- F1 = 25 mL of Hexane

- F2 = 50mL of 1:1 DCM:Hexane

- Reduce sili-column F2 to 1mL.

Mini Acid Silica Column

- Load sample with 3x1mL hexane rinses

- Elute with 15 ml of DCM

Robo-vial

- Reduce to 5mL

-Spike IS standard and mix thoroughly

-Remove 1ml from C-tube and transfer to a robovial and submit FV=1000ul

- Transfer remaining 4ml to a supelco vial and archive

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	103258	
Hexane	183283	
DCM	103443	
Toluene	103253	
Nonane	ORG-WAKONON-	
1:1 DCM:HEX	ORG-DH2- 508	
Sodium Sulphate	ORG-SSU- 1915	
Acid Silica	ORG-ASI- 7860	
Neutral Silica	ORG-NSI- 1747	
Alumina	ORG-ALU-	
Chromacarb	ORG-CC-	
Corn Oil	ORG-CO-	

Comments:

WG:			Prep Analyst:		
Analysis:			Date:		
	Very Good	Meets Method Req	Some Outliers	Very Poor	Comments / Was spl/batch sent for rework? Why?
MB					
LCS					
DUP					
ES rec					

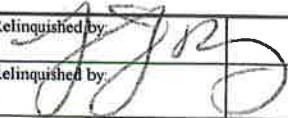
SVOC DATA PACKAGE

SECTION 7: SHIPPING/RECEIVING DOCUMENTS

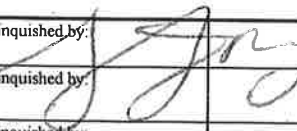
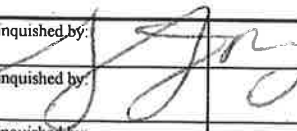
Including:

- Airbills
- Chain-of-Custody Records
- Sample Log-in Sheet(s) - where applicable
- Others as listed below:

ALS-Burlington 1435 Norjohn Court Unit 1 Burlington, Ontario Canada L7L 0E6 Ph: 1-905-331-3111 Fax: 0		SUBSURFACE SEDIMENT CHAIN OF CUSTODY																				
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) W ☒ 21 days ☐ Other _____				Site Contact: Jennifer Ray Laboratory Contact: Whitney Davis				Date: 8/16/18 Carrier: FedEx				COC No: 1 1 of 7 pages								
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, DDx only	WQ-Pest, DDx only												
PDI-SC-S109 - 0 to 2		8/15/2018	18:00	SC		ED	1		x													
PDI-SC-S109 - 2 to 4		8/15/2018	18:05	SC		ED	1		x													
PDI-SC-S109 - 4 to 6		8/15/2018	18:10	SC		ED	2		x													
PDI-SC-S109 - 6 to 8		8/15/2018	18:15	SC		ED	2		x													
PDI-SC-S109 - 8 to 10		8/15/2018	18:20	SC		ED	1		x													
PDI-SC-S109 - 10 to 11.3		8/15/2018	18:25	SC		ED	1		x													
PDI-SC-S131 - 0 to 2		8/16/2018	8:50	SC		ED	1		x													
PDI-SC-S131 - 2 to 4		8/16/2018	8:55	SC		ED	1		x													
PDI-SC-S131 - 4 to 6		8/16/2018	9:00	SC		ED	1		x													
PDI-SC-S131 - 6 to 8		8/16/2018	9:05	SC		ED	1		x													
PDI-SC-S256 - 0 to 2		8/16/2018	10:25	SC		ED	1		x													
PDI-SC-S256 - 2 to 4		8/16/2018	10:30	SC		ED	1		x													
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Coll Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)								AG	AG	WMG	WMG	AG										
Sample Disposal ☐ Return To Client ☒ Disposal By Lab ☒ Archive For 12 Months																						
Special Instructions/QC Requirements & Comments:																						
Relinquished by:		Company: AECOM		Date/Time: 8/16/18/1540		Received by: FEDEX		Company:		Date/Time:												
Relinquished by:		Company:		Date/Time:		Received by: AARON BURTON		Company: ALS		Date/Time: 17-Aug-2018 16:05												
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:												

ALS-Burlington 1435 Norjohn Court Unit 1 Burlington, Ontario Canada L7L 0E6 Ph: 1-905-331-3111 Fax: 0		SUBSURFACE SEDIMENT CHAIN OF CUSTODY																	
Client Contact		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010				Site Contact: Jennifer Ray Laboratory Contact: Whitney Davis				Date: 8/16/18 Carrier: FedEx				COC No: 1 12 of 7 pages					
Analysis Turnaround Time		Calendar (C) or Work Days (W) W																	
Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling		☒ 21 days																	
Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:		☐ Other _____																	
Sample Identification	Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, DBs only	WQ-Pest, DBs only									Sample Specific Notes:	
PDI-RB-SS-180814-1040	8/14/2018	10:40	W		ED	2			x									13	
PDI-RB-SS-180815-0730	8/15/2018	7:30	W		ED	2			x									14	
PDI-RB-SS-180815-1340	8/15/2018	13:40	W		ED	2			x									15	
PDI-SC-S113(A) - 0 to 2.2	8/15/2018	15:25	SC		ED	2		x										16	
PDI-SC-S113(A) - 2.2 to 4.6	8/15/2018	15:30	SC		ED	2		x										17	
PDI-SC-S113(A) - 2.2 to 4.6D	8/15/2018	15:30	SC		ED	2		x										18	
PDI-SC-S113(B) - 3.6 to 5.6	8/15/2018	16:45	SC		ED	2		x										19	
PDI-SC-S113(B) - 5.6 to 7.4	8/15/2018	16:50	SC		ED	2		x										20	
PDI-SC-S113(B) - 7.4 to 10	8/15/2018	16:55	SC		ED	2		x										21	
PDI-SC-S113(B) - 10 to 12	8/15/2018	17:00	SC		ED	2		x										22	
PDI-SC-S113(B) - 12 to 13.8	8/15/2018	17:05	SC		ED	2		x										23	
PDI-SC-S113(B) - 13.8 to 15.6	8/15/2018	18:00	SC		ED	2		x											
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Container Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)							AG	AG	WMG	WMG	AG								
Sample Disposal ☐ Return To Client ☒ Spinal By Lab ☒ Archive For 12 Months																			
Special Instructions/QC Requirements & Comments:																			
Relinquished by:  Company: AECOM Date/Time: 8/16/18 1540 Received by: FEDEX Company: ALB Date/Time: 17-Aug-2018 16:05																			
Relinquished by: Company: Date/Time: Received by: Aaron Burton Company: Date/Time:																			
Relinquished by: Company: Date/Time: Received by: Company: Date/Time:																			

ALS-Burlington 1435 Norjohn Court Unit 1 Burlington, Ontario Canada L7L OE6 Ph: 1-905-331-3111 Fax: 0							SUBSURFACE SEDIMENT CHAIN OF CUSTODY																		
Client Contact		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010					Site Contact: Jennifer Ray Laboratory Contact: Whitney Davis					Date: 8/16/18 Carrier: FedEx					COC No: 1 3 of 7 pages								
Analysis Turnaround Time																									
Calendar (C) or Work Days (W) W																									
☒ 21 days																									
☐ Other _____																									
Portland, OR																									
Project #: 60566335 Study: Subsurface Sediment																									
Sample Type:																									
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, DDx only													Sample Specific Notes:			
PDI-SC-S065 - 4 to 6		8/14/2018	11:20	SC		ED	2		x													24			
PDI-SC-S065 - 6 to 8		8/14/2018	11:25	SC		ED	2		x													25			
PDI-SC-S065 - 8 to 10		8/14/2018	11:30	SC		ED	2		x													26			
PDI-SC-S065 - 12 to 14.3		8/14/2018	11:40	SC		ED	2		x													27			
PDI-SC-S070 - 0 to 1.1		8/14/2018	12:35	SC		ED	2		x													28			
PDI-SC-S070 - 1.1 to 2.4		8/14/2018	12:40	SC		ED	2		x													29			
PDI-SC-S070 - 2.4 to 4.4		8/14/2018	12:45	SC		ED	2		x													30			
PDI-SC-S070 - 4.4 to 6.4		8/14/2018	12:50	SC		ED	2		x													31			
PDI-SC-S070 - 6.4 to 8.4		8/14/2018	12:55	SC		ED	2		x													32			
PDI-SC-S070 - 8.4 to 10.4		8/14/2018	13:00	SC		ED	2		x													33			
PDI-SC-S065 - 10 to 12 ASPEX		8/14/2018	11:35	SC		ED	2		x													34			
PDI-SC-S070 - 10.4 to 12.6 ASPEX		8/14/2018	13:10	SC		ED	2		x													35			
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Container Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)								AG	AG	WMG	WMG	AG													
Special Instructions/QC Requirements & Comments:								Sample Disposal ☐ Return To Client ☒ Spinal By Lab ☒ Archive For 12 Months																	
Relinquished by: 		Company: AECOM		Date/Time: 8/16/18/1540		Received by: FEDEx		Company:		Date/Time:		4.0°C													
Relinquished by: 		Company:		Date/Time:		Received by: ARRON BURTON		Company:		Date/Time: 17-Aug-2018 16:05															
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:															

ALS-Burlington 1435 Norjohn Court Unit 1 Burlington, Ontario Canada L7L 0E6 Ph: 1-905-331-3111 Fax: 0		SUBSURFACE SEDIMENT CHAIN OF CUSTODY																							
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) W ☒ 21 days ☐ Other _____				Site Contact: Jennifer Ray Laboratory Contact: Whitney Davis Date: 8/16/18 Carrier: FedEx						COC No: 1 5 of 4 pages													
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, DDs only																
PDI-SC-S151 - 2 to 4		8/14/2018	9:35	SC		ED	2		x												Sample Specific Notes: 48				
PDI-SC-S151 - 0 to 2		8/14/2018	9:30	SC		ED	2		x												49				
PDI-SC-S151 - 4 to 6		8/14/2018	9:40	SC		ED	2		x												50				
PDI-SC-S151 - 6 to 8		8/14/2018	9:45	SC		ED	2		x												51				
PDI-SC-S151 - 8 to 10		8/14/2018	9:50	SC		ED	2		x												52				
PDI-SC-S151 - 10 to 12		8/14/2018	9:55	SC		ED	2		x												53				
PDI-SC-S150 - 0 to 2		8/14/2018	12:05	SC		ED	2		x												54				
PDI-SC-S150 - 2 to 4		8/14/2018	12:10	SC		ED	2		x												55				
PDI-SC-S150 - 4 to 6		8/14/2018	12:15	SC		ED	2		x												56				
PDI-SC-S150 - 4 to 6D		8/14/2018	12:15	SC		ED	2		x												57				
PDI-SC-S150 - 6 to 7.7		8/14/2018	12:20	SC		ED	2		x												58				
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Container Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)									AG	AG	WMG	WMG	AG												
Special Instructions/QC Requirements & Comments:									Sample Disposal ☐ Return To Client ☒ Disposal By Lab ☒ Archive For 12 Months																
Relinquished by: 		Company: AECOM		Date/Time: 8/16/18 1540		Received by: FEDEx		Company:		Date/Time:		4.0°C													
Relinquished by: 		Company:		Date/Time:		Received by: ARROW BULTON		Company: ALS		Date/Time: 17-Aug-2018 16:05															
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:															

ALS-Burlington 1435 Norjohn Court Unit 1 Burlington, Ontario Canada L7L 0E6 Ph: 1-905-331-3111 Fax: 0		SUBSURFACE SEDIMENT CHAIN OF CUSTODY																			
Client Contact AECOM 1111 3rd Ave Suite 1600 Seattle, WA 98101 Phone: (206) 438-2700 Fax: 1+(866) 495-5288 Project Name: Portland Harbor Pre-Remedial Design Investigation and Baseline Sampling Portland, OR Project #: 60566335 Study: Subsurface Sediment Sample Type:		Project Contact: Amy Dahl / Chelsey Cook Tel: (206) 438-2261 / (206) 438-2010 Analysis Turnaround Time Calendar (C) or Work Days (W) W ☒ 21 days ☐ Other _____				Site Contact: Jennifer Ray Laboratory Contact: Whitney Davis						Date: 8/16/18 Carrier: FedEx						COC No: 1 78 of 7 pages			
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, DDx only	WQ-Fest, DDx only											
PDI-SC-S256 - 2 to 4D		8/16/2018	10:30	SC		ED	1		x												
PDI-SC-S256 - 4 to 6		8/16/2018	10:35	SC		ED	1		x												
PDI-SC-S256 - 6 to 8		8/16/2018	10:40	SC		ED	1		x												
PDI-SC-S256 - 8 to 9.7		8/16/2018	10:45	SC		ED	1		x												
PDI-SC-S256 - 9.7 to 8.7		8/16/2018	10:50	SC		ED	1		x												
PDI-RB-SS-180816-1110		8/16/2018	11:10	W		ED	2			2											
PDI-SC-S053-0 to 2		8/16/2018	13:00	SC		ED	1		x												
PDI-SC-S053-2 to 4		8/16/18	13:05	SC		ED	1		x												
PDI-SC-S053-4 to 6		8/16/18	13:10	SC		ED	1		x												
PDI-SC-S053-6 to 8		8/16/18	13:15	SC		ED	1		x												
PDI-SC-S053-8 to 10		8/16/18	13:20	SC		ED	1		x												
PDI-SC-S053-10 to 12.4		8/16/18	13:25	SC		ED	1		x												
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Coll Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)										AG	AG	WMG	WMG	AG							
Special Instructions/QC Requirements & Comments:										Sample Disposal ☐ Return To Client ☒ Disposal By Lab ☒ Archive For 12 Months											
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:											
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:											
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:											

ORIGIN ID:MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS ST

PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 16AUG18
ACTWGT: 52.00 LB
CAD: 6991782/SSF01904
DIMS: 25x14x13 IN

BILL THIRD PARTY

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ALS ENVIRONMENTAL C/O FED. EX. DEPT
299 CAYUGA RD

CHEEKTOWAGA NY 14225

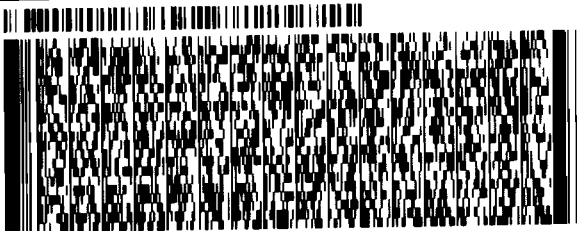
(906) 340-0821

REF:

THU:

PO:

DEPT:



FedEx
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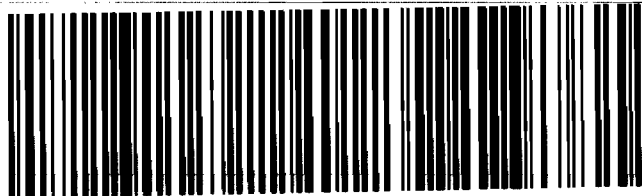
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1 of 4
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MASTER

FRI - 17 AUG 10:30A
PRIORITY OVERNIGHT

XX BUFA

14225
NY-US BUF



ORIGIN ID:MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS ST

PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 16AUG18
ACTWGT: 60.00 LB
CAD: 6991782/SSF01904
DIMS: 25x14x13 IN

BILL THIRD PARTY

TO **WHITNEY DAVIS**
ALS ENVIRONMENTAL C/O FED. EX. DEPT
299 CAYUGA RD

CHEEKTOWAGA NY 14225

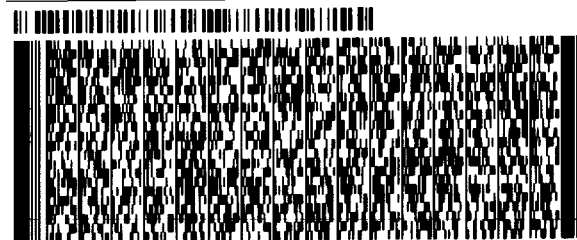
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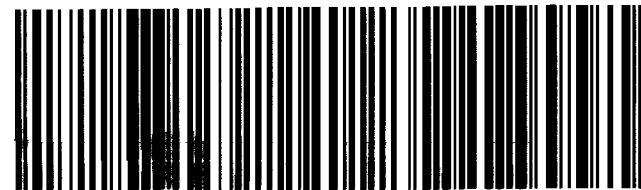
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2 of 4
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FRI - 17 AUG 10:30A
PRIORITY OVERNIGHT

XX BUFA

14225
NY-US BUF



ORIGIN ID: MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS ST
PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 16AUG18
ACTWGT: 62.00 LB
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DIMS: 25x14x13 IN
BILL THIRD PARTY

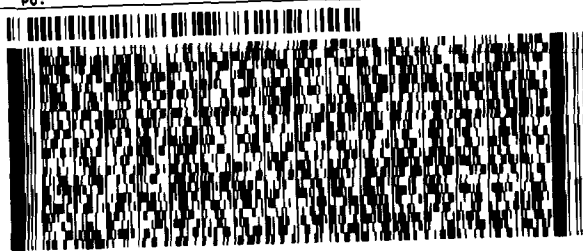
TO **WHITNEY DAVIS**
ALS ENVIRONMENTAL C/O FED. EX. DEPT
299 CAYUGA RD

CHEEKTOWAGA NY 14225

(906) 340-0821
INV:
PO:

REF:

DEPT:



FedEx
Express



J182018072201uv

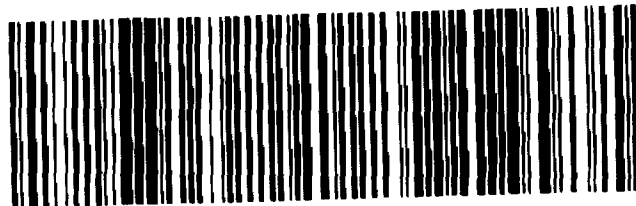
3 of 4
MPS# 7823 4248 9797
0263
Mstr# 7823 4248 9775

FRI - 17 AUG 10:30A
PRIORITY OVERNIGHT

0201

XX BUFA

14225
NY-US BUF



ORIGIN ID: MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS ST
PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 16AUG18
ACTWGT: 60.00 LB
CAD: 6991782/SSFO1904
DIMS: 25x14x13 IN
BILL THIRD PARTY

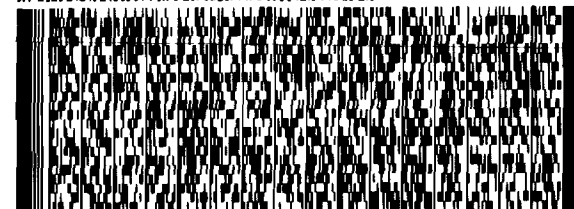
TO **WHITNEY DAVIS**
ALS ENVIRONMENTAL C/O FED. EX. DEPT
299 CAYUGA RD

CHEEKTOWAGA NY 14225

(906) 340-0821
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PO:

REF:

DEPT:



FedEx
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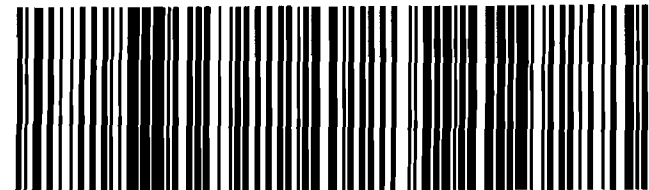
4 of 4
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0263
Mstr# 7823 4248 9775

FRI - 17 AUG 10:30A
PRIORITY OVERNIGHT

0201

XX BUFA

14225
NY-US BUF



Sample Receiving Log

Date/Time Received	Client ID	Number/Description of Containers	Temp. on Receipt*	Condition of Samples, Courier & Tracking Information	Receiver's Initials	Date/Time Login Completed	Submission ID	Sample ID Range
17-Aug-2018 16:05	Aecom	134 jars of soil 8 x 1L amber bottles	4.0°C	Hand FedEx 7823 4248 9775	Ng	20-Aug-2018 9:15	L2148686	-1-82

*Temperatures were recorded using: ☒ Oakton infraPro' dedicated I.R. gun (serial #97800270)

☐ Other (specify): _____

BU-FM-0261c v02 Sample Receiving Log

Date Issued: 21-Aug-2017

Page: 1047