



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): L2146267

Final Package Review by:

A handwritten signature in black ink, appearing to read 'Whitney Davis', is written over a horizontal line.

Date Reviewed: 5-Sep-18

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100
Contact: Whitney Davis
Submission ID(s): L2146267

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
L2146267-1	PDI-SC-S103-0TO2	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	31-Aug-18
WG2848066-4	Duplicate	QC	n/a	n/a	23-Aug-18	31-Aug-18
L2146267-2	PDI-SC-S103-2TO4	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-3	PDI-SC-S103-4TO6	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-4	PDI-SC-S103-6TO8	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-5	PDI-SC-S103-8TO9.7	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	04-Sep-18
L2146267-6	PDI-SC-S103-9.7TO10.7	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	04-Sep-18
L2146267-7	PDI-SC-S103-10.7TO13.4	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-8	PDI-SC-S238-0TO2	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-9	PDI-SC-S238-2TO4	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
WG2848066-1	Method Blank	QC	n/a	n/a	23-Aug-18	31-Aug-18
WG2848066-2	Laboratory Control Sample	QC	n/a	n/a	23-Aug-18	31-Aug-18

Comments and Notes:

a) Sample Integrity:

All samples were received in good condition at 5.6 degrees C.

b) Instrumental Analysis:

*** REVISED REPORT ***

This report supersedes all prior reports for the above-noted workorder and test. The report has been revised as follows:

On further review it was found that the filename for the analytical result for sample "PDI-SC-S103-10.7TO13.4" (lab id L2146267-7) was incorrect on the sample analysis report page. The correct filename has been added.

All results have been reported on a dry weight basis

The samples have been analyzed with an instrument method where conditions are optimized for acquisition of the selected targets only.

The highest available calibration level has not been analyzed as it was expected to saturate the instrument detector.

Six calibration levels have been included.

For H6-18-CCV-0857 & 0859, the CCVs for the last CCV bracket of analytical sequence 6-180830A, the recovery of the labelled standards 13C12-4,4'-DDD and/or 13C12-4,4'-DDT were below the method control limit. The reported recoveries of this standard may be biased. low as a result. Native target data are not expected to be biased as a result.

For H6-18-CCV-0874 & 0876, the CCVs for the last CCV bracket of analytical sequence 6-180903A, the recovery of the labelled standards 13C12-4,4'-DDD and 13C12-4,4'-DDT were above the method control limit. The reported recoveries of this standard may be elevated. as a result. Native target data are not expected to be biased.

The pre-run CCV from analytical sequence 6-180904a, has been identified as H6-18-CCV-0874, which is a duplicate name. The results for this CCV can be uniquely identified from the Data Filename.

For the samples PDI-SC-S103-8TO9.7 and PDI-SC-S103-9.7TO10.7, the results have been reported from a re-analysis of the extracts in order to preclude the possibility of carryover from a prior higher level extract.

The sample and laboratory duplicate results for 2,4-DDT and 4,4'-DDT show significant difference. The result for all of the other targets match quite well. The sample may not be homogeneous

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Steve Kennedy, Technical Supervisor

5-Sep-18
Date

SVOC DATA PACKAGE

SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100

Contact: Whitney Davis
Submission ID(s): L2146267

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
L2146267-10	PDI-SC-S238-2TO4D	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
WG2851282-4	PDI-SC-S238-2TO4D Duplicate	QC	n/a	n/a	23-Aug-18	01-Sep-18
L2146267-11	PDI-SC-S238-4TO6	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-12	PDI-SC-S238-6TO8	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-13	PDI-SC-S238-8TO10	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-14	PDI-SC-S238-10TO12.4	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-15	PDI-SC-S238-12.4TO13.4	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-16	PDI-SC-S229-0TO2	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-18	PDI-SC-S229-4TO6	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	04-Sep-18
L2146267-19	PDI-SC-S229-6TO8	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	04-Sep-18
L2146267-20	PDI-SC-S229-8TO9.9	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
L2146267-21	PDI-SC-S229-9.9TO12.5	Sediment	09-Aug-18	14-Aug-18	23-Aug-18	01-Sep-18
WG2851282-1	Method Blank	QC	n/a	n/a	23-Aug-18	01-Sep-18
WG2851282-2	Laboratory Control Sample	QC	n/a	n/a	23-Aug-18	01-Sep-18

Comments and Notes:

a) Sample Integrity:

All samples were received in good condition at 5.6 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis

The samples have been analyzed with an instrument method where conditions are optimized for acquisition of the selected targets only.

The highest available calibration level has not been analyzed as it was expected to saturate the instrument detector.

Six calibration levels have been included.

For H6-18-CCV-0874 & 0876, the CCVs for the last CCV bracket of analytical sequence 6-180903A, the recovery of the labelled standards 13C12-4,4'-DDD and 13C12-4,4'-DDT were above the method control limit. The reported recoveries of this standard may be elevated as a result. Native target data are not expected to be biased.

For the samples PDI-SC-S229-4TO6 and PDI-SC-S229-6TO8, the results have been reported from a re-analysis of the extracts in order to preclude the possibility of carryover from a prior higher level extract.

For the samples PDI-SC-S238-8TO10 and PDI-SC-S238-12.4TO13.4, the recovery of the labelled standard 13C12-4,4'-DDE was marginally below the method control limit. As a result, the detection limits for 2,4'-DDE and 4,4'-DDE may be elevated. Native target data are not expected to be biased.

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SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100

Contact: Whitney Davis
Submission ID(s): L2146267

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
L2146267-22	PDI-SC-S230-0TO2	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
WG2851408-4	PDI-SC-S230-0TO2 Duplicate	QC	n/a	n/a	24-Aug-18	02-Sep-18
L2146267-23	PDI-SC-S230-2TO4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-24	PDI-SC-S230-4TO6	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-25	PDI-SC-S010-0TO2	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-26	PDI-SC-S010-2TO4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-27	PDI-SC-S010-4TO6.4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-28	PDI-SC-S010-6.4TO8.4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-29	PDI-SC-S010-8.4TO10.8	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-30	PDI-SC-S010-10.8TO13.4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-31	PDI-SC-S010-13.4TO14.4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-32	PDI-SC-S009-0TO2	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-33	PDI-SC-S009-2TO4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-34	PDI-SC-S009-4TO6	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-35	PDI-SC-S009-6TO8	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-36	PDI-SC-S009-8TO10	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-37	PDI-SC-S009-10TO11.4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-38	PDI-SC-S011-0TO2	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-39	PDI-SC-S011-2TO4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-40	PDI-SC-S011-4TO6	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
L2146267-41	PDI-SC-S011-6TO8	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	02-Sep-18
WG2851408-1	Method Blank	QC	n/a	n/a	24-Aug-18	02-Sep-18
WG2851408-2	Laboratory Control Sample	QC	n/a	n/a	24-Aug-18	02-Sep-18

Comments and Notes:

a) Sample Integrity:

All samples were received in good condition at 5.6 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis

The samples have been analyzed with an instrument method where conditions are optimized for acquisition of the selected targets only.

The highest available calibration level has not been analyzed as it was expected to saturate the instrument detector.

Six calibration levels have been included.

For H6-18-CCV-0874 & 0876, the CCVs for the last CCV bracket of analytical sequence 6-180903A, the recovery of the labelled standards 13C12-4,4'-DDD and 13C12-4,4'-DDT were above the method control limit. The reported recoveries of this standard may be elevated as a result. Native target data are not expected to be biased.

For the samples PDI-SC-S010-6.4TO8.4, PDI-SC-S010-8.4TO10.8 and PDI-SC-S011-0TO2 the results have been reported from a re-analysis of the extracts in order to preclude the possibility of carryover from a prior higher level extract.

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5-Sep-18
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SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100
Contact: Whitney Davis
Submission ID(s): L2146267

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
L2146267-42	PDI-SC-S011-8TO10	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
WG2851420-4	PDI-SC-S011-8TO10 Duplicate	QC	n/a	n/a	24-Aug-18	01-Sep-18
L2146267-43	PDI-SC-S011-10TO12	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-44	PDI-SC-S011-12TO14.5	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-45	PDI-SC-S011-14.5TO16.8	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-46	PDI-SC-S011-14.5TO16.8D	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-47	PDI-SC-S011-16.8TO17.9	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-48	PDI-SC-S011-17.9TO18.9	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-49	PDI-SC-S004-0TO2	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-50	PDI-SC-S004-2TO4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-51	PDI-SC-S004-4TO6	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-52	PDI-SC-S004-6TO7.3	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-64	PDI-SC-S007-10TO12	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-65	PDI-SC-S007-4TO6	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-66	PDI-SC-S007-0TO2	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-67	PDI-SC-S007-2TO4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-68	PDI-SC-S230-6TO8	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-69	PDI-SC-S230-8TO10.4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-70	PDI-SC-S230-10.4TO11.4	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-71	PDI-SC-S007-6TO8	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
L2146267-72	PDI-SC-S007-12TO14	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	01-Sep-18
WG2851420-1	Method Blank	QC	n/a	n/a	24-Aug-18	01-Sep-18
WG2851420-2	Laboratory Control Sample	QC	n/a	n/a	24-Aug-18	01-Sep-18

Comments and Notes:

a) Sample Integrity:

All samples were received in good condition at 5.6 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis

The samples have been analyzed with an instrument method where conditions are optimized for acquisition of the selected targets only.

The highest available calibration level has not been analyzed as it was expected to saturate the instrument detector.
Six calibration levels have been included.

The pre-run CCV from analytical sequence 6-180904a, has been identified as H6-18-CCV-0874, which is a duplicate name. The results for this CCV can be uniquely identified from the Data Filename.

For the sample PDI-SC-S004-2TO4 the results have been reported from a re-analysis of the extracts in order to preclude the possibility of carryover from a prior higher level extract.

A low level of 2,4'-DDT has been detected in one of the replicates, whereas it was not detected in the other. The remaining detected targets replicate well.

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Steve Kennedy, Technical Supervisor

5-Sep-18
Date



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SECTION 1: PROJECT NARRATIVE

ALSE Project Information

Project ID: AECOM100

Contact: Whitney Davis

Submission ID(s): L2146267

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
L2146267-17	PDI-SC-S229-2TO4	Sediment	09-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-53	PDI-SC-S004-7.3TO9.1	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
WG2851430-4	PDI-SC-S004-7.3TO9.1 Duplicate	QC	n/a	n/a	24-Aug-18	04-Sep-18
L2146267-54	PDI-SC-S004-9.1TO10.3	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-73	PDI-SC-S007-14TO16	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-74	PDI-SC-S007-4TO6D	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
L2146267-75	PDI-SC-S007-8TO10	Sediment	10-Aug-18	14-Aug-18	24-Aug-18	04-Sep-18
WG2851430-1	Method Blank	Sediment	n/a	n/a	24-Aug-18	04-Sep-18
WG2851430-2	Laboratory Control Sample	QC	n/a	n/a	24-Aug-18	03-Sep-18

Comments and Notes:

a) Sample Integrity:

All samples were received in good condition at 5.6 degrees C.

Sample PDI-SC-S229-2TO4 (L2146267-17) was extracted one day after the 14 day hold time. No negative impact to data quality is expected.

b) Instrumental Analysis:

All results have been reported on a dry weight basis

The samples have been analyzed with an instrument method where conditions are optimized for acquisition of the selected targets only.

The highest available calibration level has not been analyzed as it was expected to saturate the instrument detector.

Six calibration levels have been included.

For H6-18-CCV-0874, the post-run continuing calibration verification for analytical sequence 6-180903A, the recovery of the labelled standards 13C12-4,4'-DDD and 13C12-4,4'-DDT were above the method control limit. The reported recoveries of this standard may be elevated as a result. Native target data are not expected to be biased.

The sample and laboratory duplicate replication is outside method limits for 2,4'-DDE. A low level was detected as an estimated possible maximum concentration (EMPC) in one sample and not detected in the other.

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ALSE Project Information

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Contact: Whitney Davis

Submission ID(s): L2146267

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
L2146267-55	PDI-SC-S015-0TO2	Sediment	13-Aug-18	14-Aug-18	27-Aug-18	02-Sep-18
L2146267-56	PDI-SC-S015-2TO4	Sediment	13-Aug-18	14-Aug-18	27-Aug-18	02-Sep-18
L2146267-57	PDI-SC-S015-4TO6	Sediment	13-Aug-18	14-Aug-18	27-Aug-18	02-Sep-18
L2146267-58	PDI-SC-S015-6TO8	Sediment	13-Aug-18	14-Aug-18	27-Aug-18	02-Sep-18
L2146267-59	PDI-SC-S015-8TO10	Sediment	13-Aug-18	14-Aug-18	27-Aug-18	02-Sep-18
L2146267-60	PDI-SC-S015-10TO11.4	Sediment	13-Aug-18	14-Aug-18	27-Aug-18	02-Sep-18
L2146267-61	PDI-SC-S015-11.4TO12.4	Sediment	13-Aug-18	14-Aug-18	27-Aug-18	02-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

Comments and Notes:

a) Sample Integrity:

All samples were received in good condition at 5.6 degrees C.

b) Instrumental Analysis:

All results have been reported on a dry weight basis

The samples have been analyzed with an instrument method where conditions are optimized for acquisition of the selected targets only.

The highest available calibration level has not been analyzed as it was expected to saturate the instrument detector.
Six calibration levels have been included.

For all samples, the recovery of the labelled extraction standard 13C12-4,4'-DDE was below the method control limit. As a result, the detection limits may be elevated. Reported sample results are not expected to be biased.

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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
L2146267-62	PDI-RB-SS-180810-1200	Water	10-Aug-18	14-Aug-18	16-Aug-18	04-Sep-18
L2146267-63	PDI-RB-SS-180810-1730	Water	10-Aug-18	14-Aug-18	16-Aug-18	04-Sep-18
L2146267-76	PDI-RB-SS-180809-1900	Water	09-Aug-18	14-Aug-18	16-Aug-18	04-Sep-18
WG2850439-1	Method Blank	QC	n/a	n/a	16-Aug-18	04-Sep-18
WG2850439-2	Laboratory Control Sample	QC	n/a	n/a	16-Aug-18	03-Sep-18

Comments and Notes:

a) Sample Integrity:

All samples were received in good condition at 5.6 degrees C.

b) Instrumental Analysis:

The samples have been analyzed with an instrument method where conditions are optimized for acquisition of the selected targets only.

The highest available calibration level has not been analyzed as it was expected to saturate the instrument detector.

Six calibration levels have been included.

For H6-18-CCV-0874, the post-run continuing calibration verification for analytical sequence 6-180903A, the recovery of the labelled standards 13C12-4,4'-DDD and 13C12-4,4'-DDT were above the method control limit. The reported recoveries of this standard may be elevated as a result. Native target data are not expected to be biased.

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

5-Sep-18

Date

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#: L2146267
Date of Report: 5-Sep-18
Date of Sample Receipt: 14-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-S103-0TO2	Duplicate	PDI-SC-S103-2TO4	PDI-SC-S103-4TO6	PDI-SC-S103-6TO8	PDI-SC-S103-8TO9.7
ALS Sample ID	L2146267-1	WG2848066-4	L2146267-2	L2146267-3	L2146267-4	L2146267-5
Sample Size	4.90	4.70	5.41	5.17	5.39	7.04
Sample size units	g	g	g	g	g	g
Percent Solid	48.9%	46.9%	53.9%	50.5%	53.5%	68.4%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	9-Aug-18	n/a	9-Aug-18	9-Aug-18	9-Aug-18	9-Aug-18
Extraction Date	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.810	0.992	0.987	0.902	1.03	0.286
4,4'-DDE	8.36	7.57	8.53	9.07	9.14	1.97
2,4'-DDD	8.45	6.22	7.70	7.25	9.24	2.36
4,4'-DDD	24.5	21.7	25.1	30.5	27.3	8.68
2,4'-DDT	0.468	42.4	0.737	0.455	0.625	<0.076
4,4'-DDT	4.93	518	1.03	1.37	13.8	0.311
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	80	53	75	80	77	95
4,4'-DDD, 13C12-	49	50	53	59	55	73
4,4'-DDT, 13C12-	37	40	44	47	42	68

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Sample Analysis summary Report

Sample Name	PDI-SC-S103- 9.7TO10.7	PDI-SC-S103- 10.7TO13.4	PDI-SC-S238-0TO2	PDI-SC-S238-2TO4
ALS Sample ID	L2146267-6	L2146267-7	L2146267-8	L2146267-9
Sample Size	7.39	7.64	4.80	5.23
Sample size units	g	g	g	g
Percent Solid	72.3%	73.7%	47.9%	52.2%
Sample Matrix	Sediment	Sediment	Sediment	Sediment
Sampling Date	9-Aug-18	9-Aug-18	9-Aug-18	9-Aug-18
Extraction Date	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	<0.028	<0.017	0.298	0.497
4,4'-DDE	<0.023	<0.023	5.11	7.70
2,4'-DDD	<0.11	<0.075	0.837	1.64
4,4'-DDD	0.206	0.136	2.43	5.13
2,4'-DDT	<0.026	<0.035	<0.051	<0.13
4,4'-DDT	<0.058	<0.15	<0.22	0.345
Extraction Standards	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	92	70	74	77
4,4'-DDD, 13C12-	88	48	58	58
4,4'-DDT, 13C12-	97	43	47	49

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Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2848066-1	WG2848066-2
Sample Size	6.07	1.00
Sample size units	g	n/a
Percent Solid	100.0%	50.2%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	23-Aug-18	23-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	0.0337	107
4,4'-DDE	0.0742	99
2,4'-DDD	<0.078	112
4,4'-DDD	0.115	96
2,4'-DDT	<0.028	100
4,4'-DDT	0.299	95
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	68	68
4,4'-DDD, 13C12-	50	47
4,4'-DDT, 13C12-	43	42

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Continuing Calibration Summary Report					
Sample Name	CCV	CCV	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-067	H6-18-CCV-0857	H6-18-CCV-0859	H6-18-CCV-0863	H6-18-CCV-0865
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		98	101	101	100
4,4'-DDE	94	99	100	100	100
2,4'-DDD		106	106	99	103
4,4'-DDD	94	97	99	98	101
2,4'-DDT		105	108	102	104
4,4'-DDT	95	99	98	98	100
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	100	93	91	94	91
4,4'-DDD, 13C12-	104	64	74	91	83
4,4'-DDT, 13C12-	104	56	63	85	77

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Continuing Calibration Summary Report

Sample Name	CCV	CCV	CCV	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-068	H6-18-RS1-070	H6-18-CCV-0874	H6-18-CCV-0876	H6-18-CCV-0874	H6-18-CCV-0878
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			99	101	102	102
4,4'-DDE	95	96	100	101	101	103
2,4'-DDD			97	95	100	97
4,4'-DDD	96	96	103	102	99	97
2,4'-DDT			93	92	104	101
4,4'-DDT	94	95	99	101	101	100
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	99	103	115	115	114	117
4,4'-DDD, 13C12-	103	111	130	132	115	118
4,4'-DDT, 13C12-	104	112	148	146	126	117

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Sample Analysis summary Report

Sample Name	PDI-SC-S238-2TO4D	PDI-SC-S238-2TO4D Duplicate	PDI-SC-S238-4TO6	PDI-SC-S238-6TO8	PDI-SC-S238-8TO10	PDI-SC-S238-10TO12.4
ALS Sample ID	L2146267-10	WG2851282-4	L2146267-11	L2146267-12	L2146267-13	L2146267-14
Sample Size	5.25	5.25	5.19	6.11	5.60	5.81
Sample size units	g	g	g	g	g	g
Percent Solid	50.9%	51.1%	51.7%	59.2%	55.4%	57.2%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	9-Aug-18	n/a	9-Aug-18	9-Aug-18	9-Aug-18	9-Aug-18
Extraction Date	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.482	0.399	0.700	<0.15	<0.38	0.846
4,4'-DDE	7.13	6.05	9.07	3.00	5.46	9.67
2,4'-DDD	1.40	1.23	1.64	<0.30	0.816	1.14
4,4'-DDD	4.76	3.78	5.17	1.56	2.80	3.10
2,4'-DDT	0.179	<0.12	<0.26	<0.17	0.199	0.283
4,4'-DDT	<0.29	0.282	0.952	<0.10	0.451	0.711
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	82	76	40	23	20	85
4,4'-DDD, 13C12-	70	69	72	58	45	71
4,4'-DDT, 13C12-	61	61	50	34	29	60

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Sample Analysis summary Report

Sample Name	PDI-SC-S238-12.4TO13.4	PDI-SC-S229-0TO2	PDI-SC-S229-4TO6	PDI-SC-S229-6TO8	PDI-SC-S229-8TO9.9	PDI-SC-S229-9.9TO12.5
ALS Sample ID	L2146267-15	L2146267-16	L2146267-18	L2146267-19	L2146267-20	L2146267-21
Sample Size	5.82	4.38	7.45	7.36	7.54	6.71
Sample size units	g	g	g	g	g	g
Percent Solid	57.4%	43.8%	74.1%	72.0%	74.7%	66.0%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	9-Aug-18	9-Aug-18	9-Aug-18	9-Aug-18	9-Aug-18	9-Aug-18
Extraction Date	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18	23-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.648	0.448	0.0218	<0.013	0.0206	0.0790
4,4'-DDE	7.25	6.89	0.159	<0.016	0.0287	<0.063
2,4'-DDD	0.737	0.673	0.0570	<0.022	<0.029	<0.082
4,4'-DDD	2.25	1.88	0.179	<0.021	<0.029	<0.038
2,4'-DDT	<0.044	0.199	<0.025	<0.021	<0.028	<0.037
4,4'-DDT	<0.11	0.444	<0.097	<0.027	<0.047	<0.082
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	20	78	89	85	66	26
4,4'-DDD, 13C12-	46	63	85	85	63	57
4,4'-DDT, 13C12-	26	54	88	87	62	38

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Quality Control Summary Report		
Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2851282-1	WG2851282-2
Sample Size	6.04	1.00
Sample size units	g	n/a
Percent Solid	100.0%	49.8%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	23-Aug-18	23-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	<0.021	111
4,4'-DDE	<0.027	102
2,4'-DDD	<0.033	114
4,4'-DDD	<0.035	95
2,4'-DDT	<0.033	112
4,4'-DDT	<0.054	97
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	64	63
4,4'-DDD, 13C12-	61	62
4,4'-DDT, 13C12-	60	54

ALS Life sciences

Continuing Calibration Summary Report

Sample Name	CCV	CCV	CCV	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-068	H6-18-CCV-0863	H6-18-CCV-0865	H6-18-CCV-0874	H6-18-CCV-0876	H6-18-RS1-070
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	100	99	101	
4,4'-DDE	95	100	100	100	101	96
2,4'-DDD		99	103	97	95	
4,4'-DDD	96	98	101	103	102	96
2,4'-DDT		102	104	93	92	
4,4'-DDT	94	98	100	99	101	95
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	99	94	91	115	115	103
4,4'-DDD, 13C12-	103	91	83	130	132	111
4,4'-DDT, 13C12-	104	85	77	148	146	112

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Sample Analysis summary Report

Sample Name	PDI-SC-S230-0TO2	PDI-SC-S230-0TO2 Duplicate	PDI-SC-S230-2TO4	PDI-SC-S230-4TO6	PDI-SC-S010-0TO2	PDI-SC-S010-2TO4
ALS Sample ID	L2146267-22	WG2851408-4	L2146267-23	L2146267-24	L2146267-25	L2146267-26
Sample Size	4.37	4.45	4.82	5.62	5.27	6.42
Sample size units	g	g	g	g	g	g
Percent Solid	43.3%	43.4%	47.7%	53.8%	51.4%	62.1%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	n/a	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.179	0.224	0.416	0.214	0.0919	0.123
4,4'-DDE	3.92	4.83	6.43	4.35	1.82	3.34
2,4'-DDD	0.516	0.713	1.16	0.659	0.535	0.800
4,4'-DDD	1.69	2.06	3.10	2.27	1.26	2.29
2,4'-DDT	<0.078	0.129	0.158	0.118	0.111	0.173
4,4'-DDT	0.171	<0.26	0.502	0.243	0.265	0.479
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	79	91	81	77	86	78
4,4'-DDD, 13C12-	64	71	65	66	69	67
4,4'-DDT, 13C12-	58	65	56	56	63	61

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Sample Analysis summary Report

Sample Name	PDI-SC-S010-4TO6.4	PDI-SC-S010-6.4TO8.4	PDI-SC-S010-8.4TO10.8	PDI-SC-S010-10.8TO13.4	PDI-SC-S010-13.4TO14.4	PDI-SC-S009-0TO2
ALS Sample ID	L2146267-27	L2146267-28	L2146267-29	L2146267-30	L2146267-31	L2146267-32
Sample Size	6.62	7.62	7.68	6.96	7.83	4.36
Sample size units	g	g	g	g	g	g
Percent Solid	64.8%	74.2%	74.1%	69.1%	76.7%	43.1%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.191	<0.0083	<0.0097	<0.028	0.0165	0.0796
4,4'-DDE	3.09	0.209	0.0464	<0.037	0.0305	2.29
2,4'-DDD	1.16	0.106	<0.019	<0.027	<0.017	0.344
4,4'-DDD	3.26	0.334	0.0586	<0.029	<0.024	1.04
2,4'-DDT	0.118	<0.015	<0.018	<0.020	<0.017	<0.095
4,4'-DDT	0.309	0.0563	<0.027	<0.030	0.0476	0.336
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	84	94	92	54	83	91
4,4'-DDD, 13C12-	69	87	87	66	75	72
4,4'-DDT, 13C12-	66	85	87	60	77	67

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Sample Analysis summary Report

Sample Name	PDI-SC-S009-2TO4	PDI-SC-S009-4TO6	PDI-SC-S009-6TO8	PDI-SC-S009-8TO10	PDI-SC-S009-10TO11.4	PDI-SC-S011-0TO2
ALS Sample ID	L2146267-33	L2146267-34	L2146267-35	L2146267-36	L2146267-37	L2146267-38
Sample Size	4.42	4.70	5.22	5.79	5.14	4.57
Sample size units	g	g	g	g	g	g
Percent Solid	43.3%	45.9%	50.0%	55.5%	51.2%	44.9%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	<0.076	0.0872	0.104	0.146	0.158	<0.045
4,4'-DDE	1.99	2.21	2.50	4.88	4.03	1.98
2,4'-DDD	0.405	0.353	0.332	0.511	0.664	0.268
4,4'-DDD	0.903	0.952	1.07	2.12	2.24	0.907
2,4'-DDT	0.155	<0.081	0.140	0.183	<0.12	<0.030
4,4'-DDT	<0.29	<0.25	0.326	0.314	0.374	0.216
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	72	70	76	73	82	98
4,4'-DDD, 13C12-	58	63	68	60	65	87
4,4'-DDT, 13C12-	52	57	61	54	57	83

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Sample Analysis summary Report

Sample Name PDI-SC-S011-2TO4 PDI-SC-S011-4TO6 PDI-SC-S011-6TO8

ALS Sample ID L2146267-39 L2146267-40 L2146267-41

Sample Size	5.47	5.49	5.33
Sample size units	g	g	g
Percent Solid	53.5%	53.5%	52.6%
Sample Matrix	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18

Target Analytes	ng / g	ng / g	ng / g
2,4'-DDE	<0.090	0.197	0.228
4,4'-DDE	3.33	5.36	3.97
2,4'-DDD	0.481	0.939	0.593
4,4'-DDD	1.38	3.21	1.55
2,4'-DDT	0.127	0.205	1.37
4,4'-DDT	0.401	0.422	0.690
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	73	56	90
4,4'-DDD, 13C12-	64	45	72
4,4'-DDT, 13C12-	54	41	62

ALS Life sciences

Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2851408-1	WG2851408-2
Sample Size	5.63	1.00
Sample size units	g	n/a
Percent Solid	99.9%	52.7%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	24-Aug-18	24-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	0.0530	103
4,4'-DDE	0.0734	95
2,4'-DDD	<0.026	115
4,4'-DDD	0.0483	95
2,4'-DDT	<0.027	111
4,4'-DDT	<0.13	99
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	84	90
4,4'-DDD, 13C12-	71	77
4,4'-DDT, 13C12-	72	78

ALS Life sciences

Continuing Calibration Summary Report

Sample Name	CCV	CCV	CCV	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-069	H6-18-CCV-0867	H6-18-CCV-0869	H6-18-CCV-0874	H6-18-CCV-0876	H6-18-RS1-070
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	101	99	101	
4,4'-DDE	96	101	102	100	101	96
2,4'-DDD		98	101	97	95	
4,4'-DDD	97	98	101	103	102	96
2,4'-DDT		106	105	93	92	
4,4'-DDT	96	99	103	99	101	95
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	100	94	92	115	115	103
4,4'-DDD, 13C12-	105	97	93	130	132	111
4,4'-DDT, 13C12-	108	96	89	148	146	112

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Sample Analysis summary Report

Sample Name	PDI-SC-S011-8TO10	PDI-SC-S011-8TO10 Duplicate	PDI-SC-S011-10TO12	PDI-SC-S011-12TO14.5	PDI-SC-S011-14.5TO16.8	PDI-SC-S011-14.5TO16.8D
ALS Sample ID	L2146267-42	WG2851420-4	L2146267-43	L2146267-44	L2146267-45	L2146267-46
Sample Size	5.58	5.51	6.24	6.12	5.80	5.87
Sample size units	g	g	g	g	g	g
Percent Solid	54.1%	54.0%	60.0%	59.7%	57.8%	57.6%
Sample Matrix	Sediment	QC	Sediment	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	n/a	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.207	0.223	0.248	0.254	0.457	0.460
4,4'-DDE	4.82	5.47	6.15	5.72	8.96	8.71
2,4'-DDD	0.494	0.494	1.21	1.05	1.67	1.73
4,4'-DDD	1.58	1.68	4.07	3.71	5.37	5.38
2,4'-DDT	<0.034	0.131	0.170	0.156	<0.20	0.312
4,4'-DDT	0.483	0.445	0.533	0.463	0.809	0.835
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	93	83	91	95	95	89
4,4'-DDD, 13C12-	77	75	80	82	81	75
4,4'-DDT, 13C12-	70	66	75	76	68	62

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S011- 16.8TO17.9	PDI-SC-S011- 17.9TO18.9	PDI-SC-S004-0TO2	PDI-SC-S004-2TO4	PDI-SC-S004-4TO6	PDI-SC-S004- 6TO7.3
ALS Sample ID	L2146267-47	L2146267-48	L2146267-49	L2146267-50	L2146267-51	L2146267-52
Sample Size	7.10	6.76	6.49	6.18	6.81	7.17
Sample size units	g	g	g	g	g	g
Percent Solid	70.6%	67.2%	62.8%	61.2%	67.1%	69.4%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.128	0.272	0.179	0.0123	<0.015	<0.012
4,4'-DDE	1.26	2.20	2.55	0.0422	0.0336	<0.015
2,4'-DDD	1.07	1.30	1.11	0.0320	<0.027	<0.024
4,4'-DDD	3.18	3.76	3.34	0.0558	<0.052	<0.026
2,4'-DDT	0.0862	<0.097	0.131	<0.014	<0.030	<0.025
4,4'-DDT	0.0906	<0.14	0.258	0.0877	0.116	0.0762
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	89	91	84	98	84	73
4,4'-DDD, 13C12-	82	74	76	80	76	67
4,4'-DDT, 13C12-	70	60	66	77	72	62

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S007-10TO12	PDI-SC-S007-4TO6	PDI-SC-S007-0TO2	PDI-SC-S007-2TO4	PDI-SC-S230-6TO8	PDI-SC-S230-8TO10.4
ALS Sample ID	L2146267-64	L2146267-65	L2146267-66	L2146267-67	L2146267-68	L2146267-69
Sample Size	6.11	5.75	4.32	5.29	5.54	5.76
Sample size units	g	g	g	g	g	g
Percent Solid	58.9%	54.1%	42.5%	52.0%	55.1%	55.8%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.399	0.187	<0.067	0.161	0.284	0.284
4,4'-DDE	7.95	4.91	2.39	4.83	5.26	6.74
2,4'-DDD	1.54	0.743	0.418	0.476	0.650	0.890
4,4'-DDD	5.29	2.93	1.10	1.88	2.11	2.86
2,4'-DDT	0.246	0.171	<0.14	0.135	<0.084	0.152
4,4'-DDT	0.644	0.452	0.298	0.287	0.221	0.341
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	89	95	89	77	86	87
4,4'-DDD, 13C12-	82	78	72	72	75	72
4,4'-DDT, 13C12-	70	66	59	57	64	59

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S230- 10.4TO11.4	PDI-SC-S007-6TO8	PDI-SC-S007- 12TO14
ALS Sample ID	L2146267-70	L2146267-71	L2146267-72
Sample Size	5.89	5.51	6.01
Sample size units	g	g	g
Percent Solid	56.4%	53.6%	58.7%
Sample Matrix	Sediment	Sediment	Sediment
Sampling Date	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g
2,4'-DDE	0.383	0.264	0.504
4,4'-DDE	8.45	6.66	8.43
2,4'-DDD	1.34	0.647	1.94
4,4'-DDD	4.56	2.07	7.05
2,4'-DDT	<0.11	0.186	0.318
4,4'-DDT	0.637	0.332	1.14
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	96	92	78
4,4'-DDD, 13C12-	78	74	60
4,4'-DDT, 13C12-	62	61	50

ALS Life sciences

Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2851420-1	WG2851420-2
Sample Size	5.99	1.00
Sample size units	g	n/a
Percent Solid	99.9%	51.2%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	24-Aug-18	24-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	0.0660	100
4,4'-DDE	0.0777	94
2,4'-DDD	<0.045	108
4,4'-DDD	<0.049	93
2,4'-DDT	<0.057	106
4,4'-DDT	<0.073	99
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	83	74
4,4'-DDD, 13C12-	77	67
4,4'-DDT, 13C12-	73	67

ALS Life sciences						
Continuing Calibration Summary Report						
Sample Name	CCV	CCV	CCV	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-068	H6-18-CCV-0861	H6-18-CCV-0863	H6-18-CCV-0876	H6-18-CCV-0874	H6-18-RS1-070
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		100	101	99	102	
4,4'-DDE	95	100	100	103	101	96
2,4'-DDD		100	99	94	100	
4,4'-DDD	96	99	98	104	99	96
2,4'-DDT		100	102	94	104	
4,4'-DDT	94	95	98	104	101	95
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	99	99	94	110	114	103
4,4'-DDD, 13C12-	103	100	91	112	115	111
4,4'-DDT, 13C12-	104	106	85	117	126	112

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S229-2TO4	PDI-SC-S004-7.3TO9.1	PDI-SC-S004-7.3TO9.1 Duplicate	PDI-SC-S004-9.1TO10.3	PDI-SC-S007-14TO16	PDI-SC-S007-4TO6D
ALS Sample ID	L2146267-17	L2146267-53	WG2851430-4	L2146267-54	L2146267-73	L2146267-74
Sample Size	6.30	7.06	7.36	7.51	6.31	5.37
Sample size units	g	g	g	g	g	g
Percent Solid	60.4%	70.2%	70.9%	73.3%	61.9%	53.2%
Sample Matrix	Sediment	Sediment	QC	Sediment	Sediment	Sediment
Sampling Date	9-Aug-18	10-Aug-18	n/a	10-Aug-18	10-Aug-18	10-Aug-18
Extraction Date	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18	24-Aug-18
Target Analytes	ng / g	ng / g	ng / g	ng / g	ng / g	ng / g
2,4'-DDE	0.345	<0.076	<0.027	<0.020	0.531	0.180
4,4'-DDE	3.80	0.0898	<0.038	0.0362	8.61	4.01
2,4'-DDD	1.64	<0.061	<0.047	<0.033	2.13	0.872
4,4'-DDD	5.16	<0.049	<0.045	<0.032	7.45	2.85
2,4'-DDT	<0.054	<0.048	<0.044	<0.031	0.354	0.174
4,4'-DDT	<0.41	<0.17	<0.099	<0.042	0.443	0.470
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	94	65	79	75	33	90
4,4'-DDD, 13C12-	84	78	76	72	64	84
4,4'-DDT, 13C12-	77	71	72	71	46	81

ALS Life sciences		
Sample Analysis summary Report		
Sample Name	PDI-SC-S007-8TO10	
ALS Sample ID	L2146267-75	
Sample Size	5.90	
Sample size units	g	
Percent Solid	56.6%	
Sample Matrix	Sediment	
Sampling Date	10-Aug-18	
Extraction Date	24-Aug-18	
Target Analytes	ng / g	
2,4'-DDE	0.282	
4,4'-DDE	7.09	
2,4'-DDD	1.09	
4,4'-DDD	4.48	
2,4'-DDT	<0.12	
4,4'-DDT	0.356	
Extraction Standards	% Rec	
4,4'-DDE, 13C12-	83	
4,4'-DDD, 13C12-	83	
4,4'-DDT, 13C12-	76	

ALS Life sciences

Quality Control Summary Report

Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2851430-1	WG2851430-2
Sample Size	6.54	1.00
Sample size units	g	n/a
Percent Solid	99.9%	50.3%
Sample Matrix	QC	QC
Sampling Date	n/a	n/a
Extraction Date	24-Aug-18	24-Aug-18
Target Analytes	ng / g	% Rec
2,4'-DDE	<0.078	104
4,4'-DDE	<0.14	94
2,4'-DDD	<0.071	105
4,4'-DDD	<0.058	89
2,4'-DDT	<0.057	112
4,4'-DDT	<0.092	100
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	39	82
4,4'-DDD, 13C12-	45	76
4,4'-DDT, 13C12-	38	74

ALS Life sciences			
Continuing Calibration Summary Report			
Sample Name	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-070	H6-18-CCV-0872	H6-18-CCV-0874
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		99	99
4,4'-DDE	96	101	100
2,4'-DDD		99	97
4,4'-DDD	96	100	103
2,4'-DDT		96	93
4,4'-DDT	95	99	99
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	103	101	115
4,4'-DDD, 13C12-	111	109	130
4,4'-DDT, 13C12-	112	116	148

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-SC-S015-0TO2	PDI-SC-S015-2TO4	PDI-SC-S015-4TO6	PDI-SC-S015-6TO8	PDI-SC-S015-8TO10	PDI-SC-S015-10TO11.4
ALS Sample ID	L2146267-55	L2146267-56	L2146267-57	L2146267-58	L2146267-59	L2146267-60
Sample Size	4.67	4.74	5.46	5.30	5.77	5.83
Sample size units	g	g	g	g	g	g
Percent Solid	46.0%	46.6%	53.8%	52.3%	56.0%	57.4%
Sample Matrix	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Sampling Date	13-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18	13-Aug-18	13-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	0.141	0.190	0.253	0.317	0.403	0.244
4,4'-DDE	2.31	5.36	4.48	5.92	5.31	3.93
2,4'-DDD	0.386	0.522	0.771	0.662	0.762	0.704
4,4'-DDD	0.997	1.94	2.27	2.18	2.76	1.92
2,4'-DDT	<0.070	0.292	<0.19	<0.15	0.237	<0.20
4,4'-DDT	<0.22	<0.55	<0.41	<0.36	0.370	0.352
Extraction Standards	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	14	19	13	19	10	15
4,4'-DDD, 13C12-	29	33	27	40	48	34
4,4'-DDT, 13C12-	18	21	17	26	23	20

ALS Life sciences

Sample Analysis summary Report

Sample Name PDI-SC-S015-
11.4TO12.4

ALS Sample ID L2146267-61

Sample Size 5.94
Sample size units g
Percent Solid 58.6%
Sample Matrix Sediment
Sampling Date 13-Aug-18
Extraction Date 27-Aug-18

Target Analytes ng / g

2,4'-DDE	<0.31
4,4'-DDE	4.95
2,4'-DDD	0.934
4,4'-DDD	2.86
2,4'-DDT	0.388
4,4'-DDT	1.42

Extraction Standards % Rec

4,4'-DDE, 13C12-	14
4,4'-DDD, 13C12-	24
4,4'-DDT, 13C12-	16

ALS Life sciences

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	99.8%	49.8%
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
ALS Sample ID	H6-18-RS1-069	H6-18-CCV-0869	H6-18-CCV-0870
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		101	104
4,4'-DDE	96	102	103
2,4'-DDD		101	105
4,4'-DDD	97	101	103
2,4'-DDT		105	106
4,4'-DDT	96	103	101
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	100	92	96
4,4'-DDD, 13C12-	105	93	91
4,4'-DDT, 13C12-	108	89	87

ALS Life sciences

Sample Analysis summary Report

Sample Name	PDI-RB-SS-180810-1200	PDI-RB-SS-180810-1730	PDI-RB-SS-180809-1900
ALS Sample ID	L2146267-62	L2146267-63	L2146267-76
Sample Size	1.05	1.02	0.96
Sample size units	L	L	L
Percent Solid	n/a	n/a	n/a
Sample Matrix	Water	Water	Water
Sampling Date	10-Aug-18	10-Aug-18	9-Aug-18
Extraction Date	16-Aug-18	16-Aug-18	16-Aug-18
Target Analytes	ng / L	ng / L	ng / L
2,4'-DDE	<0.031	<0.048	<0.029
4,4'-DDE	<0.043	<0.065	0.0731
2,4'-DDD	<0.054	<0.071	<0.051
4,4'-DDD	<0.038	<0.052	<0.045
2,4'-DDT	<0.037	<0.050	<0.044
4,4'-DDT	<0.053	<0.14	<0.066
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	66	46	80
4,4'-DDD, 13C12-	86	60	84
4,4'-DDT, 13C12-	88	58	85

ALS Life sciences		
Quality Control Summary Report		
Sample Name	Method Blank	Laboratory Control Sample
ALS Sample ID	WG2850439-1	WG2850439-2
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	16-Aug-18	16-Aug-18
Target Analytes	ng / L	% Rec
2,4'-DDE	0.0594	113
4,4'-DDE	<0.040	97
2,4'-DDD	<0.051	105
4,4'-DDD	<0.048	93
2,4'-DDT	<0.046	101
4,4'-DDT	<0.083	96
Extraction Standards	% Rec	% Rec
4,4'-DDE, 13C12-	81	64
4,4'-DDD, 13C12-	79	78
4,4'-DDT, 13C12-	81	72

ALS Life sciences			
Continuing Calibration Summary Report			
Sample Name	CCV	CCV	CCV
ALS Sample ID	H6-18-RS1-070	H6-18-CCV-0872	H6-18-CCV-0874
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		99	99
4,4'-DDE	96	101	100
2,4'-DDD		99	97
4,4'-DDD	96	100	103
2,4'-DDT		96	93
4,4'-DDT	95	99	99
Extraction Standards	% Rec	% Rec	% Rec
4,4'-DDE, 13C12-	103	101	115
4,4'-DDD, 13C12-	111	109	130
4,4'-DDT, 13C12-	112	116	148

ALS Life sciences

Sample Analysis Report

Sample Name PDI-SC-S103-0T02
ALS Sample ID L2146267-1
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 4.90 g
Percent Solid 48.9%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180830A77
Run Date 31-Aug-18 11:09
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	10.88	0.810	0.012	M,J		2.0
4,4'-DDE	11.41	8.36	0.015	M		2.0
2,4'-DDD	11.58	8.45	0.033			2.0
4,4'-DDD	12.09	24.5	0.060	M		2.0
2,4'-DDT	12.14	0.468	0.060	M,J		2.0
4,4'-DDT	12.58	4.93	0.12			2.0
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	80	21-125		
4,4'-DDD, 13C12-	125	12.08	49	5-150		
4,4'-DDT, 13C12-	125	12.58	37	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: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2848066-4	Extraction Date	23-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	4.70 g	
Analysis Type	Sample	Percent Solid	46.9%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180830A78
Run Date	31-Aug-18 11:29
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	0.992	0.026	J		2.1
4,4'-DDE	11.41	7.57	0.034	M		2.1
2,4'-DDD	11.58	6.22	0.043			2.1
4,4'-DDD	12.09	21.7	0.050			2.1
2,4'-DDT	12.15	42.4	0.051			2.1
4,4'-DDT	12.58	518	0.093			2.1
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	53	21-125		
4,4'-DDD, 13C12-	125	12.08	50	5-150		
4,4'-DDT, 13C12-	125	12.58	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.
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-S103-2TO4	Sampling Date	9-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-2	Extraction Date	23-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.41		
Analysis Type	Sample	Percent Solid	53.9%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B66
Run Date	01-Sep-18 17:05
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	0.987	0.032	J	1.8	
4,4'-DDE	11.40	8.53	0.042	M	1.8	
2,4'-DDD	11.57	7.70	0.043		1.8	
4,4'-DDD	12.08	25.1	0.058	M	1.8	
2,4'-DDT	12.14	0.737	0.056	M,J	1.8	
4,4'-DDT	12.58	1.03	0.10	M,J,B	1.8	
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	75	21-125		
4,4'-DDD, 13C12-	125	12.07	53	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S103-4TO6	Sampling Date	9-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-3	Extraction Date	23-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.17		
Analysis Type	Sample	Percent Solid	50.5%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B67
Run Date	01-Sep-18 17:25
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	0.902	0.022	J	1.9
4,4'-DDE	11.39	9.07	0.029		1.9
2,4'-DDD	11.56	7.25	0.037		1.9
4,4'-DDD	12.07	30.5	0.049		1.9
2,4'-DDT	12.13	0.455	0.047	J	1.9
4,4'-DDT	12.57	1.37	0.087	J,B	1.9
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.39	80	21-125	
4,4'-DDD, 13C12-	125	12.06	59	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.
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-S103-6TO8
ALS Sample ID L2146267-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 5.39 g
Percent Solid 53.5%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B68
Run Date 01-Sep-18 17:45
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	1.03	0.019	J		1.9
4,4'-DDE	11.41	9.14	0.025			1.9
2,4'-DDD	11.58	9.24	0.035			1.9
4,4'-DDD	12.08	27.3	0.048			1.9
2,4'-DDT	12.14	0.625	0.047	J		1.9
4,4'-DDT	12.58	13.8	0.10	M		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	77	21-125		
4,4'-DDD, 13C12-	125	12.08	55	5-150		
4,4'-DDT, 13C12-	125	12.57	42	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-S103-8TO9.7	Sampling Date	9-Aug-18	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-5	Extraction Date	23-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.04 g	
Analysis Type	Sample	Percent Solid	68.4%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180904A09
Run Date	04-Sep-18 14:21
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	10.87	0.286	0.010	J,B		1.4
4,4'-DDE	11.40	1.97	0.014			1.4
2,4'-DDD	11.57	2.36	0.017			1.4
4,4'-DDD	12.08	8.68	0.020	M		1.4
2,4'-DDT	12.13	<0.076	0.019	M,J,R	0.076	1.4
4,4'-DDT	12.58	0.311	0.030	J,B		1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	95	21-125		
4,4'-DDD, 13C12-	125	12.07	73	5-150		
4,4'-DDT, 13C12-	125	12.57	68	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-S103-9.7TO10.7	Sampling Date	9-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-6	Extraction Date	23-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	7.39		
Analysis Type	Sample	Percent Solid	72.3%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180903A36
Run Date	04-Sep-18 06:23
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	<0.028	0.017	M,J,R	0.028	1.4
4,4'-DDE	NotFnd	<0.023	0.023	U		1.4
2,4'-DDD	11.57	<0.11	0.028	J,R	0.11	1.4
4,4'-DDD	12.08	0.206	0.027	M,J,B		1.4
2,4'-DDT	NotFnd	<0.026	0.026	U		1.4
4,4'-DDT	12.58	<0.058	0.036	M,J,R	0.058	1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	92	21-125		
4,4'-DDD, 13C12-	125	12.07	88	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.
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-S103-10.7TO13.4
ALS Sample ID L2146267-7
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 7.64 g
Percent Solid 73.7%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B71
Run Date 01-Sep-18 18:45
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		NotFnd	<0.017	0.017	U	1.3
4,4'-DDE		11.40	<0.023	0.022	M,J,R	0.023 1.3
2,4'-DDD		11.57	<0.075	0.025	M,J,R	0.075 1.3
4,4'-DDD		12.08	0.136	0.037	M,J,B	1.3
2,4'-DDT		NotFnd	<0.035	0.035	U	1.3
4,4'-DDT		12.57	<0.15	0.055	M,J,R	0.15 1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	70	21-125		
4,4'-DDD, 13C12-	125	12.07	48	5-150		
4,4'-DDT, 13C12-	125	12.57	43	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-S238-0T02
ALS Sample ID L2146267-8
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 4.80 g
Percent Solid 47.9%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B72
Run Date 01-Sep-18 19:05
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	0.298	0.022	M,J,B		2.1
4,4'-DDE	11.40	5.11	0.029	M		2.1
2,4'-DDD	11.57	0.837	0.043	M,J		2.1
4,4'-DDD	12.08	2.43	0.053	M		2.1
2,4'-DDT	NotFnd	<0.051	0.051	U		2.1
4,4'-DDT	12.58	<0.22	0.098	M,J,R	0.22	2.1
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	74	21-125		
4,4'-DDD, 13C12-	125	12.07	58	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S238-2TO4	Sampling Date	9-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-9	Extraction Date	23-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.23		
Analysis Type	Sample	Percent Solid	52.2%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B73
Run Date	01-Sep-18 19:25
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	0.497	0.014	J		1.9
4,4'-DDE	11.40	7.70	0.019	M		1.9
2,4'-DDD	11.57	1.64	0.027	J		1.9
4,4'-DDD	12.08	5.13	0.034	M		1.9
2,4'-DDT	12.12	<0.13	0.033	M,J,R	0.13	1.9
4,4'-DDT	12.57	0.345	0.063	M,J,B		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	77	21-125		
4,4'-DDD, 13C12-	125	12.07	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.
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-S238-2TO4D	Sampling Date	9-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-10	Extraction Date	23-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.25		
Analysis Type	Sample	Percent Solid	50.9%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B54
Run Date	01-Sep-18 13:03
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	0.482	0.015	J		1.9
4,4'-DDE	11.40	7.13	0.020	M		1.9
2,4'-DDD	11.57	1.40	0.031	J		1.9
4,4'-DDD	12.08	4.76	0.037	M		1.9
2,4'-DDT	12.14	0.179	0.036	M,J		1.9
4,4'-DDT	12.58	<0.29	0.062	J,R	0.29	1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	82	21-125		
4,4'-DDD, 13C12-	125	12.08	70	5-150		
4,4'-DDT, 13C12-	125	12.57	61	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.
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-S238-2TO4D Duplicate
ALS Sample ID WG2851282-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix QC

Sampling Date n/a
Extraction Date 23-Aug-18
Sample Size 5.25 g
Percent Solid 51.1%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B55
Run Date 01-Sep-18 13:23
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	0.399	0.022	J		1.9
4,4'-DDE	11.40	6.05	0.029	M		1.9
2,4'-DDD	11.57	1.23	0.039	J		1.9
4,4'-DDD	12.08	3.78	0.043	M		1.9
2,4'-DDT	12.12	<0.12	0.041	M,J,R	0.12	1.9
4,4'-DDT	12.58	0.282	0.067	M,J		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	76	21-125		
4,4'-DDD, 13C12-	125	12.07	69	5-150		
4,4'-DDT, 13C12-	125	12.57	61	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.

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-S238-4TO6
ALS Sample ID L2146267-11
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 5.19 g
Percent Solid 51.7%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B56
Run Date 01-Sep-18 13:44
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	0.700	0.037	M,J		1.9
4,4'-DDE	11.41	9.07	0.049	M		1.9
2,4'-DDD	11.58	1.64	0.068	J		1.9
4,4'-DDD	12.08	5.17	0.036	M		1.9
2,4'-DDT	12.14	<0.26	0.035	M,J,R	0.26	1.9
4,4'-DDT	12.58	0.952	0.088	J		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	40	21-125		
4,4'-DDD, 13C12-	125	12.08	72	5-150		
4,4'-DDT, 13C12-	125	12.57	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.

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-S238-6TO8
ALS Sample ID L2146267-12
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 6.11 g
Percent Solid 59.2%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B57
Run Date 01-Sep-18 14:04
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	<0.15	0.050	M,J,R	0.15	1.6
4,4'-DDE	11.40	3.00	0.066			1.6
2,4'-DDD	11.58	<0.30	0.097	J,R	0.30	1.6
4,4'-DDD	12.09	1.56	0.038	M,J		1.6
2,4'-DDT	12.12	<0.17	0.037	M,J,R	0.17	1.6
4,4'-DDT	NotFnd	<0.10	0.10	U		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	23	21-125		
4,4'-DDD, 13C12-	125	12.08	58	5-150		
4,4'-DDT, 13C12-	125	12.58	34	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-S238-8TO10	Sampling Date	9-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-13	Extraction Date	23-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.60		
Analysis Type	Sample	Percent Solid	55.4%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B58
Run Date	01-Sep-18 14:24
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	<0.38	0.067	M,J,R	0.38	1.8
4,4'-DDE	11.40	5.46	0.088	M		1.8
2,4'-DDD	11.57	0.816	0.12	J		1.8
4,4'-DDD	12.08	2.80	0.051	M		1.8
2,4'-DDT	12.13	0.199	0.049	M,J		1.8
4,4'-DDT	12.57	0.451	0.13	M,J		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	20	21-125		
4,4'-DDD, 13C12-	125	12.07	45	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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.
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-S238-10T012.4
ALS Sample ID L2146267-14
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 5.81 g
Percent Solid 57.2%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B59
Run Date 01-Sep-18 14:44
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	0.846	0.018	J		1.7
4,4'-DDE	11.40	9.67	0.024			1.7
2,4'-DDD	11.57	1.14	0.030	M,J		1.7
4,4'-DDD	12.08	3.10	0.036	M		1.7
2,4'-DDT	12.14	0.283	0.035	M,J		1.7
4,4'-DDT	12.58	0.711	0.063	M,J		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	85	21-125		
4,4'-DDD, 13C12-	125	12.08	71	5-150		
4,4'-DDT, 13C12-	125	12.57	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-S238-12.4TO13.4

ALS Sample ID L2146267-15
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 9-Aug-18
 Extraction Date 23-Aug-18
 Sample Size 5.82 g
 Percent Solid 57.4%
 Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180831B60
 Run Date 01-Sep-18 15:04
 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	0.648	0.053	J		1.7
4,4'-DDE	11.39	7.25	0.069	M		1.7
2,4'-DDD	11.56	0.737	0.10	J		1.7
4,4'-DDD	12.07	2.25	0.046	M		1.7
2,4'-DDT	NotFnd	<0.044	0.044	U		1.7
4,4'-DDT	NotFnd	<0.11	0.11	U		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	20	21-125		
4,4'-DDD, 13C12-	125	12.07	46	5-150		
4,4'-DDT, 13C12-	125	12.56	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.

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-S229-0TO2
ALS Sample ID L2146267-16
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 4.38 g
Percent Solid 43.8%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B61
Run Date 01-Sep-18 15:24
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	0.448	0.015	J		2.3
4,4'-DDE	11.39	6.89	0.020	M		2.3
2,4'-DDD	11.56	0.673	0.028	J		2.3
4,4'-DDD	12.07	1.88	0.033	M,J		2.3
2,4'-DDT	12.13	0.199	0.032	M,J		2.3
4,4'-DDT	12.57	0.444	0.062	M,J		2.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	78	21-125		
4,4'-DDD, 13C12-	125	12.07	63	5-150		
4,4'-DDT, 13C12-	125	12.56	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.

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-S229-2TO4
ALS Sample ID L2146267-17
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.30 g
Percent Solid 60.4%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A19
Run Date 04-Sep-18 00:42
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	0.345	0.027	M,J		1.6
4,4'-DDE	11.40	3.80	0.036	M		1.6
2,4'-DDD	11.57	1.64	0.056	M		1.6
4,4'-DDD	12.07	5.16	0.055	M		1.6
2,4'-DDT	NotFnd	<0.054	0.054	U		1.6
4,4'-DDT	12.57	<0.41	0.097	M,J,R	0.41	1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	94	21-125		
4,4'-DDD, 13C12-	125	12.07	84	5-150		
4,4'-DDT, 13C12-	125	12.57	77	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-S229-4TO6

ALS Sample ID L2146267-18
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 9-Aug-18

Extraction Date 23-Aug-18

Sample Size 7.45 g

Percent Solid 74.1%

Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180903A34
 Run Date 04-Sep-18 05:43
 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	ng / g LQL
2,4'-DDE		10.86	0.0218	0.015	M,J	1.3
4,4'-DDE		11.40	0.159	0.020	J	1.3
2,4'-DDD		11.57	0.0570	0.026	M,J	1.3
4,4'-DDD		12.08	0.179	0.025	M,J	1.3
2,4'-DDT		NotFnd	<0.025	0.025	U	1.3
4,4'-DDT		12.57	<0.097	0.035	M,J,R	0.097 1.3
Extraction Standards		ng				
4,4'-DDE, 13C12-	125	11.39	89	21-125		
4,4'-DDD, 13C12-	125	12.07	85	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
 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-S229-6TO8	Sampling Date	9-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-19	Extraction Date	23-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	7.36		
Analysis Type	Sample	Percent Solid	72.0%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180903A35
Run Date	04-Sep-18 06:03
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		10.87	<0.013	0.012	M,J,R	1.4
4,4'-DDE		NotFnd	<0.016	0.016	U	1.4
2,4'-DDD		NotFnd	<0.022	0.022	U	1.4
4,4'-DDD		NotFnd	<0.021	0.021	U	1.4
2,4'-DDT		NotFnd	<0.021	0.021	U	1.4
4,4'-DDT		NotFnd	<0.027	0.027	U	1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	85	21-125		
4,4'-DDD, 13C12-	125	12.06	85	5-150		
4,4'-DDT, 13C12-	125	12.56	87	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-S229-8TO9.9	Sampling Date	9-Aug-18	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-20	Extraction Date	23-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.54 g	
Analysis Type	Sample	Percent Solid	74.7%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180831B64
Run Date	01-Sep-18 16:24
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	0.0206	0.014	M,J		1.3
4,4'-DDE	11.41	0.0287	0.018	M,J		1.3
2,4'-DDD	NotFnd	<0.029	0.029	U		1.3
4,4'-DDD	NotFnd	<0.029	0.029	U		1.3
2,4'-DDT	NotFnd	<0.028	0.028	U		1.3
4,4'-DDT	NotFnd	<0.047	0.047	U		1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	66	21-125		
4,4'-DDD, 13C12-	125	12.08	63	5-150		
4,4'-DDT, 13C12-	125	12.58	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.
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-S229-9.9TO12.5
ALS Sample ID L2146267-21
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 9-Aug-18
Extraction Date 23-Aug-18
Sample Size 6.71 g
Percent Solid 66.0%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B65
Run Date 01-Sep-18 16:44
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	0.0790	0.048	M,J		1.5
4,4'-DDE	NotFnd	<0.063	0.063	U		1.5
2,4'-DDD	NotFnd	<0.082	0.082	U		1.5
4,4'-DDD	NotFnd	<0.038	0.038	U		1.5
2,4'-DDT	NotFnd	<0.037	0.037	U		1.5
4,4'-DDT	NotFnd	<0.082	0.082	U		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	26	21-125		
4,4'-DDD, 13C12-	125	12.08	57	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S230-0T02	Sampling Date	10-Aug-18	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-22	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	4.37 g	
Analysis Type	Sample	Percent Solid	43.3%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180901A34
Run Date	02-Sep-18 07:49
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	10.88	0.179	0.013	J,B		2.3
4,4'-DDE	11.40	3.92	0.018	M		2.3
2,4'-DDD	11.57	0.516	0.027	M,J		2.3
4,4'-DDD	12.08	1.69	0.030	M,J		2.3
2,4'-DDT	12.14	<0.078	0.030	M,J,R	0.078	2.3
4,4'-DDT	12.58	0.171	0.052	M,J		2.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	79	21-125		
4,4'-DDD, 13C12-	125	12.08	64	5-150		
4,4'-DDT, 13C12-	125	12.57	58	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-S230-0TO2 Duplicate
ALS Sample ID WG2851408-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix QC

Sampling Date n/a
Extraction Date 24-Aug-18
Sample Size 4.45 g
Percent Solid 43.4%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A35
Run Date 02-Sep-18 08:09
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	10.87	0.224	0.013	J,B		2.2
4,4'-DDE	11.40	4.83	0.017	M		2.2
2,4'-DDD	11.57	0.713	0.028	J		2.2
4,4'-DDD	12.08	2.06	0.031	M,J		2.2
2,4'-DDT	12.11	0.129	0.030	M,J		2.2
4,4'-DDT	12.57	<0.26	0.054	M,J,R	0.26	2.2
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	91	21-125		
4,4'-DDD, 13C12-	125	12.07	71	5-150		
4,4'-DDT, 13C12-	125	12.57	65	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-S230-2TO4
ALS Sample ID L2146267-23
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 4.82 g
Percent Solid 47.7%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A36
Run Date 02-Sep-18 08:30
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	0.416	0.013	J,B		2.1
4,4'-DDE	11.39	6.43	0.017			2.1
2,4'-DDD	11.57	1.16	0.035	M,J		2.1
4,4'-DDD	12.07	3.10	0.038	M		2.1
2,4'-DDT	12.13	0.158	0.037	M,J		2.1
4,4'-DDT	12.57	0.502	0.071	M,J		2.1
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	81	21-125		
4,4'-DDD, 13C12-	125	12.07	65	5-150		
4,4'-DDT, 13C12-	125	12.56	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.
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-S230-4TO6
ALS Sample ID L2146267-24
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.62 g
Percent Solid 53.8%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A37
Run Date 02-Sep-18 08:50
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	0.214	0.0095	J,B	1.8	
4,4'-DDE	11.40	4.35	0.012	M	1.8	
2,4'-DDD	11.57	0.659	0.026	M,J	1.8	
4,4'-DDD	12.08	2.27	0.027	M	1.8	
2,4'-DDT	12.14	0.118	0.027	M,J	1.8	
4,4'-DDT	12.58	0.243	0.047	M,J	1.8	
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	77	21-125		
4,4'-DDD, 13C12-	125	12.08	66	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S010-0T02	Sampling Date	10-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-25	Extraction Date	24-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.27		
Analysis Type	Sample	Percent Solid	51.4%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180901A17
Run Date	02-Sep-18 02:08
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	10.87	0.0919	0.011	M,J,B		1.9
4,4'-DDE	11.40	1.82	0.015	M,J		1.9
2,4'-DDD	11.57	0.535	0.019	J		1.9
4,4'-DDD	12.08	1.26	0.022	M,J		1.9
2,4'-DDT	12.14	0.111	0.021	M,J		1.9
4,4'-DDT	12.58	0.265	0.032	J		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	86	21-125		
4,4'-DDD, 13C12-	125	12.08	69	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S010-2TO4
ALS Sample ID L2146267-26
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.42 g
Percent Solid 62.1%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A18
Run Date 02-Sep-18 02:28
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	10.86	0.123	0.0088	M,J,B		1.6
4,4'-DDE	11.40	3.34	0.012	M		1.6
2,4'-DDD	11.57	0.800	0.017	J		1.6
4,4'-DDD	12.07	2.29	0.018	M		1.6
2,4'-DDT	12.13	0.173	0.018	M,J		1.6
4,4'-DDT	12.57	0.479	0.032	J		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	78	21-125		
4,4'-DDD, 13C12-	125	12.07	67	5-150		
4,4'-DDT, 13C12-	125	12.57	61	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-S010-4TO6.4
ALS Sample ID L2146267-27
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.62 g
Percent Solid 64.8%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A19
Run Date 02-Sep-18 02:48
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	0.191	0.0099	M,J,B		1.5
4,4'-DDE	11.40	3.09	0.013	M		1.5
2,4'-DDD	11.57	1.16	0.022	M,J		1.5
4,4'-DDD	12.07	3.26	0.025	M		1.5
2,4'-DDT	12.13	0.118	0.024	M,J		1.5
4,4'-DDT	12.57	0.309	0.042	J		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	84	21-125		
4,4'-DDD, 13C12-	125	12.07	69	5-150		
4,4'-DDT, 13C12-	125	12.57	66	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-S010-6.4TO8.4	Sampling Date	10-Aug-18	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-28	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.62 g	
Analysis Type	Sample	Percent Solid	74.2%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180903A37
Run Date	04-Sep-18 06:44
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	<0.0083	0.0083		U	1.3
4,4'-DDE	11.40	0.209	0.011	M,J,B		1.3
2,4'-DDD	11.57	0.106	0.015	J		1.3
4,4'-DDD	12.08	0.334	0.016	M,J,B		1.3
2,4'-DDT	NotFnd	<0.015	0.015		U	1.3
4,4'-DDT	12.58	0.0563	0.022	M,J		1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	94	21-125		
4,4'-DDD, 13C12-	125	12.07	87	5-150		
4,4'-DDT, 13C12-	125	12.57	85	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-S010-8.4TO10.8
ALS Sample ID L2146267-29
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 7.68 g
Percent Solid 74.1%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A38
Run Date 04-Sep-18 07:04
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	<0.0097	0.0097	U	1.3
4,4'-DDE		11.39	0.0464	0.013	M,J,B	1.3
2,4'-DDD		NotFnd	<0.019	0.019	U	1.3
4,4'-DDD		12.07	0.0586	0.019	M,J,B	1.3
2,4'-DDT		NotFnd	<0.018	0.018	U	1.3
4,4'-DDT		NotFnd	<0.027	0.027	U	1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	92	21-125		
4,4'-DDD, 13C12-	125	12.07	87	5-150		
4,4'-DDT, 13C12-	125	12.56	87	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-S010-10.8TO13.4	Sampling Date	10-Aug-18	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-30	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	6.96 g	
Analysis Type	Sample	Percent Solid	69.1%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180901A22
Run Date	02-Sep-18 03:48
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	<0.028	0.011	M,J,R	0.028	1.4
4,4'-DDE	11.39	<0.037	0.014	M,J,R	0.037	1.4
2,4'-DDD	NotFnd	<0.027	0.027	U		1.4
4,4'-DDD	12.07	<0.029	0.020	M,J,R	0.029	1.4
2,4'-DDT	NotFnd	<0.020	0.020	U		1.4
4,4'-DDT	NotFnd	<0.030	0.030	U		1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	54	21-125		
4,4'-DDD, 13C12-	125	12.06	66	5-150		
4,4'-DDT, 13C12-	125	12.56	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.
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-S010-13.4TO14.4	Sampling Date	10-Aug-18	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-31	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.83 g	
Analysis Type	Sample	Percent Solid	76.7%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180901A23
Run Date	02-Sep-18 04:08
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		
	2,4'-DDE	10.87	0.0165	0.0067	M,J,B	1.3
	4,4'-DDE	11.40	0.0305	0.0088	M,J,B	1.3
	2,4'-DDD	NotFnd	<0.017	0.017	U	1.3
	4,4'-DDD	12.07	<0.024	0.017	M,J,R 0.024	1.3
	2,4'-DDT	NotFnd	<0.017	0.017	U	1.3
	4,4'-DDT	12.57	0.0476	0.025	M,J	1.3
Extraction Standards	ng					
	4,4'-DDE, 13C12-	125	11.39	83	21-125	
	4,4'-DDD, 13C12-	125	12.07	75	5-150	
	4,4'-DDT, 13C12-	125	12.56	77	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-S009-0TO2	Sampling Date	10-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-32	Extraction Date	24-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	4.36		
Analysis Type	Sample	Percent Solid	43.1%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180901A24
Run Date	02-Sep-18 04:28
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	10.87	0.0796	0.012	M,J,B	2.3
4,4'-DDE	11.40	2.29	0.016	M,J	2.3
2,4'-DDD	11.57	0.344	0.031	J	2.3
4,4'-DDD	12.08	1.04	0.035	M,J	2.3
2,4'-DDT	12.13	<0.095	0.035	M,J,R	0.095 2.3
4,4'-DDT	12.57	0.336	0.057	J	2.3
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.39	91	21-125	
4,4'-DDD, 13C12-	125	12.07	72	5-150	
4,4'-DDT, 13C12-	125	12.57	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.
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-S009-2TO4
ALS Sample ID L2146267-33
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 4.42 g
Percent Solid 43.3%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A25
Run Date 02-Sep-18 04:48
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	10.87	<0.076	0.016	M,J,R	0.076	2.3
4,4'-DDE	11.40	1.99	0.021	M,J		2.3
2,4'-DDD	11.57	0.405	0.042	M,J		2.3
4,4'-DDD	12.08	0.903	0.046	M,J		2.3
2,4'-DDT	12.11	0.155	0.045	M,J		2.3
4,4'-DDT	12.57	<0.29	0.077	M,J,R	0.29	2.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	72	21-125		
4,4'-DDD, 13C12-	125	12.07	58	5-150		
4,4'-DDT, 13C12-	125	12.57	52	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.

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-S009-4TO6	Sampling Date	10-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-34	Extraction Date	24-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	4.70		
Analysis Type	Sample	Percent Solid	45.9%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180901A26
Run Date	02-Sep-18 05:09
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	10.86	0.0872	0.017	M,J,B		2.1
4,4'-DDE	11.39	2.21	0.022			2.1
2,4'-DDD	11.57	0.353	0.043	J		2.1
4,4'-DDD	12.07	0.952	0.044	M,J		2.1
2,4'-DDT	12.13	<0.081	0.043	M,J,R	0.081	2.1
4,4'-DDT	12.57	<0.25	0.076	M,J,R	0.25	2.1
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	70	21-125		
4,4'-DDD, 13C12-	125	12.07	63	5-150		
4,4'-DDT, 13C12-	125	12.56	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.
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-S009-6TO8	Sampling Date	10-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-35	Extraction Date	24-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.22		
Analysis Type	Sample	Percent Solid	50.0%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180901A27
Run Date	02-Sep-18 05:29
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	0.104	0.013	M,J,B		1.9
4,4'-DDE	11.40	2.50	0.017	M		1.9
2,4'-DDD	11.57	0.332	0.029	J		1.9
4,4'-DDD	12.08	1.07	0.029	M,J		1.9
2,4'-DDT	12.13	0.140	0.028	M,J		1.9
4,4'-DDT	12.57	0.326	0.050	J		1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	76	21-125		
4,4'-DDD, 13C12-	125	12.07	68	5-150		
4,4'-DDT, 13C12-	125	12.57	61	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-S009-8TO10

ALS Sample ID L2146267-36
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 10-Aug-18
 Extraction Date 24-Aug-18
 Sample Size 5.79 g
 Percent Solid 55.5%
 Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180901A28
 Run Date 02-Sep-18 05:49
 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	10.87	0.146	0.013	M,J,B		1.7
4,4'-DDE	11.40	4.88	0.017	M		1.7
2,4'-DDD	11.57	0.511	0.033	M,J		1.7
4,4'-DDD	12.08	2.12	0.036	M		1.7
2,4'-DDT	12.12	0.183	0.035	M,J		1.7
4,4'-DDT	12.58	0.314	0.059	M,J		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	73	21-125		
4,4'-DDD, 13C12-	125	12.07	60	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S009-10T011.4
ALS Sample ID L2146267-37
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.14 g
Percent Solid 51.2%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A29
Run Date 02-Sep-18 06:09
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	10.86	0.158	0.015	M,J,B	1.9	
4,4'-DDE	11.39	4.03	0.020	M	1.9	
2,4'-DDD	11.56	0.664	0.036	J	1.9	
4,4'-DDD	12.07	2.24	0.041	M	1.9	
2,4'-DDT	12.11	<0.12	0.039	M,J,R	0.12	1.9
4,4'-DDT	12.57	0.374	0.065	M,J	1.9	
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	82	21-125		
4,4'-DDD, 13C12-	125	12.07	65	5-150		
4,4'-DDT, 13C12-	125	12.56	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.
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-S011-0T02
ALS Sample ID L2146267-38
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 4.57 g
Percent Solid 44.9%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180903A39
Run Date 04-Sep-18 07:24
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	<0.045	0.017	M,J,R	0.045	2.2
4,4'-DDE	11.39	1.98	0.023	J		2.2
2,4'-DDD	11.56	0.268	0.029	J		2.2
4,4'-DDD	12.07	0.907	0.031	M,J		2.2
2,4'-DDT	NotFnd	<0.030	0.030	U		2.2
4,4'-DDT	12.57	0.216	0.045	J		2.2
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	98	21-125		
4,4'-DDD, 13C12-	125	12.06	87	5-150		
4,4'-DDT, 13C12-	125	12.56	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.

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-S011-2TO4
ALS Sample ID L2146267-39
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.47 g
Percent Solid 53.5%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A31
Run Date 02-Sep-18 06:49
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	10.87	<0.090	0.013	M,J,R	0.090	1.8
4,4'-DDE	11.40	3.33	0.018	M		1.8
2,4'-DDD	11.57	0.481	0.028	J		1.8
4,4'-DDD	12.08	1.38	0.029	M,J		1.8
2,4'-DDT	12.13	0.127	0.028	M,J		1.8
4,4'-DDT	12.57	0.401	0.052	M,J		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	73	21-125		
4,4'-DDD, 13C12-	125	12.07	64	5-150		
4,4'-DDT, 13C12-	125	12.57	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.

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-S011-4TO6
ALS Sample ID L2146267-40
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.49 g
Percent Solid 53.5%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A32
Run Date 02-Sep-18 07:09
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	10.86	0.197	0.017	M,J,B		1.8
4,4'-DDE	11.40	5.36	0.023	M		1.8
2,4'-DDD	11.57	0.939	0.038	J		1.8
4,4'-DDD	12.07	3.21	0.043	M		1.8
2,4'-DDT	12.12	0.205	0.042	M,J		1.8
4,4'-DDT	12.57	0.422	0.075	J		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	56	21-125		
4,4'-DDD, 13C12-	125	12.07	45	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S011-6TO8
ALS Sample ID L2146267-41
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.33 g
Percent Solid 52.6%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180901A33
Run Date 02-Sep-18 07:29
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		10.87	0.228	0.011	J,B	1.9
4,4'-DDE		11.40	3.97	0.015	M	1.9
2,4'-DDD		11.57	0.593	0.020	J	1.9
4,4'-DDD		12.08	1.55	0.023	J	1.9
2,4'-DDT		12.14	1.37	0.022	J	1.9
4,4'-DDT		12.58	0.690	0.037	M,J	1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	90	21-125		
4,4'-DDD, 13C12-	125	12.07	72	5-150		
4,4'-DDT, 13C12-	125	12.57	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.

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-S011-8TO10
ALS Sample ID L2146267-42
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.58 g
Percent Solid 54.1%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B26
Run Date 01-Sep-18 03:40
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	0.207	0.016	J,B		1.8
4,4'-DDE	11.40	4.82	0.021			1.8
2,4'-DDD	11.57	0.494	0.030	J		1.8
4,4'-DDD	12.08	1.58	0.035	M,J		1.8
2,4'-DDT	NotFnd	<0.034	0.034	U		1.8
4,4'-DDT	12.58	0.483	0.055	J		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	93	21-125		
4,4'-DDD, 13C12-	125	12.07	77	5-150		
4,4'-DDT, 13C12-	125	12.57	70	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-S011-8TO10 Duplicate

ALS Sample ID WG2851420-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix QC

Sampling Date n/a
Extraction Date 24-Aug-18
Sample Size 5.51 g
Percent Solid 54.0%
Split Ratio 1

Approved:
R. Bakhtiari
--e-signature--
04-Sep-2018

Run Information

Run 1

Filename 6-180831B27
Run Date 01-Sep-18 04:00
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	0.223	0.016	J,B		1.8
4,4'-DDE	11.40	5.47	0.022	M		1.8
2,4'-DDD	11.57	0.494	0.030	J		1.8
4,4'-DDD	12.08	1.68	0.034	M,J		1.8
2,4'-DDT	12.14	0.131	0.032	M,J		1.8
4,4'-DDT	12.58	0.445	0.053	J		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	83	21-125		
4,4'-DDD, 13C12-	125	12.07	75	5-150		
4,4'-DDT, 13C12-	125	12.57	66	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-S011-10T012
ALS Sample ID L2146267-43
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.24 g
Percent Solid 60.0%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B28
Run Date 01-Sep-18 04:20
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	0.248	0.012	J,B	1.6	
4,4'-DDE	11.40	6.15	0.015		1.6	
2,4'-DDD	11.57	1.21	0.023	J	1.6	
4,4'-DDD	12.08	4.07	0.026	M	1.6	
2,4'-DDT	12.13	0.170	0.025	M,J	1.6	
4,4'-DDT	12.57	0.533	0.044	J	1.6	
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	91	21-125		
4,4'-DDD, 13C12-	125	12.07	80	5-150		
4,4'-DDT, 13C12-	125	12.57	75	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-S011-12T014.5	Sampling Date	10-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-44	Extraction Date	24-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	6.12		
Analysis Type	Sample	Percent Solid	59.7%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B29
Run Date	01-Sep-18 04:40
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	0.254	0.015	J,B		1.6
4,4'-DDE	11.41	5.72	0.019	M		1.6
2,4'-DDD	11.58	1.05	0.026	J		1.6
4,4'-DDD	12.09	3.71	0.028	M		1.6
2,4'-DDT	12.14	0.156	0.027	M,J		1.6
4,4'-DDT	12.58	0.463	0.050	J		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	95	21-125		
4,4'-DDD, 13C12-	125	12.08	82	5-150		
4,4'-DDT, 13C12-	125	12.58	76	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-S011-14.5TO16.8	Sampling Date	10-Aug-18	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-45	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5.80 g	
Analysis Type	Sample	Percent Solid	57.8%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180831B30
Run Date	01-Sep-18 05:00
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	10.87	0.457	0.019	J,B	1.7
4,4'-DDE	11.39	8.96	0.025	M	1.7
2,4'-DDD	11.57	1.67	0.039	J	1.7
4,4'-DDD	12.07	5.37	0.045	M	1.7
2,4'-DDT	12.13	<0.20	0.043	M,J,R	0.20 1.7
4,4'-DDT	12.57	0.809	0.085	M,J	1.7
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.39	95	21-125	
4,4'-DDD, 13C12-	125	12.07	81	5-150	
4,4'-DDT, 13C12-	125	12.56	68	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-S011-14.5TO16.8D	Sampling Date	10-Aug-18	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-46	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5.87 g	
Analysis Type	Sample	Percent Solid	57.6%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180831B31
Run Date	01-Sep-18 05:21
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		10.87	0.460	0.021	J,B	1.7
4,4'-DDE		11.40	8.71	0.027	M	1.7
2,4'-DDD		11.57	1.73	0.033		1.7
4,4'-DDD		12.08	5.38	0.039		1.7
2,4'-DDT		12.14	0.312	0.037	J	1.7
4,4'-DDT		12.58	0.835	0.066	M,J	1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	89	21-125		
4,4'-DDD, 13C12-	125	12.07	75	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S011-16.8TO17.9	Sampling Date	10-Aug-18	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-47	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	7.10 g	
Analysis Type	Sample	Percent Solid	70.6%	
Sample Matrix	Sediment	Split Ratio	1	

Run Information	Run 1
Filename	6-180831B32
Run Date	01-Sep-18 05:41
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		10.87	0.128	0.014	J,B	1.4
4,4'-DDE		11.40	1.26	0.018	J	1.4
2,4'-DDD		11.57	1.07	0.024	J	1.4
4,4'-DDD		12.08	3.18	0.026	M	1.4
2,4'-DDT		12.13	0.0862	0.025	M,J	1.4
4,4'-DDT		12.58	0.0906	0.041	M,J	1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	89	21-125		
4,4'-DDD, 13C12-	125	12.08	82	5-150		
4,4'-DDT, 13C12-	125	12.57	70	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-S011-17.9TO18.9
ALS Sample ID L2146267-48
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.76 g
Percent Solid 67.2%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B33
Run Date 01-Sep-18 06:01
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	10.86	0.272	0.011	M,J,B		1.5
4,4'-DDE	11.40	2.20	0.014	M		1.5
2,4'-DDD	11.57	1.30	0.019	J		1.5
4,4'-DDD	12.08	3.76	0.022	M		1.5
2,4'-DDT	12.13	<0.097	0.021	M,J,R	0.097	1.5
4,4'-DDT	12.57	<0.14	0.044	J,R	0.14	1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	91	21-125		
4,4'-DDD, 13C12-	125	12.07	74	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S004-0T02
ALS Sample ID L2146267-49
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.49 g
Percent Solid 62.8%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B34
Run Date 01-Sep-18 06:21
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	10.87	0.179	0.013	J,B		1.5
4,4'-DDE	11.40	2.55	0.017	M		1.5
2,4'-DDD	11.57	1.11	0.024	J		1.5
4,4'-DDD	12.08	3.34	0.027	M		1.5
2,4'-DDT	12.14	0.131	0.026	M,J		1.5
4,4'-DDT	12.58	0.258	0.049	J		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	84	21-125		
4,4'-DDD, 13C12-	125	12.08	76	5-150		
4,4'-DDT, 13C12-	125	12.57	66	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-S004-2TO4
ALS Sample ID L2146267-50
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.18 g
Percent Solid 61.2%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180904A05
Run Date 04-Sep-18 13:01
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	10.86	0.0123	0.0077	M,J,B	1.6	
4,4'-DDE	11.39	0.0422	0.010	M,J,B	1.6	
2,4'-DDD	11.57	0.0320	0.013	M,J	1.6	
4,4'-DDD	12.07	0.0558	0.014	M,J	1.6	
2,4'-DDT	NotFnd	<0.014	0.014	U	1.6	
4,4'-DDT	12.57	0.0877	0.022	M,J	1.6	
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	98	21-125		
4,4'-DDD, 13C12-	125	12.07	80	5-150		
4,4'-DDT, 13C12-	125	12.56	77	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-S004-4TO6
ALS Sample ID L2146267-51
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.81 g
Percent Solid 67.1%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B36
Run Date 01-Sep-18 07:01
Final Volume 1000 uL
Dilution Factor 5
Analysis Units ng/g
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	Flags	EMPC	LQL
		Time	ng / g	ng / g		ng / g	
2,4'-DDE		NotFnd	<0.015	0.015	U		1.5
4,4'-DDE		11.41	0.0336	0.020	M,J,B		1.5
2,4'-DDD		NotFnd	<0.027	0.027	U		1.5
4,4'-DDD		12.09	<0.052	0.031	M,J,R	0.052	1.5
2,4'-DDT		NotFnd	<0.030	0.030	U		1.5
4,4'-DDT		12.58	0.116	0.045	M,J		1.5
Extraction Standards	ng						
4,4'-DDE, 13C12-	125	11.40	84	21-125			
4,4'-DDD, 13C12-	125	12.08	76	5-150			
4,4'-DDT, 13C12-	125	12.57	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.
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-S004-6T07.3

ALS Sample ID L2146267-52
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 10-Aug-18
 Extraction Date 24-Aug-18
 Sample Size 7.17 g
 Percent Solid 69.4%
 Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180831B37
 Run Date 01-Sep-18 07:21
 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	<0.012	0.012	U		1.4
4,4'-DDE	NotFnd	<0.015	0.015	U		1.4
2,4'-DDD	NotFnd	<0.024	0.024	U		1.4
4,4'-DDD	NotFnd	<0.026	0.026	U		1.4
2,4'-DDT	NotFnd	<0.025	0.025	U		1.4
4,4'-DDT	12.57	0.0762	0.041	M,J		1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	73	21-125		
4,4'-DDD, 13C12-	125	12.07	67	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.

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-S004-7.3TO9.1

ALS Sample ID L2146267-53
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 10-Aug-18
 Extraction Date 24-Aug-18
 Sample Size 7.06 g
 Percent Solid 70.2%
 Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180903A20
 Run Date 04-Sep-18 01:02
 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	<0.076	0.036	M,J,R	0.076	1.4
4,4'-DDE	11.40	0.0898	0.049	M,J		1.4
2,4'-DDD	11.57	<0.061	0.061	M,U	0.058	1.4
4,4'-DDD	NotFnd	<0.049	0.049	U		1.4
2,4'-DDT	NotFnd	<0.048	0.048	U		1.4
4,4'-DDT	12.57	<0.17	0.074	M,J,R	0.17	1.4
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	65	21-125		
4,4'-DDD, 13C12-	125	12.07	78	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
 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-S004-7.3TO9.1 Duplicate
ALS Sample ID WG2851430-4
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix QC

Sampling Date n/a
Extraction Date 24-Aug-18
Sample Size 7.36 g
Percent Solid 70.9%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A21
Run Date 04-Sep-18 01:22
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		NotFnd	<0.027	0.027	U	1.4
4,4'-DDE		11.40	<0.038	0.037	M,J,R	0.038 1.4
2,4'-DDD		NotFnd	<0.047	0.047	U	1.4
4,4'-DDD		NotFnd	<0.045	0.045	U	1.4
2,4'-DDT		NotFnd	<0.044	0.044	U	1.4
4,4'-DDT		12.58	<0.099	0.071	M,J,R	0.099 1.4
Extraction Standards ng						
4,4'-DDE, 13C12-	125	11.40	79	21-125		
4,4'-DDD, 13C12-	125	12.08	76	5-150		
4,4'-DDT, 13C12-	125	12.57	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-S004-9.1TO10.3
ALS Sample ID L2146267-54
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 7.51 g
Percent Solid 73.3%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A22
Run Date 04-Sep-18 01:42
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	1.3
4,4'-DDE	11.39	0.0362	0.027	M,J		1.3
2,4'-DDD	NotFnd	<0.033	0.033		U	1.3
4,4'-DDD	NotFnd	<0.032	0.032		U	1.3
2,4'-DDT	NotFnd	<0.031	0.031		U	1.3
4,4'-DDT	NotFnd	<0.042	0.042		U	1.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.38	75	21-125		
4,4'-DDD, 13C12-	125	12.07	72	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.
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-S015-0TO2
ALS Sample ID L2146267-55
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 13-Aug-18
Extraction Date 27-Aug-18
Sample Size 4.67 g
Percent Solid 46.0%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A45
Run Date 02-Sep-18 11:30
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	0.141	0.064	M,J		2.1
4,4'-DDE	11.39	2.31	0.085	M		2.1
2,4'-DDD	11.56	0.386	0.16	M,J		2.1
4,4'-DDD	12.07	0.997	0.072	M,J		2.1
2,4'-DDT	NotFnd	<0.070	0.070	U		2.1
4,4'-DDT	12.57	<0.22	0.17	M,J,R	0.22	2.1
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	14	21-125		
4,4'-DDD, 13C12-	125	12.07	29	5-150		
4,4'-DDT, 13C12-	125	12.56	18	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-S015-2TO4
ALS Sample ID L2146267-56
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 13-Aug-18
Extraction Date 27-Aug-18
Sample Size 4.74 g
Percent Solid 46.6%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A46
Run Date 02-Sep-18 11:51
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	10.87	0.190	0.037	M,J	2.1
4,4'-DDE	11.40	5.36	0.049		2.1
2,4'-DDD	11.57	0.522	0.084	J	2.1
4,4'-DDD	12.08	1.94	0.044	M,J	2.1
2,4'-DDT	12.13	0.292	0.043	M,J	2.1
4,4'-DDT	12.58	<0.55	0.093	M,J,R	2.1
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.39	19	21-125	
4,4'-DDD, 13C12-	125	12.07	33	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.

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-S015-4TO6	Sampling Date	13-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-57	Extraction Date	27-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.46		
Analysis Type	Sample	Percent Solid	53.8%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180901A47
Run Date	02-Sep-18 12:11
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	10.86	0.253	0.078	M,J		1.8
4,4'-DDE	11.39	4.48	0.10			1.8
2,4'-DDD	11.56	0.771	0.20	J		1.8
4,4'-DDD	12.07	2.27	0.087	M		1.8
2,4'-DDT	12.11	<0.19	0.084	M,J,R	0.19	1.8
4,4'-DDT	12.57	<0.41	0.19	M,J,R	0.41	1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	13	21-125		
4,4'-DDD, 13C12-	125	12.07	27	5-150		
4,4'-DDT, 13C12-	125	12.56	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.
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-S015-6TO8
ALS Sample ID L2146267-58
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 13-Aug-18
Extraction Date 27-Aug-18
Sample Size 5.30 g
Percent Solid 52.3%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A48
Run Date 02-Sep-18 12:31
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	0.317	0.046	M,J	1.9	
4,4'-DDE	11.40	5.92	0.061		1.9	
2,4'-DDD	11.57	0.662	0.082	J	1.9	
4,4'-DDD	12.08	2.18	0.037	M	1.9	
2,4'-DDT	12.12	<0.15	0.037	M,J,R	0.15	1.9
4,4'-DDT	12.58	<0.36	0.076	M,J,R	0.36	1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	19	21-125		
4,4'-DDD, 13C12-	125	12.07	40	5-150		
4,4'-DDT, 13C12-	125	12.57	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.

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-S015-8TO10

ALS Sample ID L2146267-59
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 13-Aug-18
Extraction Date 27-Aug-18
Sample Size 5.77 g
Percent Solid 56.0%
Split Ratio 1

Approved:
R. Bakhtiari
--e-signature--
04-Sep-2018

Run Information

Run 1

Filename 6-180901A49
Run Date 02-Sep-18 12:51
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	0.403	0.053	M,J		1.7
4,4'-DDE	11.40	5.31	0.070			1.7
2,4'-DDD	11.58	0.762	0.10	J		1.7
4,4'-DDD	12.08	2.76	0.018	M		1.7
2,4'-DDT	12.14	0.237	0.018	M,J		1.7
4,4'-DDT	12.58	0.370	0.059	M,J,B		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	10	21-125		
4,4'-DDD, 13C12-	125	12.08	48	5-150		
4,4'-DDT, 13C12-	125	12.57	23	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-S015-10T011.4
ALS Sample ID L2146267-60
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 13-Aug-18
Extraction Date 27-Aug-18
Sample Size 5.83 g
Percent Solid 57.4%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180901A50
Run Date 02-Sep-18 13:11
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	10.86	0.244	0.035	M,J		1.7
4,4'-DDE	11.40	3.93	0.047			1.7
2,4'-DDD	11.57	0.704	0.093	J		1.7
4,4'-DDD	12.08	1.92	0.037	M		1.7
2,4'-DDT	12.13	<0.20	0.036	M,J,R	0.20	1.7
4,4'-DDT	12.57	0.352	0.092	M,J,B		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	15	21-125		
4,4'-DDD, 13C12-	125	12.07	34	5-150		
4,4'-DDT, 13C12-	125	12.57	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.

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-S015-11.4TO12.4	Sampling Date	13-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-61	Extraction Date	27-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.94		
Analysis Type	Sample	Percent Solid	58.6%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180901A51
Run Date	02-Sep-18 13:31
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	<0.31	0.055	M,J,R	0.31 1.7
4,4'-DDE		11.39	4.95	0.073		1.7
2,4'-DDD		11.56	0.934	0.093	J	1.7
4,4'-DDD		12.07	2.86	0.051	M	1.7
2,4'-DDT		12.11	0.388	0.050	M,J	1.7
4,4'-DDT		12.57	1.42	0.10	J,B	1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	14	21-125		
4,4'-DDD, 13C12-	125	12.07	24	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.
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-RB-SS-180810-1200
ALS Sample ID L2146267-62
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Water

Sampling Date 10-Aug-18
Extraction Date 16-Aug-18
Sample Size 1.05 L
Percent Solid n/a
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A27
Run Date 04-Sep-18 03:23
Final Volume 1020 uL
Dilution Factor 1
Analysis Units ng/L
Instrument - Column HRMS-6 HP5MSUSR163634H

Target Analytes		Ret.	Conc.	EDL	EMPC	
		Time	ng / L	ng / L	Flags	LQL
2,4'-DDE		NotFnd	<0.031	0.031	U	1.9
4,4'-DDE		11.40	<0.043	0.043	M,U	0.039 1.9
2,4'-DDD		NotFnd	<0.054	0.054	U	1.9
4,4'-DDD		NotFnd	<0.038	0.038	U	1.9
2,4'-DDT		NotFnd	<0.037	0.037	U	1.9
4,4'-DDT		NotFnd	<0.053	0.053	U	1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	66	21-125		
4,4'-DDD, 13C12-	125	12.07	86	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
 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-RB-SS-180810-1730

ALS Sample ID L2146267-63
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Water

Sampling Date 10-Aug-18

Extraction Date 16-Aug-18

Sample Size 1.02 L

Percent Solid n/a

Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180903A28
 Run Date 04-Sep-18 03:43
 Final Volume 1020 uL
 Dilution Factor 1
 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	<0.048	0.048	U		2.0
4,4'-DDE	11.39	<0.065	0.065	M,U	0.051	2.0
2,4'-DDD	NotFnd	<0.071	0.071	U		2.0
4,4'-DDD	NotFnd	<0.052	0.052	U		2.0
2,4'-DDT	NotFnd	<0.050	0.050	U		2.0
4,4'-DDT	12.57	<0.14	0.078	M,J,R	0.14	2.0
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	46	21-125		
4,4'-DDD, 13C12-	125	12.07	60	5-150		
4,4'-DDT, 13C12-	125	12.57	58	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-S007-10T012

ALS Sample ID L2146267-64
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 10-Aug-18
 Extraction Date 24-Aug-18
 Sample Size 6.11 g
 Percent Solid 58.9%
 Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180831B38
 Run Date 01-Sep-18 07:41
 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	10.86	0.399	0.025	M,J,B		1.6
4,4'-DDE	11.40	7.95	0.033	M		1.6
2,4'-DDD	11.57	1.54	0.028	M,J		1.6
4,4'-DDD	12.07	5.29	0.029	M		1.6
2,4'-DDT	12.13	0.246	0.028	M,J		1.6
4,4'-DDT	12.57	0.644	0.057	M,J		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	89	21-125		
4,4'-DDD, 13C12-	125	12.07	82	5-150		
4,4'-DDT, 13C12-	125	12.57	70	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-S007-4TO6
ALS Sample ID L2146267-65
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.75 g
Percent Solid 54.1%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B39
Run Date 01-Sep-18 08:01
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	10.87	0.187	0.011	J,B		1.7
4,4'-DDE	11.40	4.91	0.014			1.7
2,4'-DDD	11.57	0.743	0.019	J		1.7
4,4'-DDD	12.08	2.93	0.021			1.7
2,4'-DDT	12.13	0.171	0.021	J		1.7
4,4'-DDT	12.57	0.452	0.038	J		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	95	21-125		
4,4'-DDD, 13C12-	125	12.07	78	5-150		
4,4'-DDT, 13C12-	125	12.57	66	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.

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-S007-0TO2
ALS Sample ID L2146267-66
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 4.32 g
Percent Solid 42.5%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B40
Run Date 01-Sep-18 08:22
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	10.87	<0.067	0.021	M,J,R	0.067	2.3
4,4'-DDE	11.40	2.39	0.028	M		2.3
2,4'-DDD	11.57	0.418	0.038	M,J		2.3
4,4'-DDD	12.08	1.10	0.046	M,J		2.3
2,4'-DDT	12.14	<0.14	0.045	M,J,R	0.14	2.3
4,4'-DDT	12.58	0.298	0.079	J		2.3
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	89	21-125		
4,4'-DDD, 13C12-	125	12.07	72	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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.

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-S007-2TO4
ALS Sample ID L2146267-67
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.29 g
Percent Solid 52.0%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B41
Run Date 01-Sep-18 08:42
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	0.161	0.014	M,J,B	1.9
4,4'-DDE		11.40	4.83	0.018	M	1.9
2,4'-DDD		11.57	0.476	0.025	J	1.9
4,4'-DDD		12.08	1.88	0.025	M,J	1.9
2,4'-DDT		12.13	0.135	0.025	M,J	1.9
4,4'-DDT		12.57	0.287	0.049	J	1.9
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	77	21-125		
4,4'-DDD, 13C12-	125	12.07	72	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S230-6TO8	Sampling Date	10-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-68	Extraction Date	24-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.54		
Analysis Type	Sample	Percent Solid	55.1%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B42
Run Date	01-Sep-18 09:02
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	0.284	0.015	J,B		1.8
4,4'-DDE	11.39	5.26	0.019	M		1.8
2,4'-DDD	11.56	0.650	0.028	M,J		1.8
4,4'-DDD	12.07	2.11	0.031	M		1.8
2,4'-DDT	12.11	<0.084	0.030	M,J,R	0.084	1.8
4,4'-DDT	12.57	0.221	0.055	M,J		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	86	21-125		
4,4'-DDD, 13C12-	125	12.07	75	5-150		
4,4'-DDT, 13C12-	125	12.56	64	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-S230-8TO10.4

ALS Sample ID L2146267-69
 Analysis Method EPA 1699 (mod)
 Analysis Type Sample
 Sample Matrix Sediment

Sampling Date 10-Aug-18
 Extraction Date 24-Aug-18
 Sample Size 5.76 g
 Percent Solid 55.8%
 Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information

Run 1

Filename 6-180831B43
 Run Date 01-Sep-18 09:22
 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	10.87	0.284	0.013	J,B		1.7
4,4'-DDE	11.40	6.74	0.017	M		1.7
2,4'-DDD	11.57	0.890	0.025	J		1.7
4,4'-DDD	12.08	2.86	0.029	M		1.7
2,4'-DDT	12.13	0.152	0.028	M,J		1.7
4,4'-DDT	12.58	0.341	0.051	M,J		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	87	21-125		
4,4'-DDD, 13C12-	125	12.07	72	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S230-10.4TO11.4	Sampling Date	10-Aug-18	g	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	L2146267-70	Extraction Date	24-Aug-18		
Analysis Method	EPA 1699 (mod)	Sample Size	5.89		
Analysis Type	Sample	Percent Solid	56.4%		
Sample Matrix	Sediment	Split Ratio	1		

Run Information	Run 1
Filename	6-180831B44
Run Date	01-Sep-18 09:42
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	0.383	0.012	J,B		1.7
4,4'-DDE	11.40	8.45	0.016			1.7
2,4'-DDD	11.57	1.34	0.026	J		1.7
4,4'-DDD	12.08	4.56	0.031	M		1.7
2,4'-DDT	12.14	<0.11	0.029	M,J,R	0.11	1.7
4,4'-DDT	12.58	0.637	0.055	J		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	96	21-125		
4,4'-DDD, 13C12-	125	12.07	78	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S007-6TO8
ALS Sample ID L2146267-71
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.51 g
Percent Solid 53.6%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B45
Run Date 01-Sep-18 10:03
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	0.264	0.012	M,J,B		1.8
4,4'-DDE	11.39	6.66	0.016	M		1.8
2,4'-DDD	11.57	0.647	0.021	J		1.8
4,4'-DDD	12.07	2.07	0.026			1.8
2,4'-DDT	12.13	0.186	0.025	J		1.8
4,4'-DDT	12.57	0.332	0.049	J		1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	92	21-125		
4,4'-DDD, 13C12-	125	12.07	74	5-150		
4,4'-DDT, 13C12-	125	12.56	61	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-S007-12T014
ALS Sample ID L2146267-72
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.01 g
Percent Solid 58.7%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180831B46
Run Date 01-Sep-18 10:23
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	0.504	0.0076	J,B		1.7
4,4'-DDE	11.40	8.43	0.010	M		1.7
2,4'-DDD	11.57	1.94	0.017			1.7
4,4'-DDD	12.08	7.05	0.021	M		1.7
2,4'-DDT	12.13	0.318	0.020	M,J		1.7
4,4'-DDT	12.57	1.14	0.037	J		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	78	21-125		
4,4'-DDD, 13C12-	125	12.07	60	5-150		
4,4'-DDT, 13C12-	125	12.57	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.

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-S007-14T016
ALS Sample ID L2146267-73
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 6.31 g
Percent Solid 61.9%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A23
Run Date 04-Sep-18 02:02
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	0.531	0.052	J		1.6
4,4'-DDE	11.40	8.61	0.071			1.6
2,4'-DDD	11.57	2.13	0.091			1.6
4,4'-DDD	12.08	7.45	0.044	M		1.6
2,4'-DDT	12.12	0.354	0.043	M,J		1.6
4,4'-DDT	12.58	0.443	0.088	M,J		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	33	21-125		
4,4'-DDD, 13C12-	125	12.07	64	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S007-4TO6D
ALS Sample ID L2146267-74
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.37 g
Percent Solid 53.2%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A24
Run Date 04-Sep-18 02:22
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	10.87	0.180	0.028	J	1.9	
4,4'-DDE	11.40	4.01	0.039		1.9	
2,4'-DDD	11.57	0.872	0.053	J	1.9	
4,4'-DDD	12.08	2.85	0.052		1.9	
2,4'-DDT	12.13	0.174	0.050	J	1.9	
4,4'-DDT	12.58	0.470	0.076	M,J	1.9	
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	90	21-125		
4,4'-DDD, 13C12-	125	12.07	84	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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-S007-8TO10
ALS Sample ID L2146267-75
Analysis Method EPA 1699 (mod)
Analysis Type Sample
Sample Matrix Sediment

Sampling Date 10-Aug-18
Extraction Date 24-Aug-18
Sample Size 5.90 g
Percent Solid 56.6%
Split Ratio 1

Approved:
R. Bakhtiari
 --e-signature--
 04-Sep-2018

Run Information **Run 1**
Filename 6-180903A25
Run Date 04-Sep-18 02:43
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	0.282	0.018	J		1.7
4,4'-DDE	11.39	7.09	0.025			1.7
2,4'-DDD	11.57	1.09	0.032	M,J		1.7
4,4'-DDD	12.08	4.48	0.029	M		1.7
2,4'-DDT	12.13	<0.12	0.028	M,J,R	0.12	1.7
4,4'-DDT	12.57	0.356	0.050	J		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	83	21-125		
4,4'-DDD, 13C12-	125	12.07	83	5-150		
4,4'-DDT, 13C12-	125	12.57	76	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.

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-180809-1900	Sampling Date	9-Aug-18	
ALS Sample ID	L2146267-76	Extraction Date	16-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	0.955	L
Analysis Type	Sample	Percent Solid	n/a	
Sample Matrix	Water	Split Ratio	1	
				Approved: R. Bakhtiari --e-signature-- 04-Sep-2018

Run Information	Run 1
Filename	6-180903A29
Run Date	04-Sep-18 04:03
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	ng/L
Instrument - Column	HRMS-6 HP5MSUSR163634H

		Ret. Time	Conc. ng/L	EDL ng/L	Flags	EMPC ng/L	LQL
Target Analytes							
	2,4'-DDE	NotFnd	<0.029	0.029	U		2.1
	4,4'-DDE	11.39	0.0731	0.039	M,J		2.1
	2,4'-DDD	NotFnd	<0.051	0.051	U		2.1
	4,4'-DDD	NotFnd	<0.045	0.045	U		2.1
	2,4'-DDT	NotFnd	<0.044	0.044	U		2.1
	4,4'-DDT	NotFnd	<0.066	0.066	U		2.1
Extraction Standards	ng						
	4,4'-DDE, 13C12-	125	11.39	80	21-125		
	4,4'-DDD, 13C12-	125	12.07	84	5-150		
	4,4'-DDT, 13C12-	125	12.56	85	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

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	Hexachlorobutadiene	35	70-130	5-200	
	1,2,4,5-Tetrachlorobenzene	35	70-130	5-200	
	1,2,3,4-Tetrachlorobenzene	35	70-130	5-200	
	Pentachlorobenzene	20	70-130	5-200	
	Hexachlorobenzene	20	75-125	10-150	
	3,4,5,6-Tetrachloroveratrole	35	70-130	20-200	
	Pentachloroanisole	35	70-130	20-200	
	alpha-BHC	20	75-125	50-120	
	beta-BHC	35	75-125	50-120	
	gamma-BHC	20	75-125	50-120	
	delta-BHC	35	75-125	50-120	
	Pentachloronitrobenzene	35	70-130	20-200	
	Heptachlor	20	75-125	50-120	
	Aldrin	35	75-125	50-120	
	4,4'-DDNU	35	75-125	20-160	
	Dacthal	35	50-150	20-200	
	Chlorpyrifos	35	75-125	19-163	
	Octachlorostyrene	35	70-130	50-175	
	Heptachlor Epoxide B	35	70-130	20-200	
	Heptachlor Epoxide A	35	75-125	50-120	
	Oxychlordane	20	75-125	50-120	
	4,4'-DDMU	35	75-125	20-160	
	trans-Chlordane	35	75-125	50-120	
	cis-Chlordane	35	75-125	50-120	
	trans-Nonachlor	20	75-125	50-120	
	Dieldrin	20	75-125	50-120	
	Endrin	20	75-125	50-120	
	cis-Nonachlor	35	75-125	50-120	
	Endosulfan I	35	75-125	50-120	
	Endosulfan II	20	75-125	5-200	
	Endosulfan Sulfate	35	75-125	50-200	
	24'-DDE	35	75-125	24-123	
	44'-DDE	20	75-125	50-120	
	24'-DDD	35	75-125	50-120	
	44'-DDD	20	75-125	42-120	
	24'-DDT	35	75-125	50-120	
	44'-DDT	20	75-125	50-120	
	Endrin Aldehyde	35	70-130	20-200	
	Endrin Ketone	35	75-125	50-134	
	Methoxychlor	20	75-125	50-120	
	Dicofol	35	50-150	20-200	
	Mirex	20	75-125	50-120	
	Parlar-26	35	70-130	20-200	
	Parlar-50	35	70-130	20-200	
	Parlar-62	35	70-130	20-200	

Laboratory Surrogate	1,3-Dibromobenzene	35	50-150	50-150	40-120
	Endrin Ketone	35	50-150	50-150	40-150
Field Surrogate	1,3,5-Tribromobenzene	35	50-150	50-150	60-120
	1,2,4,5-Tetrabromobenzene	35	50-150	50-150	60-120
	delta-BHC	35	50-150	50-150	60-120
GPC Recovery Standard	13C12-PCB-133	35	50-150	50-150	50-120
Extraction Standard	13C6-Pentachlorobenzene	35	70-130	5-120	5-120
	13C6-Hexachlorobenzene	35	70-130	5-120	5-120
	13C6-alpha-BHC	35	70-130	13-138	16-129
	d6-gamma-BHC	35	70-130	5-124	11-120
	13C10-Heptachlor	35	70-130	5-128	5-120
	13C10-Oxychlorane	35	70-130	5-144	23-135
	13C10-trans-Nonachlor	35	70-130	17-154	36-139
	13C12-Dieldrin	35	70-130	19-161	40-151
	13C12-Endrin	35	70-130	20-157	35-155
	13C9-Endosulfan-II	35	70-130	5-144	15-148
	13C12-44'-DDE	35	70-130	26-169	47-160
	13C12-44'-DDD	35	70-130	13-200	5-150
	13C12-44'-DDT	35	70-130	13-200	5-120
	d6-Methoxychlor	35	70-130	8-200	5-120
	13C10-Mirex	35	70-130	5-138	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	6-180830A07	30-Aug-2018 11:38
CS-2	6-180830A06	30-Aug-2018 11:20
CS-3	6-180830A11	30-Aug-2018 13:01
CS-4	6-180830A10	30-Aug-2018 12:41
CS-5	6-180830A09	30-Aug-2018 12:21
CS-6	6-180830A08	30-Aug-2018 12:04

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	1.360	1.482	1.322	1.419	1.498	1.464	1.424	5%
4,4'-DDE	1.072	1.163	1.032	1.114	1.124	1.090	1.099	4%
2,4'-DDD	1.157	1.280	1.168	1.210	1.259	1.249	1.221	4%
4,4'-DDD	1.136	1.249	1.126	1.133	1.226	1.141	1.169	5%
2,4'-DDT	1.095	1.216	1.086	1.237	1.172	1.185	1.165	5%
4,4'-DDT	0.986	1.097	0.986	1.066	1.051	1.038	1.037	4%
Extraction Standards								
4,4'-DDE, 13C12-	0.551	0.535	0.558	0.528	0.539	0.554	0.544	2%
4,4'-DDD, 13C12-	0.441	0.431	0.474	0.454	0.480	0.518	0.466	7%
4,4'-DDT, 13C12-	0.306	0.293	0.339	0.314	0.345	0.370	0.328	9%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-067**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180830A07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 30-Aug-2018 11:38

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.53	2.00	5.80E+04	1.360
4,4'-DDE	11.4	1.57	2.00	4.57E+04	1.072
2,4'-DDD	11.57	1.51	2.00	3.95E+04	1.157
4,4'-DDD	12.08	1.49	2.00	3.88E+04	1.136
2,4'-DDT	12.14	1.43	2.00	2.60E+04	1.095
4,4'-DDT	12.58	1.58	2.00	2.34E+04	0.986
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.52	250.00	5.33E+06	0.551
4,4'-DDD, 13C12-	12.07	1.56	250.00	4.27E+06	0.441
4,4'-DDT, 13C12-	12.57	1.56	250.00	2.97E+06	0.306
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	3.87E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-067**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180830A06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 30-Aug-2018 11:20

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.88	1.57	7.50	2.28E+05	1.482
4,4'-DDE	11.41	1.57	7.50	1.79E+05	1.163
2,4'-DDD	11.58	1.59	7.50	1.59E+05	1.280
4,4'-DDD	12.09	1.59	7.50	1.55E+05	1.249
2,4'-DDT	12.14	1.59	7.50	1.02E+05	1.216
4,4'-DDT	12.58	1.61	7.50	9.23E+04	1.097
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.53	250.00	5.13E+06	0.535
4,4'-DDD, 13C12-	12.08	1.54	250.00	4.13E+06	0.431
4,4'-DDT, 13C12-	12.58	1.58	250.00	2.81E+06	0.293
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.54	0.78	100.00	3.84E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-067**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180830A11
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 30-Aug-2018 13:01

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.88	1.56	20.00	5.38E+05	1.322
4,4'-DDE	11.41	1.53	20.00	4.20E+05	1.032
2,4'-DDD	11.58	1.64	20.00	4.04E+05	1.168
4,4'-DDD	12.09	1.62	20.00	3.89E+05	1.126
2,4'-DDT	12.14	1.63	20.00	2.68E+05	1.086
4,4'-DDT	12.59	1.66	20.00	2.44E+05	0.986
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.53	250.00	5.09E+06	0.558
4,4'-DDD, 13C12-	12.08	1.54	250.00	4.32E+06	0.474
4,4'-DDT, 13C12-	12.58	1.55	250.00	3.09E+06	0.339
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.54	0.77	100.00	3.65E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-067**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180830A10
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date 30-Aug-2018 12:41

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.55	50.00	1.44E+06	1.419
4,4'-DDE	11.41	1.54	50.00	1.13E+06	1.114
2,4'-DDD	11.58	1.61	50.00	1.06E+06	1.210
4,4'-DDD	12.09	1.61	50.00	9.90E+05	1.133
2,4'-DDT	12.14	1.61	50.00	7.48E+05	1.237
4,4'-DDT	12.58	1.63	50.00	6.45E+05	1.066

Extraction Standards

4,4'-DDE, 13C12-	11.4	1.53	250.00	5.09E+06	0.528
4,4'-DDD, 13C12-	12.08	1.56	250.00	4.37E+06	0.454
4,4'-DDT, 13C12-	12.58	1.57	250.00	3.02E+06	0.314

Labeled Injection Standards

13C12-PCB-52 (IS)	9.54	0.77	100.00	3.85E+06	
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ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-067**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180830A09
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 30-Aug-2018 12:21

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.88	1.54	150.00	4.87E+06	1.498
4,4'-DDE	11.41	1.57	150.00	3.66E+06	1.124
2,4'-DDD	11.58	1.61	150.00	3.65E+06	1.259
4,4'-DDD	12.09	1.61	150.00	3.55E+06	1.226
2,4'-DDT	12.14	1.58	150.00	2.44E+06	1.172
4,4'-DDT	12.58	1.58	150.00	2.19E+06	1.051
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.52	250.00	5.42E+06	0.539
4,4'-DDD, 13C12-	12.08	1.57	250.00	4.83E+06	0.480
4,4'-DDT, 13C12-	12.58	1.56	250.00	3.47E+06	0.345
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.54	0.78	100.00	4.02E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-067**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180830A08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 30-Aug-2018 12:04

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	400.00	1.42E+07	1.464
4,4'-DDE	11.41	1.55	400.00	1.05E+07	1.090
2,4'-DDD	11.58	1.60	400.00	1.13E+07	1.249
4,4'-DDD	12.09	1.59	400.00	1.03E+07	1.141
2,4'-DDT	12.14	1.60	400.00	7.66E+06	1.185
4,4'-DDT	12.58	1.60	400.00	6.71E+06	1.038
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.51	250.00	6.05E+06	0.554
4,4'-DDD, 13C12-	12.08	1.57	250.00	5.65E+06	0.518
4,4'-DDT, 13C12-	12.58	1.57	250.00	4.04E+06	0.370
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.54	0.77	100.00	4.37E+06	

ALS Life sciences

Calibration Summary Report

Calibration Level	Filename	Run Date
CS-1	6-180831B17	01-Sep-2018 00:39
CS-2	6-180831B16	01-Sep-2018 00:19
CS-3	6-180831B15	31-Aug-2018 23:59
CS-4	6-180831B14	31-Aug-2018 23:39
CS-5	6-180831B13	31-Aug-2018 23:19
CS-6	6-180831B12	31-Aug-2018 22:58

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	1.380	1.454	1.335	1.452	1.532	1.510	1.444	5%
4,4'-DDE	1.062	1.161	1.030	1.115	1.137	1.102	1.101	4%
2,4'-DDD	1.190	1.255	1.131	1.203	1.250	1.228	1.210	4%
4,4'-DDD	1.113	1.217	1.103	1.145	1.215	1.139	1.155	4%
2,4'-DDT	1.174	1.239	1.155	1.216	1.206	1.203	1.199	3%
4,4'-DDT	1.098	1.079	0.976	1.043	1.107	1.034	1.056	5%
Extraction Standards								
4,4'-DDE, 13C12-	0.497	0.489	0.499	0.476	0.497	0.510	0.495	2%
4,4'-DDD, 13C12-	0.483	0.468	0.465	0.464	0.500	0.528	0.485	5%
4,4'-DDT, 13C12-	0.326	0.324	0.322	0.306	0.324	0.339	0.324	3%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-068**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180831B17
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 01-Sep-2018 00:39

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.59	2.00	3.19E+04	1.380
4,4'-DDE	11.4	1.65	2.00	2.46E+04	1.062
2,4'-DDD	11.57	1.64	2.00	2.67E+04	1.190
4,4'-DDD	12.08	1.57	2.00	2.50E+04	1.113
2,4'-DDT	12.14	1.60	2.00	1.78E+04	1.174
4,4'-DDT	12.58	1.61	2.00	1.67E+04	1.098

Extraction Standards

4,4'-DDE, 13C12-	11.4	1.51	250.00	2.89E+06	0.497
4,4'-DDD, 13C12-	12.07	1.58	250.00	2.81E+06	0.483
4,4'-DDT, 13C12-	12.57	1.57	250.00	1.90E+06	0.326

Labeled Injection Standards

13C12-PCB-52 (IS)	9.53	0.78	100.00	2.33E+06	
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ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-068**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180831B16
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 01-Sep-2018 00:19

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.86	1.55	7.50	1.49E+05	1.454
4,4'-DDE	11.4	1.59	7.50	1.19E+05	1.161
2,4'-DDD	11.57	1.65	7.50	1.23E+05	1.255
4,4'-DDD	12.08	1.59	7.50	1.19E+05	1.217
2,4'-DDT	12.13	1.66	7.50	8.39E+04	1.239
4,4'-DDT	12.57	1.57	7.50	7.30E+04	1.079
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.52	250.00	3.41E+06	0.489
4,4'-DDD, 13C12-	12.07	1.56	250.00	3.26E+06	0.468
4,4'-DDT, 13C12-	12.57	1.56	250.00	2.26E+06	0.324
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	2.79E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-068**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180831B15
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 31-Aug-2018 23:59

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.86	1.55	20.00	3.43E+05	1.335
4,4'-DDE	11.4	1.58	20.00	2.64E+05	1.030
2,4'-DDD	11.57	1.62	20.00	2.70E+05	1.131
4,4'-DDD	12.08	1.62	20.00	2.64E+05	1.103
2,4'-DDT	12.13	1.63	20.00	1.91E+05	1.155
4,4'-DDT	12.57	1.67	20.00	1.61E+05	0.976
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.51	250.00	3.21E+06	0.499
4,4'-DDD, 13C12-	12.07	1.56	250.00	2.99E+06	0.465
4,4'-DDT, 13C12-	12.57	1.56	250.00	2.07E+06	0.322
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	2.57E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-068**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180831B14
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 31-Aug-2018 23:39

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.58	50.00	7.88E+05	1.452
4,4'-DDE	11.4	1.55	50.00	6.05E+05	1.115
2,4'-DDD	11.57	1.62	50.00	6.35E+05	1.203
4,4'-DDD	12.08	1.62	50.00	6.04E+05	1.145
2,4'-DDT	12.14	1.60	50.00	4.24E+05	1.216
4,4'-DDT	12.58	1.62	50.00	3.64E+05	1.043
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.51	250.00	2.71E+06	0.476
4,4'-DDD, 13C12-	12.08	1.56	250.00	2.64E+06	0.464
4,4'-DDT, 13C12-	12.57	1.56	250.00	1.75E+06	0.306
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	2.28E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-068**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180831B13
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 31-Aug-2018 23:19

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.55	150.00	3.08E+06	1.532
4,4'-DDE	11.41	1.56	150.00	2.28E+06	1.137
2,4'-DDD	11.58	1.62	150.00	2.52E+06	1.250
4,4'-DDD	12.09	1.59	150.00	2.45E+06	1.215
2,4'-DDT	12.14	1.60	150.00	1.58E+06	1.206
4,4'-DDT	12.58	1.60	150.00	1.45E+06	1.107
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.52	250.00	3.35E+06	0.497
4,4'-DDD, 13C12-	12.08	1.57	250.00	3.37E+06	0.500
4,4'-DDT, 13C12-	12.58	1.56	250.00	2.18E+06	0.324
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.54	0.77	100.00	2.69E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-068**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180831B12
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 31-Aug-2018 22:58

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.87	1.55	400.00	8.59E+06	1.510
4,4'-DDE	11.4	1.56	400.00	6.27E+06	1.102
2,4'-DDD	11.57	1.60	400.00	7.23E+06	1.228
4,4'-DDD	12.08	1.60	400.00	6.71E+06	1.139
2,4'-DDT	12.14	1.59	400.00	4.54E+06	1.203
4,4'-DDT	12.58	1.62	400.00	3.90E+06	1.034
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.52	250.00	3.56E+06	0.510
4,4'-DDD, 13C12-	12.08	1.56	250.00	3.68E+06	0.528
4,4'-DDT, 13C12-	12.57	1.59	250.00	2.36E+06	0.339
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	2.79E+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	6-180903A05	03-Sep-2018 20:01
CS-2	6-180903A04	03-Sep-2018 19:41
CS-3	6-180903A09	03-Sep-2018 21:21
CS-4	6-180903A08	03-Sep-2018 21:01
CS-5	6-180903A07	03-Sep-2018 20:41
CS-6	6-180903A06	03-Sep-2018 20:21

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	1.440	1.526	1.402	1.540	1.652	1.587	1.525	6%
4,4'-DDE	1.095	1.158	1.046	1.147	1.165	1.126	1.123	4%
2,4'-DDD	1.220	1.351	1.194	1.268	1.367	1.318	1.286	5%
4,4'-DDD	1.224	1.272	1.132	1.171	1.264	1.179	1.207	5%
2,4'-DDT	1.204	1.306	1.158	1.230	1.272	1.260	1.238	4%
4,4'-DDT	1.091	1.105	1.007	1.096	1.109	1.057	1.078	4%
Extraction Standards								
4,4'-DDE, 13C12-	0.494	0.468	0.503	0.491	0.500	0.514	0.495	3%
4,4'-DDD, 13C12-	0.475	0.430	0.544	0.548	0.576	0.610	0.531	13%
4,4'-DDT, 13C12-	0.319	0.283	0.397	0.382	0.402	0.413	0.366	14%

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS1-070**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180903A05
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 03-Sep-2018 20:01

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	2.37E+04	1.440
4,4'-DDE	11.4	1.65	2.00	1.80E+04	1.095
2,4'-DDD	11.57	1.48	2.00	1.93E+04	1.220
4,4'-DDD	12.08	1.55	2.00	1.94E+04	1.224
2,4'-DDT	12.14	1.60	2.00	1.28E+04	1.204
4,4'-DDT	12.58	1.36	2.00	1.16E+04	1.091
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.52	250.00	2.06E+06	0.494
4,4'-DDD, 13C12-	12.07	1.57	250.00	1.98E+06	0.475
4,4'-DDT, 13C12-	12.57	1.61	250.00	1.33E+06	0.319
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.78	100.00	1.67E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS2-070**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180903A04
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 03-Sep-2018 19:41

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	7.50	9.77E+04	1.526
4,4'-DDE	11.39	1.57	7.50	7.41E+04	1.158
2,4'-DDD	11.56	1.64	7.50	7.95E+04	1.351
4,4'-DDD	12.07	1.54	7.50	7.48E+04	1.272
2,4'-DDT	12.13	1.56	7.50	5.05E+04	1.306
4,4'-DDT	12.57	1.61	7.50	4.28E+04	1.105

Extraction Standards

4,4'-DDE, 13C12-	11.38	1.53	250.00	2.13E+06	0.468
4,4'-DDD, 13C12-	12.06	1.57	250.00	1.96E+06	0.430
4,4'-DDT, 13C12-	12.56	1.59	250.00	1.29E+06	0.283

Labeled Injection Standards

13C12-PCB-52 (IS)	9.52	0.79	100.00	1.82E+06	
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ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS3-070**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180903A09
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 03-Sep-2018 21:21

Approved: *R. Bakhtiari*
 --e-signature--
 04-Sep-2018

Target Analytes	Ret. Time	Ion Ratio	Concentration ng / mL	Response	RRF
2,4'-DDE	10.86	1.55	20.00	2.54E+05	1.402
4,4'-DDE	11.4	1.62	20.00	1.90E+05	1.046
2,4'-DDD	11.57	1.63	20.00	2.34E+05	1.194
4,4'-DDD	12.08	1.61	20.00	2.22E+05	1.132
2,4'-DDT	12.13	1.59	20.00	1.66E+05	1.158
4,4'-DDT	12.57	1.68	20.00	1.44E+05	1.007
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.53	250.00	2.27E+06	0.503
4,4'-DDD, 13C12-	12.07	1.58	250.00	2.45E+06	0.544
4,4'-DDT, 13C12-	12.57	1.58	250.00	1.79E+06	0.397
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.79	100.00	1.80E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS4-070**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180903A08
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 03-Sep-2018 21:01

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	50.00	6.38E+05	1.540
4,4'-DDE	11.4	1.58	50.00	4.75E+05	1.147
2,4'-DDD	11.57	1.63	50.00	5.86E+05	1.268
4,4'-DDD	12.08	1.64	50.00	5.41E+05	1.171
2,4'-DDT	12.14	1.63	50.00	3.97E+05	1.230
4,4'-DDT	12.58	1.64	50.00	3.53E+05	1.096
Extraction Standards					
4,4'-DDE, 13C12-	11.4	1.53	250.00	2.07E+06	0.491
4,4'-DDD, 13C12-	12.08	1.57	250.00	2.31E+06	0.548
4,4'-DDT, 13C12-	12.57	1.58	250.00	1.61E+06	0.382
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.79	100.00	1.69E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS5-070**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180903A07
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 03-Sep-2018 20:41

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	150.00	2.25E+06	1.652
4,4'-DDE	11.4	1.56	150.00	1.59E+06	1.165
2,4'-DDD	11.57	1.63	150.00	2.15E+06	1.367
4,4'-DDD	12.08	1.61	150.00	1.99E+06	1.264
2,4'-DDT	12.14	1.62	150.00	1.40E+06	1.272
4,4'-DDT	12.58	1.61	150.00	1.22E+06	1.109
Extraction Standards					
4,4'-DDE, 13C12-	11.39	1.51	250.00	2.27E+06	0.500
4,4'-DDD, 13C12-	12.07	1.57	250.00	2.62E+06	0.576
4,4'-DDT, 13C12-	12.57	1.56	250.00	1.83E+06	0.402
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.53	0.81	100.00	1.82E+06	

ALS Life sciences

Calibration Report

ALS Sample ID **H6-18-CS6-070**
 Analysis Method EPA 1699 (mod)
 Analysis Type Calibration

Filename 6-180903A06
 Inst # HRMS-6
 Column HP5MSUSR163634H

Run Date
 03-Sep-2018 20:21

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	400.00	6.12E+06	1.587
4,4'-DDE	11.39	1.56	400.00	4.34E+06	1.126
2,4'-DDD	11.56	1.63	400.00	6.02E+06	1.318
4,4'-DDD	12.07	1.62	400.00	5.39E+06	1.179
2,4'-DDT	12.13	1.62	400.00	3.90E+06	1.260
4,4'-DDT	12.57	1.61	400.00	3.27E+06	1.057
Extraction Standards					
4,4'-DDE, 13C12-	11.38	1.52	250.00	2.41E+06	0.514
4,4'-DDD, 13C12-	12.06	1.56	250.00	2.86E+06	0.610
4,4'-DDT, 13C12-	12.56	1.56	250.00	1.93E+06	0.413
Labeled Injection Standards					
13C12-PCB-52 (IS)	9.52	0.77	100.00	1.87E+06	

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-067	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	6-180830A12
Run Date	30-Aug-18 13:21
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	11.41	94	75-125
2,4'-DDD	0			
4,4'-DDD	150	12.09	94	75-125
2,4'-DDT	0			
4,4'-DDT	150	12.58	95	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.40	100	70-130
4,4'-DDD, 13C12-	250	12.08	104	70-130
4,4'-DDT, 13C12-	250	12.58	104	70-130

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-068	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	6-180831B18
Run Date	01-Sep-18 00:59
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	11.39	95	75-125
2,4'-DDD	0			
4,4'-DDD	150	12.07	96	75-125
2,4'-DDT	0			
4,4'-DDT	150	12.57	94	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.39	99	70-130
4,4'-DDD, 13C12-	250	12.07	103	70-130
4,4'-DDT, 13C12-	250	12.56	104	70-130

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-RS1-070	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	6-180903A10
Run Date	03-Sep-18 21:41
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	96	75-125
2,4'-DDT	0			R
4,4'-DDT	150	12.57	95	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.39	103	70-130
4,4'-DDD, 13C12-	250	12.07	111	70-130
4,4'-DDT, 13C12-	250	12.57	112	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-0857	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	6-180830A59
Run Date	31-Aug-18 05:07
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	98	75-125	
4,4'-DDE	50	11.41	99	75-125	
2,4'-DDD	50	11.58	106	75-125	
4,4'-DDD	50	12.09	97	75-125	
2,4'-DDT	50	12.14	105	75-125	
4,4'-DDT	50	12.58	99	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.40	93	70-130	
4,4'-DDD, 13C12-	250	12.08	64	70-130	
4,4'-DDT, 13C12-	250	12.58	56	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0859	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	6-180830A89
Run Date	31-Aug-18 15:10
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	100	75-125		
2,4'-DDD	50	11.57	106	75-125		
4,4'-DDD	50	12.08	99	75-125		
2,4'-DDT	50	12.14	108	75-125		
4,4'-DDT	50	12.58	98	75-125		
Extraction Standards	ng / mL					
4,4'-DDE, 13C12-	250	11.40	91	70-130		
4,4'-DDD, 13C12-	250	12.08	74	70-130		
4,4'-DDT, 13C12-	250	12.57	63	70-130		

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0863	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	6-180831B48
Run Date	01-Sep-18 11:03
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	10.87	101	75-125
4,4'-DDE	50	11.40	100	75-125
2,4'-DDD	50	11.57	99	75-125
4,4'-DDD	50	12.08	98	75-125
2,4'-DDT	50	12.14	102	75-125
4,4'-DDT	50	12.58	98	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.40	94	70-130
4,4'-DDD, 13C12-	250	12.08	91	70-130
4,4'-DDT, 13C12-	250	12.57	85	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0865	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	6-180831B75
Run Date	01-Sep-18 20:06
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	100	75-125	
4,4'-DDE	50	11.39	100	75-125	
2,4'-DDD	50	11.56	103	75-125	
4,4'-DDD	50	12.07	101	75-125	
2,4'-DDT	50	12.13	104	75-125	
4,4'-DDT	50	12.57	100	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.39	91	70-130	
4,4'-DDD, 13C12-	250	12.07	83	70-130	
4,4'-DDT, 13C12-	250	12.56	77	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	n/a	Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	H6-18-CCV-0874	Extraction Date	n/a		
Analysis Method	EPA 1699 (mod)	Sample Size	1		
Analysis Type	CCV	Percent Solid	n/a		
Sample Matrix	QC	Split Ratio	1		

Run Information	Run 1
Filename	6-180903A30
Run Date	04-Sep-18 04:23
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	10.87	99	75-125	
4,4'-DDE	50	11.40	100	75-125	
2,4'-DDD	50	11.57	97	75-125	
4,4'-DDD	50	12.08	103	75-125	
2,4'-DDT	50	12.13	93	75-125	
4,4'-DDT	50	12.58	99	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.39	115	70-130	
4,4'-DDD, 13C12-	250	12.07	130	70-130	
4,4'-DDT, 13C12-	250	12.57	148	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0876	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	6-180903A40
Run Date	04-Sep-18 07:44
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	10.87	101	75-125
4,4'-DDE	50	11.40	101	75-125
2,4'-DDD	50	11.57	95	75-125
4,4'-DDD	50	12.08	102	75-125
2,4'-DDT	50	12.13	92	75-125
4,4'-DDT	50	12.58	101	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.39	115	70-130
4,4'-DDD, 13C12-	250	12.07	132	70-130
4,4'-DDT, 13C12-	250	12.57	146	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0874	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	6-180904A06
Run Date	04-Sep-18 13:24
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	102	75-125	
4,4'-DDE	50	11.39	101	75-125	
2,4'-DDD	50	11.57	100	75-125	
4,4'-DDD	50	12.07	99	75-125	
2,4'-DDT	50	12.13	104	75-125	
4,4'-DDT	50	12.57	101	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.39	114	70-130	
4,4'-DDD, 13C12-	250	12.07	115	70-130	
4,4'-DDT, 13C12-	250	12.57	126	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0878	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	6-180904A10
Run Date	04-Sep-18 14:42
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	102	75-125
4,4'-DDE	50	11.40	103	75-125
2,4'-DDD	50	11.57	97	75-125
4,4'-DDD	50	12.08	97	75-125
2,4'-DDT	50	12.13	101	75-125
4,4'-DDT	50	12.58	100	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.39	117	70-130
4,4'-DDD, 13C12-	250	12.07	118	70-130
4,4'-DDT, 13C12-	250	12.57	117	70-130

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0872	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	6-180903A11
Run Date	03-Sep-18 22:03
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	99	75-125
4,4'-DDE	50	11.40	101	75-125
2,4'-DDD	50	11.57	99	75-125
4,4'-DDD	50	12.08	100	75-125
2,4'-DDT	50	12.13	96	75-125
4,4'-DDT	50	12.58	99	75-125
Extraction Standards	ng / mL			
4,4'-DDE, 13C12-	250	11.39	101	70-130
4,4'-DDD, 13C12-	250	12.07	109	70-130
4,4'-DDT, 13C12-	250	12.57	116	70-130

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CCV	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

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0867	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	6-180901A11
Run Date	02-Sep-18 00:09
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	10.86	101	75-125	
4,4'-DDE	50	11.39	101	75-125	
2,4'-DDD	50	11.56	98	75-125	
4,4'-DDD	50	12.07	98	75-125	
2,4'-DDT	50	12.13	106	75-125	
4,4'-DDT	50	12.57	99	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.39	94	70-130	
4,4'-DDD, 13C12-	250	12.07	97	70-130	
4,4'-DDT, 13C12-	250	12.56	96	70-130	

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: R. Bakhtiari --e-signature-- 04-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-0861	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	6-180831B19
Run Date	01-Sep-18 01:21
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	10.86	100	75-125	
4,4'-DDE	50	11.39	100	75-125	
2,4'-DDD	50	11.56	100	75-125	
4,4'-DDD	50	12.07	99	75-125	
2,4'-DDT	50	12.13	100	75-125	
4,4'-DDT	50	12.57	95	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.39	99	70-130	
4,4'-DDD, 13C12-	250	12.07	100	70-130	
4,4'-DDT, 13C12-	250	12.57	106	70-130	

ALS Life sciences

Continuing Calibration Report

Sample Name	CCV	Sampling Date	n/a	
ALS Sample ID	H6-18-CCV-0876	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	6-180904A01
Run Date	04-Sep-18 11:40
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	10.87	99	75-125	
4,4'-DDE	50	11.40	103	75-125	
2,4'-DDD	50	11.57	94	75-125	
4,4'-DDD	50	12.08	104	75-125	
2,4'-DDT	50	12.14	94	75-125	
4,4'-DDT	50	12.58	104	75-125	
Extraction Standards	ng / mL				
4,4'-DDE, 13C12-	250	11.39	110	70-130	
4,4'-DDD, 13C12-	250	12.07	112	70-130	
4,4'-DDT, 13C12-	250	12.57	117	70-130	

ALS Life sciences

Second Source Calibration Verification Report

Sample Name	CCV	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

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: R. Bakhtiari --e-signature-- 04-Sep-2018

Run Information	Run 1
Filename	6-180901A55
Run Date	02-Sep-18 14:52
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	10.86	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	

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: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2848066-1	Extraction Date	23-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	6.07 g	
Analysis Type	Blank	Percent Solid	100.0%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180830A65
Run Date	31-Aug-18 07:07
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	10.88	0.0337	0.010	M,J		1.6
4,4'-DDE	11.41	0.0742	0.013	M,J		1.6
2,4'-DDD	11.58	<0.078	0.019	M,J,R	0.078	1.6
4,4'-DDD	12.09	0.115	0.028	M,J		1.6
2,4'-DDT	NotFnd	<0.028	0.028	U		1.6
4,4'-DDT	12.58	0.299	0.048	M,J		1.6
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	68	21-125		
4,4'-DDD, 13C12-	125	12.08	50	5-150		
4,4'-DDT, 13C12-	125	12.58	43	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: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2848066-2	Extraction Date	23-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	1 n/a	
Analysis Type	LCS	Percent Solid	50.2%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180830A62
Run Date	31-Aug-18 06:07
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	10.88	107	50-120
4,4'-DDE	25	11.41	99	50-120
2,4'-DDD	25	11.58	112	42-120
4,4'-DDD	25	12.09	96	42-120
2,4'-DDT	25	12.14	100	50-120
4,4'-DDT	25	12.59	95	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.40	68	21-125
4,4'-DDD, 13C12-	125	12.08	47	13-200
4,4'-DDT, 13C12-	125	12.58	42	13-200

ALS Life sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2851282-1	Extraction Date	23-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	6.04 g	
Analysis Type	Blank	Percent Solid	100.0%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180831B53
Run Date	01-Sep-18 12:43
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	<0.021	0.021	U		1.7
4,4'-DDE	NotFnd	<0.027	0.027	U		1.7
2,4'-DDD	NotFnd	<0.033	0.033	U		1.7
4,4'-DDD	NotFnd	<0.035	0.035	U		1.7
2,4'-DDT	NotFnd	<0.033	0.033	U		1.7
4,4'-DDT	NotFnd	<0.054	0.054	U		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	64	21-125		
4,4'-DDD, 13C12-	125	12.07	61	5-150		
4,4'-DDT, 13C12-	125	12.57	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.

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: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2851282-2	Extraction Date	23-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	6-180831B50
Run Date	01-Sep-18 11:43
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	111	50-120
4,4'-DDE	25	11.40	102	50-120
2,4'-DDD	25	11.57	114	42-120
4,4'-DDD	25	12.08	95	42-120
2,4'-DDT	25	12.14	112	50-120
4,4'-DDT	25	12.58	97	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.39	63	21-125
4,4'-DDD, 13C12-	125	12.07	62	13-200
4,4'-DDT, 13C12-	125	12.57	54	13-200

ALS Life sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2851430-1	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	6.54 g	
Analysis Type	Blank	Percent Solid	99.9%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180903A17
Run Date	04-Sep-18 00:02
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	<0.078	0.043	M,J,R	0.078	1.5
4,4'-DDE	11.39	<0.14	0.058	M,J,R	0.14	1.5
2,4'-DDD	NotFnd	<0.071	0.071	U		1.5
4,4'-DDD	NotFnd	<0.058	0.058	U		1.5
2,4'-DDT	NotFnd	<0.057	0.057	U		1.5
4,4'-DDT	NotFnd	<0.092	0.092	U		1.5
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	39	21-125		
4,4'-DDD, 13C12-	125	12.07	45	5-150		
4,4'-DDT, 13C12-	125	12.56	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.
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	
ALS Sample ID	WG2851430-2	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	LCS	Percent Solid	50.3%	
Sample Matrix	QC	Split Ratio	1	
				Approved: R. Bakhtiari --e-signature-- 04-Sep-2018

Run Information	Run 1
Filename	6-180903A13
Run Date	03-Sep-18 22:41
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	10.86	104	50-120
4,4'-DDE	25	11.40	94	50-120
2,4'-DDD	25	11.57	105	42-120
4,4'-DDD	25	12.07	89	42-120
2,4'-DDT	25	12.13	112	50-120
4,4'-DDT	25	12.57	100	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.39	82	21-125
4,4'-DDD, 13C12-	125	12.07	76	13-200
4,4'-DDT, 13C12-	125	12.56	74	13-200

ALS Life sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2851408-1	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5.63 g	
Analysis Type	Blank	Percent Solid	99.9%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180901A16
Run Date	02-Sep-18 01:48
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	10.87	0.0530	0.011	M,J		1.8
4,4'-DDE	11.40	0.0734	0.015	M,J		1.8
2,4'-DDD	NotFnd	<0.026	0.026	U		1.8
4,4'-DDD	12.08	0.0483	0.028	M,J		1.8
2,4'-DDT	NotFnd	<0.027	0.027	U		1.8
4,4'-DDT	12.57	<0.13	0.041	M,J,R	0.13	1.8
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.39	84	21-125		
4,4'-DDD, 13C12-	125	12.07	71	5-150		
4,4'-DDT, 13C12-	125	12.57	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

Laboratory Control Sample Analysis Report

Sample Name	Laboratory Control Sample	Sampling Date	n/a	
ALS Sample ID	WG2851408-2	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	1	n/a
Analysis Type	LCS	Percent Solid	52.7%	
Sample Matrix	QC	Split Ratio	1	
				Approved: <i>R. Bakhtiari</i> --e-signature-- 04-Sep-2018

Run Information	Run 1
Filename	6-180901A13
Run Date	02-Sep-18 00:47
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	10.87	103	50-120	
4,4'-DDE	25	11.41	95	50-120	
2,4'-DDD	25	11.58	115	42-120	
4,4'-DDD	25	12.09	95	42-120	
2,4'-DDT	25	12.14	111	50-120	
4,4'-DDT	25	12.58	99	50-120	
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.40	90	21-125	
4,4'-DDD, 13C12-	125	12.08	77	13-200	
4,4'-DDT, 13C12-	125	12.58	78	13-200	

ALS Life sciences

Laboratory Method Blank Analysis Report

Sample Name	Method Blank	Sampling Date	n/a	Approved: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2851420-1	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	5.99 g	
Analysis Type	Blank	Percent Solid	99.9%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180831B25
Run Date	01-Sep-18 03:20
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	0.0660	0.022	M,J		1.7
4,4'-DDE	11.41	0.0777	0.028	M,J		1.7
2,4'-DDD	NotFnd	<0.045	0.045	U		1.7
4,4'-DDD	12.09	<0.049	0.049	M,U	0.046	1.7
2,4'-DDT	12.14	<0.057	0.047	M,J,R	0.057	1.7
4,4'-DDT	NotFnd	<0.073	0.073	U		1.7
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	83	21-125		
4,4'-DDD, 13C12-	125	12.08	77	5-150		
4,4'-DDT, 13C12-	125	12.58	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.
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: R. Bakhtiari --e-signature-- 04-Sep-2018
ALS Sample ID	WG2851420-2	Extraction Date	24-Aug-18	
Analysis Method	EPA 1699 (mod)	Sample Size	1 n/a	
Analysis Type	LCS	Percent Solid	51.2%	
Sample Matrix	QC	Split Ratio	1	

Run Information	Run 1
Filename	6-180831B22
Run Date	01-Sep-18 02:20
Final Volume	1000 uL
Dilution Factor	5
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng	Ret.	Limits		Flags
		Time	% Rec		
2,4'-DDE	25	10.87	100	50-120	M
4,4'-DDE	25	11.40	94	50-120	M
2,4'-DDD	25	11.57	108	42-120	
4,4'-DDD	25	12.08	93	42-120	
2,4'-DDT	25	12.14	106	50-120	
4,4'-DDT	25	12.58	99	50-120	
Extraction Standards	ng				
4,4'-DDE, 13C12-	125	11.39	74	21-125	
4,4'-DDD, 13C12-	125	12.08	67	13-200	
4,4'-DDT, 13C12-	125	12.57	67	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	Approved: R. Bakhtiari --e-signature-- 04-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: R. Bakhtiari --e-signature-- 04-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		Flags
		Time	% Rec		
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>R. Bakhtiari</i> --e-signature-- 04-Sep-2018
ALS Sample ID	WG2850439-1	Extraction Date	16-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	6-180903A18
Run Date	04-Sep-18 00:22
Final Volume	1020 uL
Dilution Factor	1
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	10.87	0.0594	0.030	M,J		2.0
4,4'-DDE	NotFnd	<0.040	0.040	U		2.0
2,4'-DDD	NotFnd	<0.051	0.051	U		2.0
4,4'-DDD	NotFnd	<0.048	0.048	U		2.0
2,4'-DDT	NotFnd	<0.046	0.046	U		2.0
4,4'-DDT	12.58	<0.083	0.068	M,J,R	0.083	2.0
Extraction Standards	ng					
4,4'-DDE, 13C12-	125	11.40	81	21-125		
4,4'-DDD, 13C12-	125	12.08	79	5-150		
4,4'-DDT, 13C12-	125	12.57	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.
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	
ALS Sample ID	WG2850439-2	Extraction Date	16-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	
				Approved: R. Bakhtiari --e-signature-- 04-Sep-2018

Run Information	Run 1
Filename	6-180903A14
Run Date	03-Sep-18 23:02
Final Volume	1020 uL
Dilution Factor	1
Analysis Units	%
Instrument - Column	HRMS-6 HP5MSUSR163634H

Target Analytes	ng	Ret.	Limits	
		Time	% Rec	Flags
2,4'-DDE	25	10.87	113	50-120
4,4'-DDE	25	11.40	97	50-120
2,4'-DDD	25	11.57	105	42-120
4,4'-DDD	25	12.08	93	42-120
2,4'-DDT	25	12.14	101	50-120
4,4'-DDT	25	12.58	96	50-120
Extraction Standards	ng			
4,4'-DDE, 13C12-	125	11.40	64	21-125
4,4'-DDD, 13C12-	125	12.08	78	13-200
4,4'-DDT, 13C12-	125	12.57	72	13-200

SVOC DATA PACKAGE

SECTION 6: INTERNAL RECORDS

Including:

- Prep Logs
- Independent calculation checks
- Others as listed below:

Extraction Workup Sheet

Batch ID: WG2848066

BU-TM-1110 Overall HR Prep

Analysis:

Sediments - OCP

Analyst: Radhika Menon

Date: 23-Aug-2018

SUBSAMPLING

Sample I.D.	Client I.D.	Subsample Size (g)
WG2848066-1	Method Blank	10.05
WG2848066-2	Laboratory Control Sample	10.06
WG2848066-3	Extraction and Injection STD.	—
L2144849-21	PDI-SC-S213-4TO6	10.15
L2144849-22	PDI-SC-S213-6TO8	10.04
L2144849-23	PDI-SC-S213-8TO10	10.24
L2144849-24	PDI-SC-S213-10TO11.8	10.11
L2144849-25	PDI-SC-S213-11.8TO12.8	10.10
L2144849-26	PDI-SC-S098-0TO1.3	10.22
L2144849-27	PDI-SC-S098-1.3TO3.3	10.22
L2144849-28	PDI-SC-S098-3.3TO5.3	10.18
L2144849-29	PDI-SC-S098-3.3TO5.3D	10.22
L2144849-30	PDI-SC-S098-5.3TO7.2	10.28
L2144849-31	PDI-SC-S098-7.2TO8.2	10.26
L2146267-1	PDI-SC-S103-0TO2	10.01
WG2848066-4	Duplicate(L2146267-1)	10.01
L2146267-2	PDI-SC-S103-2TO4	10.05
L2146267-3	PDI-SC-S103-4TO6	10.24
L2146267-4	PDI-SC-S103-6TO8	10.08
L2146267-5	PDI-SC-S103-8TO9.7	10.29
L2146267-6	PDI-SC-S103-9.7TO10.7	10.22
L2146267-7	PDI-SC-S103-10.7TO13.4	10.36
L2146267-8	PDI-SC-S238-0TO2	10.01
L2146267-9	PDI-SC-S238-2TO4	10.03

BATCH TRACKING

	Date/Time/Initials
Subsampling:	RM 10:30AM 23-Aug-2018
Balance ID	3955
Client Labels Checked:	RM 10:30AM 23-Aug-2018
Samples Spiked	RM 3:30pm 23-Aug-2018
Soxhlet start time:	RM 4:00pm 23-Aug-2018
Soxhlet reflux properly:	RM 4:00pm 23-Aug-2018
Soxhlet end time:	RM 8:00AM 24-Aug-2018
Rotovap + temp check:	AP 24-Aug-18
Sili Column:	AP 24-Aug-18
Mini Acid	27-Aug-18 11:20AM MSM
	—
	—
	—
Split:	MSM
Robo-Vialing:	MSM
Update to LIMS:	MSM

* See instructions

Batch ID: WG2848066

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2848066-1	20	✓
WG2848066-2	20	✓
WG2848066-3	20	✓
L2144849-21	20	✓
L2144849-22	20	✓
L2144849-23	20	✓
L2144849-24	20	✓
L2144849-25	20	✓
L2144849-26	20	✓
L2144849-27	20	✓
L2144849-28	20	✓
L2144849-29	20	✓
L2144849-30	20	✓
L2144849-31	20	✓
L2146267-1	20	✓
WG2848066-4	20	✓
L2146267-2	20	✓
L2146267-3	20	✓
L2146267-4	20	✓
L2146267-5	20	✓
L2146267-6	20	✓
L2146267-7	20	✓
L2146267-8	20	✓
L2146267-9	20	✓
	20	

Syringe ID

137

Standard:

HROCP-ES#1- 024C

Spike Date:

23 Aug 2018

Spike Witnessing

Chemist's Initials

Chemist:

RM

Witness's Initials

Witness:

GN

Witness's Initials

Correct Syringe Obtained:

GN

Witness's Initials

Correct Standard Obtained:

GN

Witness's Initials

Correct Technique Followed:

GN

Batch ID: WG2848066

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2848066-2	20	✓
WG2848066-3	20	✓
	20	
	20	

Syringe ID

203

Standard:

HROCP-NS#2- 001A

Date &
Initials:

23 Aug 2018 RM

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2848066-1	20	✓
WG2848066-2	20	✓
WG2848066-3	20	✓
L2144849-21	20	✓
L2144849-22	20	✓
L2144849-23	20	✓
L2144849-24	20	✓
L2144849-25	20	✓
L2144849-26	20	✓
L2144849-27	20	✓
L2144849-28	20	✓
L2144849-29	20	✓
L2144849-30	20	✓
L2144849-31	20	✓
L2146267-1	20	✓
WG2848066-4	20	✓
L2146267-2	20	✓
L2146267-3	20	✓
L2146267-4	20	✓
L2146267-5	20	✓
L2146267-6	20	✓
L2146267-7	20	✓
L2146267-8	20	✓
L2146267-9	20	✓
	20	

Syringe ID

096

Standard:

HROCP-IS#1- ASD

Date &
Initials:

27-Aug-18 Mjm

Correct Syringe Obtained:

Chemist's Initials

Mjm

Correct Standard Obtained:

Chemist's Initials

Mjm

Correct Technique Followed:

Chemist's Initials

Mjm

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~~

- reduce to 5mL and spike IS

- transfer 1mL to robovial and submit FV=1000uL

- transfer remaining 4mL to superco vial and Archive.

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	103158	Caledon
Hexane	187263	Fisher
DCM	103502	Caledon
Toluene	103288	Caledon
Nonane	ORG-WAKONON- —	
1:1 DCM:HEX	ORG-DH2-	
Sodium Sulphate	ORG-SSU-1910	Caledon
Acid Silica	ORG-ASI- 7847	Caledon
Neutral Silica	ORG-NSI- 1744	Caledon
Alumina	ORG-ALU- —	
Chromacarb	ORG-CC- —	
Corn Oil	ORG-CO- —	

Deactivated Silica ORG-DPS-20-213, 214, 215, 212

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:	WG2851282
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BU-TM-1110 Overall HR Prep

Analysis:	Sediments - OCP
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Analyst: Radhika Meron

Date: 23-Aug-2018

Date: 23-Aug-2018

[illegible]

BATCH TRACKING

	Date/Time/Initials
Subsampling:	RM 11:58 AM 23-Aug-2018
Balance ID	3955
Client Labels Checked:	RM 11:58 AM 23-Aug-2018
Samples Spiked	RM 3:18 PM 23-Aug-2018
Soxhlet start time:	RM 3:45 PM 23-Aug-2018
Soxhlet reflux properly:	RM 3:45 PM 23-Aug-2018
Soxhlet end time:	RM 8:00 AM 24-Aug-2018
Rotovap + temp check:	JA2 24-Aug-2018
Sili Column:	JA2 24-Aug-2018
Mini Acid	AP 27-Aug-18
	—
	—
	—
Robo-Vialing:	AP 27-Aug-18
Update to LIMS:	AP 27-Aug-18

RM
24 Aug
2018

to see comments

DX Extraction Standard:		
Sample I.D.	Volume (ul)	(Checkmark) Spiked
WG2851282-1	20	✓
WG2851282-2	20	✓
WG2851282-3	20	✓
L2146267-10	20	✓
WG2851282-4	20	✓
L2146267-11	20	✓
L2146267-12	20	✓
L2146267-13	20	✓
L2146267-14	20	✓
L2146267-15	20	✓
L2146267-16	20	✓
L2146267-17	20	✓
L2146267-18	20	✓
L2146267-19	20	✓
L2146267-20	20	✓
L2146267-21	20	✓
	20	
	20	
	20	
	20	
	20	
	20	
	20	
	20	
	20	
	20	

Syringe ID: 137

Standard: HROCP-ES#1- 024A → 024 C
G.W. 23 Aug 18

Spike Date: 23 Aug 2018

Spike Witnessing

Chemist's Initials

Chemist: RM

Witness's Initials

Witness: GW

Correct Syringe Obtained: GW

Correct Standard Obtained: GW

Correct Technique Followed: GW

Batch ID:	WG2851282
-----------	-----------

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851282-2	20	✓
WG2851282-3	20	✓
	20	
	20	

Syringe ID

202

Standard:

HROCP-NS#2- 001A ✓

Date &
Initials:

23 Aug 2018 RM

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851282-1	20	✓
WG2851282-2	20	✓
WG2851282-3	20	✓
L2146267-10	20	✓
WG2851282-4	20	✓
L2146267-11	20	✓
L2146267-12	20	✓
L2146267-13	20	✓
L2146267-14	20	✓
L2146267-15	20	✓
L2146267-16	20	✓
L2146267-17	20	
L2146267-18	20	✓
L2146267-19	20	✓
L2146267-20	20	✓
L2146267-21	20	✓
	20	
	20	
	20	
	20	
	20	
	20	
	20	
	20	
	20	
	20	

Syringe ID

196

Standard:

HROCP-IS#1- 015C

Date &
Initials:

27 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 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
27kg-18*

- reduce to 5mL and spike IS.

- transfer 1mL to robo-vial and submit. FV=1000uL

- transfer ~~remaining~~ remaining 4mL to sytelco vial and Archive.

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	182576	
Hexane	183263	
DCM	183443	
Toluene	183253	
Nonane	ORG-WAKONON- —	
1:1 DCM:HEX	ORG-DH2- 808	
Sodium Sulphate	ORG-SSU- 1911, 1913	
Acid Silica	ORG-ASI- 7846, 7849	
Neutral Silica	ORG-NSI- 1744	
Alumina	ORG-ALU- —	
Chromacarb	ORG-CC- —	
Corn Oil	ORG-CO- —	

Comments:

* Sample L2190267-17 went dry on the burners, sample getting retracted on another batch.
RM 24-Aug-2018

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: WG2851408

Analysis: Sediments - OCP

BU-TM-1110 Overall HR Prep

Analyst: Marco McNeill

Date: 24-Aug-2018

SUBSAMPLING		
Sample I.D.	Client I.D.	Subsample Size (g)
WG2851408-1	Method Blank	10.31
WG2851408-2	Laboratory Control Sample	10.41
WG2851408-3	Extraction and Injection STD.	—
L2146267-22	PDI-SC-S230-0TO2	10.09
WG2851408-4	Duplicate(L2146267-22)	10.24
L2146267-23	PDI-SC-S230-2TO4	10.09
L2146267-24	PDI-SC-S230-4TO6	10.44
L2146267-25	PDI-SC-S010-0TO2	10.26
L2146267-26	PDI-SC-S010-2TO4	10.34
L2146267-27	PDI-SC-S010-4TO6.4	10.21
L2146267-28	PDI-SC-S010-6.4TO8.4	10.26
L2146267-29	PDI-SC-S010-8.4TO10.8	10.37
L2146267-30	PDI-SC-S010-10.8TO13.4	10.07
L2146267-31	PDI-SC-S010-13.4TO14.4	10.21
L2146267-32	PDI-SC-S009-0TO2	10.11
L2146267-33	PDI-SC-S009-2TO4	10.21
L2146267-34	PDI-SC-S009-4TO6	10.25
L2146267-35	PDI-SC-S009-6TO8	10.43
L2146267-36	PDI-SC-S009-8TO10	10.44
L2146267-37	PDI-SC-S009-10TO11.4	10.03
L2146267-38	PDI-SC-S011-0TO2	10.17
L2146267-39	PDI-SC-S011-2TO4	10.22
L2146267-40	PDI-SC-S011-4TO6	10.27
L2146267-41	PDI-SC-S011-6TO8	10.14

BATCH TRACKING

	Date/Time/Initials
Subsampling:	MM 24-Aug-2018
Balance ID	3955
Client Labels Checked:	MM
Samples Spiked	RM 12:30pm 24-Aug-2018
Soxhlet start time:	RM 12:30pm 24-Aug-2018
Soxhlet reflux properly:	RM 12:30pm 24-Aug-2018
Soxhlet end time:	15-Aug-2018 12:00pm
Rotovap + temp check:	AP 27-Aug-18
Sili Column:	AP 27-Aug-18
Mini Acid	NA 11:00pm 27-Aug-18
	—
	—
Robo-Vialing:	MM 28-Aug-2018
Update to LIMS:	MM 28-Aug-2018

Batch ID: WG2851408

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851408-1	20	✓
WG2851408-2	20	✓
WG2851408-3	20	✓
L2146267-22	20	✓
WG2851408-4	20	✓
L2146267-23	20	✓
L2146267-24	20	✓
L2146267-25	20	✓
L2146267-26	20	✓
L2146267-27	20	✓
L2146267-28	20	✓
L2146267-29	20	✓
L2146267-30	20	✓
L2146267-31	20	✓
L2146267-32	20	✓
L2146267-33	20	✓
L2146267-34	20	✓
L2146267-35	20	✓
L2146267-36	20	✓
L2146267-37	20	✓
L2146267-38	20	✓
L2146267-39	20	✓
L2146267-40	20	✓
L2146267-41	20	✓
	20	

Syringe ID

137

Standard:

HROCP-ES#1-

Spike Date:

24-Aug-18

Spike Witnessing

Chemist's Initials

Chemist:

RM

Witness's Initials

Witness:

HP

Witness's Initials

Correct Syringe Obtained:

HP

Witness's Initials

Correct Standard Obtained:

HP

Witness's Initials

Correct Technique Followed:

HP

Batch ID: WG2851408

Syringe ID

202

Standard:

HROCP-NS#2-001A

Date &
Initials:

24-Aug-18 RM

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851408-2	20	✓
WG2851408-3	20	✓
	20	
	20	

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851408-1	20	✓
WG2851408-2	20	✓
WG2851408-3	20	✓
L2146267-22	20	✓
WG2851408-4	20	✓
L2146267-23	20	✓
L2146267-24	20	✓
L2146267-25	20	✓
L2146267-26	20	✓
L2146267-27	20	✓
L2146267-28	20	✓
L2146267-29	20	✓
L2146267-30	20	✓
L2146267-31	20	✓
L2146267-32	20	✓
L2146267-33	20	✓
L2146267-34	20	✓
L2146267-35	20	✓
L2146267-36	20	✓
L2146267-37	20	✓
L2146267-38	20	✓
L2146267-39	20	✓
L2146267-40	20	✓
L2146267-41	20	✓
	20	

Syringe ID

196

Standard:

HROCP-IS#1-015C

Date &
Initials:

28-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 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 15 μ L $\sqrt{mm}$ 28-Aug-2018

- transfer 1mL to robovial and submit FV=1000 μ L $\sqrt{mm}$ 28-Aug-2018

- transfer remaining 4mL to supelco vial and archive. $\sqrt{mm}$ 28-Aug-2018

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	142576	
Hexane	142263	
DCM	103493	
Toluene	163253	
Nonane	ORG-WAKONON-	
1:1 DCM:HEX	ORG-DH2- 208	
Sodium Sulphate	ORG-SSU- 1910, 1911	
Acid Silica	ORG-ASI- 7850	
Neutral Silica	ORG-NSI- 7794	
Alumina	ORG-ALU- 400	
Chromacarb	ORG-CC- —	
Corn Oil	ORG-CO- —	

Deactivated silica ORG-MS22- 217, 218

Comments:

Wt → has red marker in sample. Proceeded as normal. 15-Aug-2018

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: WG2851420

Analysis: Sediments - OCP

BU-TM-1110 Overall HR Prep

Analyst: Marco Rickett

Date: 24-Aug-2018

SUBSAMPLING

Sample I.D.	Client I.D.	Subsample Size (g)
WG2851420-1	Method Blank	10.28
WG2851420-2	Laboratory Control Sample	10.10
WG2851420-3	Extraction and Injection STD.	—
L2146267-42	PDI-SC-S011-8TO10	10.32
WG2851420-4	Duplicate(L2146267-42)	10.20
L2146267-43	PDI-SC-S011-10TO12	10.39
L2146267-44	PDI-SC-S011-12TO14.5	10.25
L2146267-45	PDI-SC-S011-14.5TO16.8	10.04
L2146267-46	PDI-SC-S011-14.5TO16.8D	10.19
L2146267-47	PDI-SC-S011-16.8TO17.9	10.05
L2146267-48	PDI-SC-S011-17.9TO18.9	10.05
L2146267-49	PDI-SC-S004-0TO2	10.33
L2146267-50	PDI-SC-S004-2TO4	10.09
L2146267-51	PDI-SC-S004-4TO6	10.15
L2146267-52	PDI-SC-S004-6TO7.3	10.33
L2146267-64	PDI-SC-S007-10TO12	10.37
L2146267-65	PDI-SC-S007-4TO6	10.02
L2146267-66	PDI-SC-S007-0TO2	10.17
L2146267-67	PDI-SC-S007-2TO4	10.17
L2146267-68	PDI-SC-S230-6TO8	10.05
L2146267-69	PDI-SC-S230-8TO10.4	10.31
L2146267-70	PDI-SC-S230-10.4TO11.4	10.43
L2146267-71	PDI-SC-S007-6TO8	10.27
L2146267-72	PDI-SC-S007-12TO14	10.23

BATCH TRACKING

	Date/Time/Initials
Subsampling:	MM 24-Aug-2018
Balance ID	3955
Client Labels Checked:	MM
Samples Spiked	MM 24-Aug-2018
Soxhlet start time:	24-Aug-2018 3:00pm
Soxhlet reflux properly:	MM
Soxhlet end time:	25-Aug-2018 12:00pm
Rotovap + temp check:	AP 25-Aug-18
Sili Column:	AP 25-Aug-18
Mini Acid	NA 29-Aug-18 11:00am
	—
	—
Robo-Vialing:	NA 29-Aug-18 3:00pm
Update to LIMS:	NA 29-Aug-18 4:00pm

Batch ID: WG2851420

DX Extraction Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851420-1	20	✓
WG2851420-2	20	✓
WG2851420-3	20	✓
L2146267-42	20	✓
WG2851420-4	20	✓
L2146267-43	20	✓
L2146267-44	20	✓
L2146267-45	20	✓
L2146267-46	20	✓
L2146267-47	20	✓
L2146267-48	20	✓
L2146267-49	20	✓
L2146267-50	20	✓
L2146267-51	20	✓
L2146267-52	20	✓
L2146267-64	20	✓
L2146267-65	20	✓
L2146267-66	20	✓
L2146267-67	20	✓
L2146267-68	20	✓
L2146267-69	20	✓
L2146267-70	20	✓
L2146267-71	20	✓
L2146267-72	20	✓
	20	

Syringe ID

137

Standard:

mem 24-Aug-18
HROCP-ES#1-

Spike Date:

HROCP-DDX-ES#1-001E
24 Aug 2018

Spike Witnessing

Chemist:

Chemist's Initials

MM

Witness:

Witness's Initials

LN

Correct Syringe Obtained:

Witness's Initials

LN

Correct Standard Obtained:

Witness's Initials

LN

Correct Technique Followed:

Witness's Initials

LN

Batch ID: WG2851420

DX Native Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851420-2	20	✓
WG2851420-3	20	✓
	20	
	20	

Syringe ID

202

Standard:

HROCP-NS#2- 001A

Date &
Initials:

24 Aug 2018 MM

DX Injection Standard:

(Checkmark)

Sample I.D.	Volume (ul)	Spiked
WG2851420-1	20	✓
WG2851420-2	20	✓
WG2851420-3	20	✓
L2146267-42	20	✓
WG2851420-4	20	✓
L2146267-43	20	✓
L2146267-44	20	✓
L2146267-45	20	✓
L2146267-46	20	✓
L2146267-47	20	✓
L2146267-48	20	✓
L2146267-49	20	✓
L2146267-50	20	✓
L2146267-51	20	✓
L2146267-52	20	✓
L2146267-64	20	✓
L2146267-65	20	✓
L2146267-66	20	✓
L2146267-67	20	✓
L2146267-68	20	✓
L2146267-69	20	✓
L2146267-70	20	✓
L2146267-71	20	✓
L2146267-72	20	✓
	20	

Syringe ID

196

Standard:

HROCP-IS#1- 015C

Date &
Initials:

29-AUG-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 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
- transfer 1mL to robovial FV=1000ul
- transfer remaining 4mL to supelco vial and Archive.

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	103443	
Hexane	183283	
DCM	103298	
Toluene	103253	
Nonane	ORG-WAKONON-040	
1:1 DCM:HEX	ORG-DH2-510	
Sodium Sulphate	ORG-SSU-1911	
Acid Silica	ORG-ASI-7850	
Neutral Silica	ORG-NSI-1744	
Alumina	ORG-ALU-400	
Chromacarb	ORG-CC-	
Corn Oil	ORG-CO-	

Deactivated Silica ORG-DS290-218, 219, 220

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:	WG2851430
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BU-TM-1110 Overall HR Prep

Analysis:	Sediments - OCP
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Analyst:	Marco Michetti
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Date: 24-Aug-2018

[illegible]

BATCH TRACKING

Date/Time/Initials	MM 24-Aug-2019
Subsampling:	MM
Balance ID	3955
Client Labels Checked:	MM
Samples Spiked	RM 145m 24-Aug-2019
Soxhlet start time:	RM 2:00pm 24-Aug-2019
Soxhlet reflux properly:	RM 2:00pm 24-Aug-2019
Soxhlet end time:	25-Aug-2019 12:00pm
	/
Rotovap + temp check:	J42
	/
Sili Column:	J42
Mini Acid	NA 29-Aug-18 11:00am
	/
	/
	/
	/
Robo-Vialing:	NA 27-Aug-18 3:00pm
Update to LIMS:	NA 29-Aug-18 4:00pm

DX Extraction Standard:

(Checkmark)

[illegible]

Syringe ID

137

Standard:

~~HROCP-ES#1-~~

Spike Date:

HROCP-DDX-ES#1-0016

24 - Aug - 2018

Spike Witnessing

Chemist's Initials

Chemist:

BM

Witness's Initials

Witness:

AC

Witness's Initials

Correct Syringe Obtained:

4

Witness's Initials

Correct Standard Obtained:



Witness's Initials

Correct Technique Followed:



Syringe ID	202.
Standard:	HROCP-NS#2-001A
Date & Initials:	24-Aug-2018 RM

(Checkmark)

Syringe ID	196
Standard:	HROCP-IS#1-015C
Date & Initials:	29-Aug-2018 NA

(Checkmark)

	Chemist's Initials
Correct Syringe Obtained:	NA
	Chemist's Initials
Correct Standard Obtained:	NA
	Chemist's Initials
Correct Technique Followed:	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**

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	103258	
Hexane	183283	
DCM	103443	
Toluene	103293	
Nonane	ORG-WAKONON- 040	
1:1 DCM:HEX	ORG-DH2- 510	
Sodium Sulphate	ORG-SSU- 1215	
Acid Silica	ORG-ASI- 7850	
Neutral Silica	ORG-NSI- 1744	
Alumina	ORG-ALU- 400	
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: 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 24 Aug 2018</i>
Sili Column:	<i>JA2 24 Aug 2018</i>
Mini Acid	<i>NA 30-Aug-18</i>
	<i>✓</i>
	<i>✓</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

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					

0

BU-TP-2115 Taste and Odour in Water Prep

Analyst: Marco Melchetti

Date: 16-Aug-2018

**** EXTRACT HOLD TIME 5 DAYS ****

[illegible]

BATCH TRACKING

	Date/Time/Initials
Bottle Volume Marked	MM
Client Labels Checked:	MM
Samples spiked:	MM
Liquid/Liquid Extraction:	MM
Rotovap Reduction:	AP 20-Aug-18
Rotovap Temp Verified:	AP 20-Aug-18
N-Evap Reduction:	AP 20-Aug-18
N-Evap Temp Verified:	AP 20-Aug-18
Sili-column:	AP 20-Aug-18
Mini Acid column:	21-Aug-18 1:30pm NA
Robovial:	21-Aug-18 3:30pm NA
LIMS updated:	21-Aug-18 4:00pm NA

OCP Injection Standard:

(Checkmark)

[illegible]

Syringe ID:

196

Standard:

HROCP-IS#1-015E

Date &

Initials:

21-Aug-18

NA

Witness's Initials

Correct Syringe Obtained:

NA

Witness's Initials

Correct Standard Obtained:

NA

Witness's Initials

Correct Technique Followed:

NA

Reagents:

Reagent Lot Numbers:

Reagent	Lot#	Manufacturer
Acetone	182575	
Hexane	183263	
DCM	103443	
Toluene	103253	
Nonane	ORG-WAKONON-	
1:1 DCM:HEX	ORG-DH2- 506	
Sodium Sulphate	ORG-SSU- 1903	
Acid Silica	ORG-ASI- 7836	
Neutral Silica	ORG-NSI- 1742	
Alumina	ORG-ALU- 398	
2% Deactivated Silica	ORG-2%DAS- 2091208	
Chromacarb	ORG-CC-	

Batch ID:

WG2850439

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					

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved: *R. Bakhtiari*
--e-signature--
04-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

$$\text{RRF} = \frac{419954.60}{5086542.30} \times \frac{250.00}{20} = 1.03 \quad 1.03$$

Calculation of 4,4'-DDE amount in L2146267-1

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{132921.7}{369332.6} \times \frac{125}{1.10 \times 4.90} = 8.36 \quad 8.36$$

Calculation of 13C12-4,4'-DDE Recovery in L2146267-1

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{369332.6}{337757.5} \times \frac{50 \times 100}{0.54 \times 125} = 80 \quad 80 \%$$

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved:

R. Bakhtiari
--e-signature--
04-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

$$\text{RRF} = \frac{264275.60}{3206858.90} \times \frac{250.00}{20} = 1.03 \quad 1.03$$

Calculation of 4,4'-DDE amount in L2146267-10

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{87896.5}{266426.9} \times \frac{125}{1.10 \times 5.25} = 7.13 \quad 7.13$$

Calculation of 13C12-4,4'-DDE Recovery in L2146267-10

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{266426.9}{264183.6} \times \frac{50 \times 100}{0.49 \times 125} = 82 \quad 82 \%$$

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved:

R. Bakhtiari
--e-signature--
04-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

$$\text{RRF} = \frac{189573.80}{2265524.30} \times \frac{250.00}{20} = 1.05 \quad 1.05$$

Calculation of 4,4'-DDE amount in L2146267-17

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{35613.1}{165747.5} \times \frac{125}{1.12 \times 6.30} = 3.80 \quad 3.80$$

Calculation of 13C12-4,4'-DDE Recovery in L2146267-17

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{165747.5}{142551.6} \times \frac{50 \times 100}{0.50 \times 125} = 94 \quad 94 \%$$

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved:

R. Bakhtiari

--e-signature--

04-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

$$\text{RRF} = \frac{216991.70}{2700169.60} \times \frac{250.00}{20} = 1.00 \quad 1.01$$

Calculation of 4,4'-DDE amount in L2146267-22

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{31056}{208888.7} \times \frac{125}{1.09 \times 4.37} = 3.92 \quad 3.92$$

Calculation of 13C12-4,4'-DDE Recovery in L2146267-22

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{208888.7}{236047.1} \times \frac{50 \times 100}{0.45 \times 125} = 79 \quad 79 \%$$

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved:

R. Bakhtiari

--e-signature--

04-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

$$\text{RRF} = \frac{264275.60}{3206858.90} \times \frac{250.00}{20} = 1.03 \quad 1.03$$

Calculation of 4,4'-DDE amount in L2146267-42

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{83681.8}{353096.6} \times \frac{125}{1.10 \times 5.58} = 4.82 \quad 4.82$$

Calculation of 13C12-4,4'-DDE Recovery in L2146267-42

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{353096.6}{306677} \times \frac{50 \times 100}{0.49 \times 125} = 93 \quad 93 \%$$

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved:

R. Bakhtiari
--e-signature--
04-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

$$\text{RRF} = \frac{216991.70}{2700169.60} \times \frac{250.00}{20} = 1.00 \quad 1.01$$

Calculation of 4,4'-DDE amount in L2146267-55

$$\text{ng} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size}}$$

$$\text{ng/g} = \frac{2830.4}{30178.8} \times \frac{125}{1.09 \times 4.67} = 2.31 \quad 2.31$$

Calculation of 13C12-4,4'-DDE Recovery in L2146267-55

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{30178.8}{187543.2} \times \frac{50 \times 100}{0.45 \times 125} = 14 \quad 14 \%$$

ALS Life sciences

Sample Calculation Report

CS3 RRF Check

Approved: *R. Bakhtiari*
--e-signature--
04-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

$$\text{RRF} = \frac{189573.80}{2265524.30} \times \frac{250.00}{20} = 1.05 \quad 1.05$$

Calculation of 4,4'-DDE amount in L2146267-76

$$\text{ng/L} = \frac{\text{Response of 4,4'-DDE}}{\text{Response of 13C12-4,4'DDE}} \times \frac{\text{ng of 13C12-4,4'-DDE spiked}}{\text{Mean RRF} \times \text{Sample Size (L)}}$$

$$\text{ng/L} = \frac{652}{808053.5} \times \frac{125}{1.12 \times 1.05} = 0.0731 \quad 0.0731$$

Calculation of 13C12-4,4'-DDE Recovery in L2146267-62

$$\% \text{ Recovery} = \frac{\text{Response of 13C12-4,4'-DDE}}{\text{Response of 13C12-PCB-52}} \times \frac{\text{ng of 13C12-PCB-52} \times 100}{\text{Mean RRF} \times \text{Amount Spiked}}$$

$$\% \text{ Recovery} = \frac{808053.5}{993492.1} \times \frac{50 \times 100}{0.50 \times 125} = 66 \quad 66$$

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:

[illegible]

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: 8/9/18 Carrier: FedEx					COC No: 1 2 of 7 pages																
Sample Identification		Sample Date	Sample Time	Matrix	QC Sample	Sampler's Initials	Total No. of Cont.	Fraction	Pesticides, DDs only																			
PDI-SC-S238 - 8 to 10		8/9/2018	17:50	SC		ED	2		x														13					
PDI-SC-S238 - 10 to 12.4		8/9/2018	17:55	SC		ED	2		x														14					
PDI-SC-S238 - 12.4 to 13.4		8/9/2018	18:00	SC		ED	2		x														15					
PDI-SC-S229 - 0 to 2		8/9/2018	19:40	SC		ED	2		x														16					
PDI-SC-S229 - 2 to 4		8/9/2018	19:45	SC		ED	2		x														17					
PDI-SC-S229 - 4 to 6		8/9/2018	19:50	SC		ED	2		x														18					
PDI-SC-S229 - 6 to 8		8/9/2018	19:55	SC		ED	2		x														19					
PDI-SC-S229 - 8 to 9.9		8/9/2018	20:00	SC		ED	2		x														20					
PDI-SC-S229 - 9.9 to 12.5		8/9/2018	20:05	SC		ED	2		x														21					
PDI-SC-S230 - 0 to 2		8/10/2018	8:45	SC		ED	2		x														22					
PDI-SC-S230 - 2 to 4		8/10/2018	8:50	SC		ED	2		x														23					
PDI-SC-S230 - 4 to 6		8/10/2018	8:55	SC		ED	2		x														24					
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 ☒ Disposal By Lab ☒ Archive For 12 Months																												
Special Instructions/QC Requirements & Comments:																												
Erin Dunbar <i>ED</i> Geosyntec 8/13/18 1440 5.6°C Relinquished by: <i>Erin Dunbar ED</i> Company: <i>Geosyntec</i> Date/Time: <i>8/13/18 1440</i> Received by: <i>to FedEx</i> Company: Date/Time: Relinquished by: Company: Date/Time: Received by: <i>ALS</i> Company: Date/Time: <i>14-Aug-2018 18:45</i> Relinquished by: Company: Date/Time: Received by: Company: Date/Time:																												

DPKG Page 252 of 260

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				Site Contact: Jennifer Ray Laboratory Contact: Whitney Davis				Date: 8/9/18 Carrier: FedEx				COC No: 1 5 of 7 pages							
Analysis Turnaround Time Calendar (C) or Work Days (W) W ☒ 21 days ☐ Other _____																					
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-S004 - 0 to 2	8/10/2018	18:30	SC		ED	2		x													49
PDI-SC-S004 - 2 to 4	8/10/2018	18:35	SC		ED	2		x													50
PDI-SC-S004 - 4 to 6	8/10/2018	18:40	SC		ED	2		x													51
PDI-SC-S004 - 6 to 7.3	8/10/2018	18:45	SC		ED	2		x													52
PDI-SC-S004 - 7.3 to 9.1	8/10/2018	18:50	SC		ED	2		x													53
PDI-SC-S004 - 9.1 to 10.3	8/10/2018	18:55	SC		ED	2		x													54
PDI-SC-S015 - 0 to 2	8/13/2018	9:05	SC		ED	2		x													55
PDI-SC-S015 - 2 to 4	8/13/2018	9:10	SC		ED	2		x													56
PDI-SC-S015 - 4 to 6	8/13/2018	9:15	SC		ED	2		x													57
PDI-SC-S015 - 6 to 8	8/13/2018	9:20	SC		ED	2		x													58
PDI-SC-S015 - 8 to 10	8/13/2018	9:25	SC		ED	2		x													59
PDI-SC-S015 - 10 to 11.4	8/13/2018	9:30	SC		ED	2		x													60
Container Type: WMG=Wide Mouth Glass Jar, P=HDPE, PP=Polypropylene, AG=amber glass, G=glass, RC=Resin Cork Preservative: HCl = Hydrochloric Acid, H3PO4 = Phosphoric Acid, HNO3 = Nitric Acid Fraction: D = Dissolved, PRT = Particulate, T = Total (unfiltered)							Sample Disposal ☐ Return To Client ☒ Spinal By Lab ☒ Archive For 12 Months														
Special Instructions/QC Requirements & Comments:																					
Erin Dunbar <i>ER</i> Geosyntec 8/13/18 1440 5.6°C Relinquished by: Erin Dunbar <i>ER</i> Geosyntec 8/13/18 1440 Received by: to FedEx Company: Date/Time: Relinquished by: Company: Date/Time: Received by: <i>AS</i> Company: ALS Date/Time: 14-Aug-2018 18:45 Relinquished by: Company: Date/Time: Received by: Company: Date/Time:																					

[illegible]

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: 8/6/18

Carrier: FedEx

COC No: 1

7 of 7 pages

Sample Identification

Sample Date

Sample Time

Matrix

QC Sample

Sampler's Initials

Total No. of Cont.

Fraction

Pesticides, DDs only

PDI-SC-S007-14 to 16

8/14/18

1120

SC

ED

2

x

PDI-SC-S007-4 to 6 D

8/16/18

1035

SC

ED

2

x

PDI-SC-S007-8 to 10

8/16/18

1105

SC

ED

2

x

PDI-RB-180809-1900

8/19/18

1900

RB

AC

2

x

Sample Specific Notes:

73

74

75

76

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

☒ Disposal By Lab

☒ Archive For 12 Months

Special Instructions/QC Requirements & Comments:

Erin Dunbar GPR Geosyntec 8/13/18 1440

Relinquished by: Erin Dunbar GPR Geosyntec

Company:

Date/Time:

Company:

Date/Time:

Company:

Date/Time:

Received by:

Received by:

Received by:

Company:

Company:

Company:

Date/Time:

Date/Time:

Date/Time:

14-Aug-2018

16:45

5.6°C

ORIGIN ID:MR1A (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS
PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 13AUG18
ACTWGT: 59.60 LB
CAD: 6991783/SSF01904
DIMS: 16x14x14 IN
BILL THIRD PARTY

5830/6056/1755
P&H # 100267/2130 NHDG ENP 07/18

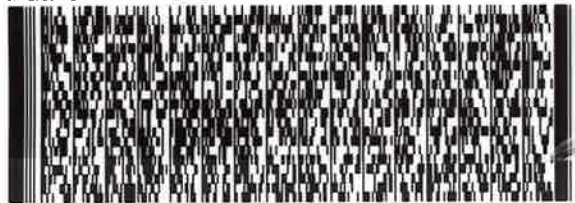
TO **WHITNEYDAVIS - ALSENVIRONMENTAL**
C/O FEDERAL EXPRESS DEPOT
299 CAYUGA ROAD

CHEEKTOWAGA NY 14225

(905) 340-0821
INU:
PO:

REF:

DEPT:



FedEx
Express



REL#
3785346

J18201 172 4010

TRK# 7822 8469 9385
0201

RT **HAL**

10:30

9385

08.14

XX BUFA

FZ

NY-US

30A
GHT
HS
25
BUF



ORIGIN ID: MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS

PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 13AUG18
ACTWGT: 64.80 LB
CAD: 6991783/SSF01904
DIMS: 16x14x14 IN

BILL THIRD PARTY

TO **WHITNEYDAVIS - ALSENVIRONMENTAL**
C/O FEDERAL EXPRESS DEPOT
299 CAYUGA ROAD

CHEEKTOWAGA NY 14225

(906) 340-0821

INU:
PO:

REF:

DEPT:



FedEx
Express



REL#
3785346

TRK# 7822 8471 0383
0201

TUE - 14 AUG 10:30A
PRIORITY OVERNIGHT

XX BUFA

AHS
14225
NY-US BUF



ORIGIN ID: MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS

PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 13AUG18
ACTWGT: 58.90 LB
CAD: 6991783/SSF01904
DIMS: 26x14x14 IN

BILL THIRD PARTY

TO **WHITNEYDAVIS - ALSENVIRONMENTAL**
C/O FEDERAL EXPRESS DEPOT
299 CAYUGA ROAD

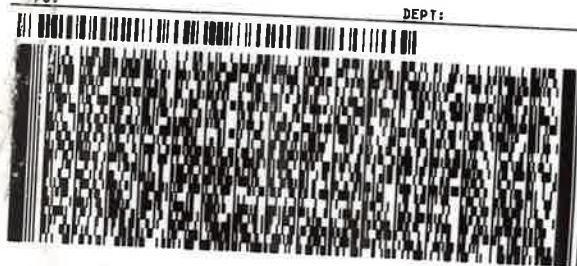
CHEEKTOWAGA NY 14225

(906) 340-0821

INU:
PO:

REF:

DEPT:



FedEx
Express



REL#
3785346

TRK# 7822 8467 9317
0201

TUE - 14 AUG 10:30A
PRIORITY OVERNIGHT

XX BUFA

14225
NY-US BUF



ORIGIN ID:MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS

PORTLAND, OR 97214
UNITED STATES US

SHIP DATE: 13AUG18
ACTWGT: 64.80 LB
CAD: 6991783/SSF01904
DIMS: 16x14x14 IN

BILL THIRD PARTY

TO **WHITNEYDAVIS - ALSENVIRONMENTAL**
C/O FEDERAL EXPRESS DEPOT
299 CAYUGA ROAD

CHEEKTOWAGA NY 14225

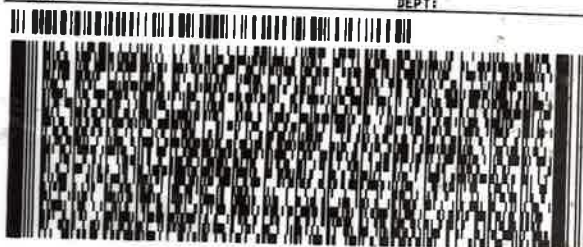
(906) 340-0821

INU:

PO:

REF:

DEPT:



FedEx
Express



REL#
3785346

TRK#
0201 7822 8471 0383

XX BUFA

TUE - 14 AUG 10:30A
PRIORITY OVERNIGHT

AHS
14225
NY-US BUF



ORIGIN ID:MRIA (971) 373-1622
JENNIFER RAY
AECOM
1115 SE CARUTHERS

PORTLAND, OR 97214
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BILL THIRD PARTY

TO **WHITNEYDAVIS - ALSENVIRONMENTAL**
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299 CAYUGA ROAD

CHEEKTOWAGA NY 14225

(906) 340-0821

INU:

PO:

REF:

DEPT:



FedEx
Express



REL#
3785346

TRK#
0201 7822 8467 9317

XX BUFA

TUE - 14 AUG 10:30A
PRIORITY OVERNIGHT

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
14-Aug-2018 16:45	Aecom	146 x Jars of Sediment 6 x 1L amber bottles	5.6°C	Good FedEx 7822 84699385	MS	15-Aug-2018 17:00	L2146267	-1-76

*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: 1042