July 24, 2019

Vista Work Order No. 1901247

Ms. Cindy Fields
Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101

Dear Ms. Fields,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on May 30, 2019 under your Project Name 'Port of Portland T4 PDI'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

Vista Work Order No. 1901247
Case Narrative

Sample Condition on Receipt:

Ten sediment samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

EPA Method 1613B

These samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-5MS GC column.

Holding Times

These samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each of the preparation batches. No analytes were detected in the Method Blanks. The OPR recoveries were within the method acceptance criteria.

Duplicate testing was performed on samples "T4-PDI2019-SC27-190524-01-03" and "T4-PDI2019-SC30-190524-03-05". For both duplicates, the RPDs were outside of the acceptance limit of 25. Due to a limitation of the Laboratory Information Management System (LIMS), the analysis date and time for the 2,3,7,8-TCDF confirmation are not listed on the duplicate data sheets. They are included with the raw data.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

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Initial Calibration..... 860

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1901247-01	FD-201905241445	24-May-19 00:00	30-May-19 10:09	Amber Glass, 120 mL
1901247-02	T4-PDI2019-SC27-190524-01-03	Dup24-May-19 14:45	30-May-19 10:09	Amber Glass, 120 mL
				Amber Glass, 120 mL
1901247-03	T4-PDI2019-SC27-190524-03-05	24-May-19 14:45	30-May-19 10:09	Amber Glass, 120 mL
1901247-04	T4-PDI2019-SC27-190524-05-07	24-May-19 14:45	30-May-19 10:09	Amber Glass, 120 mL
1901247-05	T4-PDI2019-SC28-190524-07-09	24-May-19 10:01	30-May-19 10:09	Amber Glass, 120 mL
1901247-06	T4-PDI2019-SC28-190524-09-10.1	24-May-19 10:01	30-May-19 10:09	Amber Glass, 120 mL
1901247-07	FD-201905241300	24-May-19 00:00	30-May-19 10:09	Amber Glass, 120 mL
1901247-08	T4-PDI2019-SC30-190524-01-03	24-May-19 13:00	30-May-19 10:09	Amber Glass, 120 mL
1901247-09	T4-PDI2019-SC30-190524-03-05	Dup24-May-19 13:00	30-May-19 10:09	Amber Glass, 120 mL
				Amber Glass, 120 mL
1901247-10	T4-PDI2019-SC30-190524-05-07	24-May-19 13:00	30-May-19 10:09	Amber Glass, 120 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

EPA Method 1613B

Matrix:	Solid	QC Batch:	B9F0172	Lab Sample:	B9F0172-BLK1
Sample Size:	5.00 g	Date Extracted:	18-Jun-2019 8:48	Date Analyzed :	25-Jun-19 17:28 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.518		
1,2,3,7,8-PeCDD	ND	0.496		
1,2,3,4,7,8-HxCDD	ND	0.470		
1,2,3,6,7,8-HxCDD	ND	0.487		
1,2,3,7,8,9-HxCDD	ND	0.499		
1,2,3,4,6,7,8-HpCDD	ND	0.496		
OCDD	ND	0.524		
2,3,7,8-TCDF	ND	0.481		
1,2,3,7,8-PeCDF	ND	0.611		
2,3,4,7,8-PeCDF	ND	0.603		
1,2,3,4,7,8-HxCDF	ND	0.257		
1,2,3,6,7,8-HxCDF	ND	0.235		
2,3,4,6,7,8-HxCDF	ND	0.245		
1,2,3,7,8,9-HxCDF	ND	0.451		
1,2,3,4,6,7,8-HpCDF	ND	0.296		
1,2,3,4,7,8,9-HpCDF	ND	0.333		
OCDF	ND	0.496		
TOTALS				
Total TCDD	ND	0.518		
Total PeCDD	ND	0.496		
Total HxCDD	ND	0.486		
Total HpCDD	ND	0.496		
Total TCDF	ND	0.481		
Total PeCDF	ND	0.607		
Total HxCDF	ND	0.288		
Total HpCDF	ND	0.315		

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	47.0	25 - 164	
	13C-1,2,3,7,8-PeCDD	49.6	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	53.3	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	57.0	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	62.7	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	65.2	23 - 140	
	13C-OCDD	68.8	17 - 157	
	13C-2,3,7,8-TCDF	38.9	24 - 169	
	13C-1,2,3,7,8-PeCDF	35.3	24 - 185	
	13C-2,3,4,7,8-PeCDF	33.5	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	59.8	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	65.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	67.1	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	57.9	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	45.2	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	47.0	26 - 138	
	13C-OCDF	65.3	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	49.9	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	0.00

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: OPR **EPA Method 1613B**

Matrix: Solid	QC Batch: B9F0172	Lab Sample: B9F0172-BS1
Sample Size: 5.00 g	Date Extracted: 18-Jun-2019 8:48	Date Analyzed: 25-Jun-19 15:53 Column: ZB-5MS

Analyte	Amt Found (ng/Kg)	Spike Amt	%R	Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	57.0	40.0	143	67 - 158	IS	13C-2,3,7,8-TCDD	70.2	20 - 175
1,2,3,7,8-PeCDD	223	200	112	70 - 142		13C-1,2,3,7,8-PeCDD	84.0	21 - 227
1,2,3,4,7,8-HxCDD	209	200	105	70 - 164		13C-1,2,3,4,7,8-HxCDD	88.5	21 - 193
1,2,3,6,7,8-HxCDD	215	200	107	76 - 134		13C-1,2,3,6,7,8-HxCDD	87.3	25 - 163
1,2,3,7,8,9-HxCDD	206	200	103	64 - 162		13C-1,2,3,7,8,9-HxCDD	90.0	21 - 193
1,2,3,4,6,7,8-HpCDD	193	200	96.6	70 - 140		13C-1,2,3,4,6,7,8-HpCDD	82.9	26 - 166
OCDD	397	400	99.2	78 - 144		13C-OCDD	88.5	13 - 199
2,3,7,8-TCDF	40.0	40.0	100	75 - 158		13C-2,3,7,8-TCDF	56.8	22 - 152
1,2,3,7,8-PeCDF	184	200	91.8	80 - 134		13C-1,2,3,7,8-PeCDF	60.8	21 - 192
2,3,4,7,8-PeCDF	185	200	92.6	68 - 160		13C-2,3,4,7,8-PeCDF	62.3	13 - 328
1,2,3,4,7,8-HxCDF	211	200	105	72 - 134		13C-1,2,3,4,7,8-HxCDF	83.1	19 - 202
1,2,3,6,7,8-HxCDF	218	200	109	84 - 130		13C-1,2,3,6,7,8-HxCDF	83.3	21 - 159
2,3,4,6,7,8-HxCDF	215	200	107	70 - 156		13C-2,3,4,6,7,8-HxCDF	87.5	22 - 176
1,2,3,7,8,9-HxCDF	219	200	110	78 - 130		13C-1,2,3,7,8,9-HxCDF	89.0	17 - 205
1,2,3,4,6,7,8-HpCDF	187	200	93.3	82 - 122		13C-1,2,3,4,6,7,8-HpCDF	71.1	21 - 158
1,2,3,4,7,8,9-HpCDF	184	200	92.2	78 - 138		13C-1,2,3,4,7,8,9-HpCDF	77.4	20 - 186
OCDF	417	400	104	63 - 170		13C-OCDF	84.8	13 - 199
					CRS	37Cl-2,3,7,8-TCDD	77.1	31 - 191

LCL-UCL - Lower control limit - upper control limit

Sample ID: Method Blank

EPA Method 1613B

Matrix:	Solid	QC Batch:	B9F0255	Lab Sample:	B9F0255-BLK1
Sample Size:	5.00 g	Date Extracted:	27-Jun-2019 5:48	Date Analyzed :	08-Jul-19 21:13 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.0756		
1,2,3,7,8-PeCDD	ND	0.124		
1,2,3,4,7,8-HxCDD	ND	0.133		
1,2,3,6,7,8-HxCDD	ND	0.143		
1,2,3,7,8,9-HxCDD	ND	0.137		
1,2,3,4,6,7,8-HpCDD	ND	0.0952		
OCDD	ND	0.142		
2,3,7,8-TCDF	ND	0.0551		
1,2,3,7,8-PeCDF	ND	0.105		
2,3,4,7,8-PeCDF	ND	0.102		
1,2,3,4,7,8-HxCDF	ND	0.0499		
1,2,3,6,7,8-HxCDF	ND	0.0537		
2,3,4,6,7,8-HxCDF	ND	0.0542		
1,2,3,7,8,9-HxCDF	ND	0.0615		
1,2,3,4,6,7,8-HpCDF	ND	0.0550		
1,2,3,4,7,8,9-HpCDF	ND	0.0559		
OCDF	ND	0.138		
TOTALS				
Total TCDD	ND	0.0756		
Total PeCDD	ND	0.124		
Total HxCDD	ND	0.138		
Total HpCDD	ND	0.0952		
Total TCDF	ND	0.0551		
Total PeCDF	ND	0.104		
Total HxCDF	ND	0.0548		
Total HpCDF	ND	0.0555		

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	79.9	25 - 164	
	13C-1,2,3,7,8-PeCDD	76.8	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	80.5	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	73.5	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	77.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	99.7	23 - 140	
	13C-OCDD	81.0	17 - 157	
	13C-2,3,7,8-TCDF	75.7	24 - 169	
	13C-1,2,3,7,8-PeCDF	74.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	73.2	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	81.8	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	77.2	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	78.1	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	88.4	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	93.0	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	95.8	26 - 138	
	13C-OCDF	80.0	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	85.4	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	0.00

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: OPR **EPA Method 1613B**

Matrix:	Solid	QC Batch:	B9F0255	Lab Sample:	B9F0255-BS1
Sample Size:	5.00 g	Date Extracted:	27-Jun-2019 5:48	Date Analyzed:	08-Jul-19 17:15 Column: ZB-5MS

Analyte	Amt Found (ng/Kg)	Spike Amt	%R	Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	42.4	40.0	106	67 - 158	IS	13C-2,3,7,8-TCDD	89.7	20 - 175
1,2,3,7,8-PeCDD	224	200	112	70 - 142		13C-1,2,3,7,8-PeCDD	92.4	21 - 227
1,2,3,4,7,8-HxCDD	217	200	108	70 - 164		13C-1,2,3,4,7,8-HxCDD	98.4	21 - 193
1,2,3,6,7,8-HxCDD	216	200	108	76 - 134		13C-1,2,3,6,7,8-HxCDD	91.5	25 - 163
1,2,3,7,8,9-HxCDD	206	200	103	64 - 162		13C-1,2,3,7,8,9-HxCDD	95.7	21 - 193
1,2,3,4,6,7,8-HpCDD	198	200	99.2	70 - 140		13C-1,2,3,4,6,7,8-HpCDD	100	26 - 166
OCDD	412	400	103	78 - 144		13C-OCDD	104	13 - 199
2,3,7,8-TCDF	37.7	40.0	94.2	75 - 158		13C-2,3,7,8-TCDF	81.8	22 - 152
1,2,3,7,8-PeCDF	221	200	110	80 - 134		13C-1,2,3,7,8-PeCDF	86.5	21 - 192
2,3,4,7,8-PeCDF	229	200	115	68 - 160		13C-2,3,4,7,8-PeCDF	85.9	13 - 328
1,2,3,4,7,8-HxCDF	205	200	103	72 - 134		13C-1,2,3,4,7,8-HxCDF	97.3	19 - 202
1,2,3,6,7,8-HxCDF	209	200	105	84 - 130		13C-1,2,3,6,7,8-HxCDF	91.6	21 - 159
2,3,4,6,7,8-HxCDF	213	200	106	70 - 156		13C-2,3,4,6,7,8-HxCDF	91.8	22 - 176
1,2,3,7,8,9-HxCDF	210	200	105	78 - 130		13C-1,2,3,7,8,9-HxCDF	95.5	17 - 205
1,2,3,4,6,7,8-HpCDF	216	200	108	82 - 122		13C-1,2,3,4,6,7,8-HpCDF	88.4	21 - 158
1,2,3,4,7,8,9-HpCDF	211	200	106	78 - 138		13C-1,2,3,4,7,8,9-HpCDF	96.1	20 - 186
OCDF	405	400	101	63 - 170		13C-OCDF	104	13 - 199
					CRS	37Cl-2,3,7,8-TCDD	81.8	31 - 191

LCL-UCL - Lower control limit - upper control limit

Sample ID: FD-201905241445

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 0:00

Sample Data
Matrix: Sediment
Sample Size: 10.9 g
% Solids: 57.2

Laboratory Data
Lab Sample: 1901247-01 Date Received: 30-May-2019 10:09
QC Batch: B9F0255 Date Extracted: 27-Jun-2019 5:48
Date Analyzed : 09-Jul-19 02:46 Column: ZB-5MS
20-Jul-19 01:01 Column: DB-225

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND		0.919	
1,2,3,7,8-PeCDD	3.45			J
1,2,3,4,7,8-HxCDD	4.89			
1,2,3,6,7,8-HxCDD	33.1			
1,2,3,7,8,9-HxCDD	10.2			
1,2,3,4,6,7,8-HpCDD	470			
OCDD	4050			
2,3,7,8-TCDF	5.62			
1,2,3,7,8-PeCDF	7.89			
2,3,4,7,8-PeCDF	4.69			
1,2,3,4,7,8-HxCDF	14.8			
1,2,3,6,7,8-HxCDF	7.11			
2,3,4,6,7,8-HxCDF	5.99			
1,2,3,7,8,9-HxCDF	1.44			J
1,2,3,4,6,7,8-HpCDF	52.8			
1,2,3,4,7,8,9-HpCDF	5.14			
OCDF	102			
TOTALS				
Total TCDD	6.01		12.1	
Total PeCDD	29.9		30.3	
Total HxCDD	215			
Total HpCDD	1030			
Total TCDF	44.4		45.2	
Total PeCDF	86.8		87.4	
Total HxCDF	161		161	
Total HpCDF	199			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	79.4	25 - 164	
	13C-1,2,3,7,8-PeCDD	87.6	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	97.2	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	86.3	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	93.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	120	23 - 140	
	13C-OCDD	116	17 - 157	
	13C-2,3,7,8-TCDF	69.6	24 - 169	
	13C-1,2,3,7,8-PeCDF	83.4	24 - 185	
	13C-2,3,4,7,8-PeCDF	84.4	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	97.3	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	90.4	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	95.3	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	101	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	105	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	123	26 - 138	
	13C-OCDF	112	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	72.7	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	19.9

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: T4-PDI2019-SC27-190524-01-03

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 14:45

Sample Data
Matrix: Sediment
Sample Size: 9.97 g
% Solids: 52.6

Laboratory Data
Lab Sample: 1901247-02 Date Received: 30-May-2019 10:09
QC Batch: B9F0172 Date Extracted: 18-Jun-2019 8:48
Date Analyzed : 27-Jun-19 01:15 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.187		
1,2,3,7,8-PeCDD	ND	0.166		
1,2,3,4,7,8-HxCDD	ND	0.343		
1,2,3,6,7,8-HxCDD	ND		0.981	
1,2,3,7,8,9-HxCDD	ND	0.373		
1,2,3,4,6,7,8-HpCDD	39.1			
OCDD	338			
2,3,7,8-TCDF	ND	0.238		
1,2,3,7,8-PeCDF	ND	0.303		
2,3,4,7,8-PeCDF	ND	0.283		
1,2,3,4,7,8-HxCDF	ND		0.383	
1,2,3,6,7,8-HxCDF	ND	0.0928		
2,3,4,6,7,8-HxCDF	ND		0.183	
1,2,3,7,8,9-HxCDF	ND	0.168		
1,2,3,4,6,7,8-HpCDF	4.45			J
1,2,3,4,7,8,9-HpCDF	ND	0.175		
OCDF	17.4			
TOTALS				
Total TCDD	ND	0.187		
Total PeCDD	0.364			
Total HxCDD	8.32		9.30	
Total HpCDD	104			
Total TCDF	ND	0.238		
Total PeCDF	0.472			
Total HxCDF	5.20		5.77	
Total HpCDF	17.2			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	50.9	25 - 164	
	13C-1,2,3,7,8-PeCDD	59.9	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	70.2	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	69.5	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	74.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	82.9	23 - 140	
	13C-OCDD	79.5	17 - 157	
	13C-2,3,7,8-TCDF	45.3	24 - 169	
	13C-1,2,3,7,8-PeCDF	54.7	24 - 185	
	13C-2,3,4,7,8-PeCDF	53.9	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	72.2	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	75.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	76.2	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	72.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	73.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	79.3	26 - 138	
	13C-OCDF	80.6	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	55.1	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	0.542

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: Duplicate **EPA Method 1613B**

Source Client ID:	T4-PDI2019-SC27-190524-01-03	QC Batch:	B9F0172	Lab Sample:	B9F0172-DUP1
Source LabNumber:	1901247-02	Date Extracted:	18-Jun-2019 8:48	Date Analyzed:	27-Jun-19 02:03 Column: ZB-5MS
Matrix:	Solid				
Sample Size:	9.68 g				

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.335		
1,2,3,7,8-PeCDD	0.600			J
1,2,3,4,7,8-HxCDD	1.74			J
1,2,3,6,7,8-HxCDD	8.19			
1,2,3,7,8,9-HxCDD	3.70			J
1,2,3,4,6,7,8-HpCDD	261			
OCDD	2400			
2,3,7,8-TCDF	1.38			
1,2,3,7,8-PeCDF	1.26			J
2,3,4,7,8-PeCDF	1.16			J
1,2,3,4,7,8-HxCDF	5.01			
1,2,3,6,7,8-HxCDF	1.82			J
2,3,4,6,7,8-HxCDF	1.48			J
1,2,3,7,8,9-HxCDF	ND		0.445	
1,2,3,4,6,7,8-HpCDF	33.2			
1,2,3,4,7,8,9-HpCDF	2.76			J
OCDF	105			
TOTALS				
Total TCDD	3.21			
Total PeCDD	6.75		8.82	
Total HxCDD	88.3			
Total HpCDD	739			
Total TCDF	6.95		7.70	
Total PeCDF	13.5		18.8	
Total HxCDF	50.5		51.4	
Total HpCDF	122			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	50.4	25 - 164	
	13C-1,2,3,7,8-PeCDD	55.6	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	68.9	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	73.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	77.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	81.7	23 - 140	
	13C-OCDD	84.2	17 - 157	
	13C-2,3,7,8-TCDF	45.1	24 - 169	
	13C-1,2,3,7,8-PeCDF	51.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	49.0	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	71.2	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	74.8	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	77.8	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	70.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	71.5	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	73.3	26 - 138	
	13C-OCDF	79.9	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	52.5	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	7.03

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: Duplicate **EPA Method 1613B**

Source Client ID: T4-PDI2019-SC27-190524-01-03
Source LabNumber: 1901247-02
Matrix: Solid

Duplicate Lab Sample: B9F0172-DUP1

Analyte	Dup Conc. (ng/Kg)	Source Conc.	RPD	RPD Limits
2,3,7,8-TCDD	ND	ND	NA	25
1,2,3,7,8-PeCDD	0.600	ND	#	25
1,2,3,4,7,8-HxCDD	1.74	ND	#	25
1,2,3,6,7,8-HxCDD	8.19	ND	#	25
1,2,3,7,8,9-HxCDD	3.70	ND	#	25
1,2,3,4,6,7,8-HpCDD	261	39.1	**148**	25
OCDD	2400	338	**151**	25
2,3,7,8-TCDF	1.38	ND	#	25
1,2,3,7,8-PeCDF	1.26	ND	#	25
2,3,4,7,8-PeCDF	1.16	ND	#	25
1,2,3,4,7,8-HxCDF	5.01	ND	#	25
1,2,3,6,7,8-HxCDF	1.82	ND	#	25
2,3,4,6,7,8-HxCDF	1.48	ND	#	25
1,2,3,7,8,9-HxCDF	ND	ND	NA	25
1,2,3,4,6,7,8-HpCDF	33.2	4.45	**153**	25
1,2,3,4,7,8,9-HpCDF	2.76	ND	#	25
OCDF	105	17.4	**143**	25

	Labeled Standard	Dup %R	Source %R	LCL-UCL
IS	13C-2,3,7,8-TCDD	50.4	50.9	25 - 164
	13C-1,2,3,7,8-PeCDD	55.6	59.9	25 - 181
	13C-1,2,3,4,7,8-HxCDD	68.9	70.2	32 - 141
	13C-1,2,3,6,7,8-HxCDD	73.2	69.5	28 - 130
	13C-1,2,3,7,8,9-HxCDD	77.8	74.8	32 - 141
	13C-1,2,3,4,6,7,8-HpCDD	81.7	82.9	23 - 140
	13C-OCDD	84.2	79.5	17 - 157
	13C-2,3,7,8-TCDF	45.1	45.3	24 - 169
	13C-1,2,3,7,8-PeCDF	51.6	54.7	24 - 185
	13C-2,3,4,7,8-PeCDF	49.0	53.9	21 - 178
	13C-1,2,3,4,7,8-HxCDF	71.2	72.2	26 - 152
	13C-1,2,3,6,7,8-HxCDF	74.8	75.1	26 - 123
	13C-2,3,4,6,7,8-HxCDF	77.8	76.2	28 - 136
	13C-1,2,3,7,8,9-HxCDF	70.6	72.5	29 - 147
	13C-1,2,3,4,6,7,8-HpCDF	71.5	73.6	28 - 143
	13C-1,2,3,4,7,8,9-HpCDF	73.3	79.3	26 - 138
	13C-OCDF	79.9	80.6	17 - 157
CRS	37Cl-2,3,7,8-TCDD	52.5	55.1	35 - 197

LCL-UCL - Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.Results reported to the MDL

Sample ID: T4-PDI2019-SC27-190524-03-05

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 14:45

Sample Data
Matrix: Sediment
Sample Size: 10.1 g
% Solids: 50.6

Laboratory Data
Lab Sample: 1901247-03 Date Received: 30-May-2019 10:09
QC Batch: B9F0172 Date Extracted: 18-Jun-2019 8:48
Date Analyzed : 19-Jul-19 20:15 Column: DB-225
27-Jun-19 07:51 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.365		
1,2,3,7,8-PeCDD	0.878			J
1,2,3,4,7,8-HxCDD	ND		1.21	
1,2,3,6,7,8-HxCDD	8.27			
1,2,3,7,8,9-HxCDD	3.20			J
1,2,3,4,6,7,8-HpCDD	150			
OCDD	1300			
2,3,7,8-TCDF	1.37			
1,2,3,7,8-PeCDF	1.08			J
2,3,4,7,8-PeCDF	ND		0.477	
1,2,3,4,7,8-HxCDF	3.41			J
1,2,3,6,7,8-HxCDF	ND		1.39	
2,3,4,6,7,8-HxCDF	1.12			J
1,2,3,7,8,9-HxCDF	ND		0.361	
1,2,3,4,6,7,8-HpCDF	23.8			
1,2,3,4,7,8,9-HpCDF	1.94			J
OCDF	69.4			
TOTALS				
Total TCDD	ND	0.365		
Total PeCDD	5.36		6.35	
Total HxCDD	57.1		58.3	
Total HpCDD	371			
Total TCDF	3.65		4.69	
Total PeCDF	11.7		13.3	
Total HxCDF	39.4		41.2	
Total HpCDF	96.2			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	57.2	25 - 164	
	13C-1,2,3,7,8-PeCDD	65.5	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	79.2	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	80.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	82.2	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	99.3	23 - 140	
	13C-OCDD	90.2	17 - 157	
	13C-2,3,7,8-TCDF	50.1	24 - 169	
	13C-1,2,3,7,8-PeCDF	63.3	24 - 185	
	13C-2,3,4,7,8-PeCDF	58.6	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	80.9	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	83.8	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	84.3	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	81.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	89.8	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	97.6	26 - 138	
	13C-OCDF	85.5	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	59.6	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	4.82

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: T4-PDI2019-SC27-190524-05-07

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 14:45

Sample Data
Matrix: Sediment
Sample Size: 9.75 g
% Solids: 52.0

Laboratory Data
Lab Sample: 1901247-04 Date Received: 30-May-2019 10:09
QC Batch: B9F0172 Date Extracted: 18-Jun-2019 8:48
Date Analyzed : 20-Jul-19 01:33 Column: DB-225
27-Jun-19 08:38 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	1.25			
1,2,3,7,8-PeCDD	0.754			J
1,2,3,4,7,8-HxCDD	8.29			
1,2,3,6,7,8-HxCDD	57.1			
1,2,3,7,8,9-HxCDD	18.0			
1,2,3,4,6,7,8-HpCDD	905			
OCDD	8210			
2,3,7,8-TCDF	7.40			
1,2,3,7,8-PeCDF	9.83			
2,3,4,7,8-PeCDF	6.11			
1,2,3,4,7,8-HxCDF	23.4			
1,2,3,6,7,8-HxCDF	11.6			
2,3,4,6,7,8-HxCDF	8.47			
1,2,3,7,8,9-HxCDF	2.91			J
1,2,3,4,6,7,8-HpCDF	121			
1,2,3,4,7,8,9-HpCDF	9.60			
OCDF	216			
TOTALS				
Total TCDD	9.62		13.4	
Total PeCDD	34.9		40.9	
Total HxCDD	320			
Total HpCDD	1790			
Total TCDF	53.9		56.8	
Total PeCDF	110		116	
Total HxCDF	265		266	
Total HpCDF	372			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	37.9	25 - 164	
	13C-1,2,3,7,8-PeCDD	46.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	62.8	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	63.0	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	71.4	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	84.4	23 - 140	
	13C-OCDD	84.1	17 - 157	
	13C-2,3,7,8-TCDF	33.4	24 - 169	
	13C-1,2,3,7,8-PeCDF	44.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	40.6	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	63.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	65.5	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	72.0	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	66.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	76.7	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	77.8	26 - 138	
	13C-OCDF	76.1	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	44.4	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	30.7

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: T4-PDI2019-SC28-190524-07-09

EPA Method 1613B

Client Data		Sample Data		Laboratory Data			
Name:	Anchor QEA, LLC	Matrix:	Sediment	Lab Sample:	1901247-05	Date Received:	30-May-2019 10:09
Project:	Port of Portland T4 PDI	Sample Size:	8.60 g	QC Batch:	B9F0255	Date Extracted:	27-Jun-2019 5:48
Date Collected:	24-May-2019 10:01	% Solids:	68.6	Date Analyzed :	10-Jul-19 02:00	Column: ZB-5MS	

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND		0.301		IS	13C-2,3,7,8-TCDD	78.5	25 - 164	
1,2,3,7,8-PeCDD	1.04			J		13C-1,2,3,7,8-PeCDD	66.8	25 - 181	
1,2,3,4,7,8-HxCDD	1.11			J		13C-1,2,3,4,7,8-HxCDD	90.9	32 - 141	
1,2,3,6,7,8-HxCDD	5.13					13C-1,2,3,6,7,8-HxCDD	80.0	28 - 130	
1,2,3,7,8,9-HxCDD	1.83			J		13C-1,2,3,7,8,9-HxCDD	86.8	32 - 141	
1,2,3,4,6,7,8-HpCDD	86.1					13C-1,2,3,4,6,7,8-HpCDD	111	23 - 140	
OCDD	1340					13C-OCDD	85.3	17 - 157	
2,3,7,8-TCDF	ND		0.707			13C-2,3,7,8-TCDF	72.1	24 - 169	
1,2,3,7,8-PeCDF	1.43			J		13C-1,2,3,7,8-PeCDF	76.8	24 - 185	
2,3,4,7,8-PeCDF	1.81			J		13C-2,3,4,7,8-PeCDF	72.4	21 - 178	
1,2,3,4,7,8-HxCDF	3.11			J		13C-1,2,3,4,7,8-HxCDF	87.3	26 - 152	
1,2,3,6,7,8-HxCDF	9.10					13C-1,2,3,6,7,8-HxCDF	82.3	26 - 123	
2,3,4,6,7,8-HxCDF	4.36					13C-2,3,4,6,7,8-HxCDF	85.4	28 - 136	
1,2,3,7,8,9-HxCDF	0.553			J		13C-1,2,3,7,8,9-HxCDF	91.1	29 - 147	
1,2,3,4,6,7,8-HpCDF	128					13C-1,2,3,4,6,7,8-HpCDF	101	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.87			J		13C-1,2,3,4,7,8,9-HpCDF	107	26 - 138	
OCDF	66.7					13C-OCDF	87.6	17 - 157	
					CRS	37Cl-2,3,7,8-TCDD	79.7	35 - 197	
						Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)			
						TEQMinWHO2005Dioxin	6.73		
TOTALS									
Total TCDD	5.23		6.00						
Total PeCDD	10.2		14.5						
Total HxCDD	52.1		53.2						
Total HpCDD	245								
Total TCDF	26.0		31.6						
Total PeCDF	83.8		84.4						
Total HxCDF	129								
Total HpCDF	254								

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: T4-PDI2019-SC28-190524-09-10.1

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 10:01

Sample Data
Matrix: Sediment
Sample Size: 8.75 g
% Solids: 58.7

Laboratory Data
Lab Sample: 1901247-06 Date Received: 30-May-2019 10:09
QC Batch: B9F0172 Date Extracted: 18-Jun-2019 8:48
Date Analyzed : 19-Jul-19 20:46 Column: DB-225
27-Jun-19 09:26 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.619		
1,2,3,7,8-PeCDD	1.60			J
1,2,3,4,7,8-HxCDD	1.28			J
1,2,3,6,7,8-HxCDD	9.01			
1,2,3,7,8,9-HxCDD	3.06			J
1,2,3,4,6,7,8-HpCDD	109			
OCDD	1640			
2,3,7,8-TCDF	1.47			
1,2,3,7,8-PeCDF	2.74			J
2,3,4,7,8-PeCDF	5.87			
1,2,3,4,7,8-HxCDF	6.72			
1,2,3,6,7,8-HxCDF	19.4			
2,3,4,6,7,8-HxCDF	9.14			
1,2,3,7,8,9-HxCDF	1.14			J
1,2,3,4,6,7,8-HpCDF	277			
1,2,3,4,7,8,9-HpCDF	3.58			J
OCDF	124			
TOTALS				
Total TCDD	10.8		12.8	
Total PeCDD	16.8		27.0	
Total HxCDD	88.8			
Total HpCDD	291			
Total TCDF	87.7		88.4	
Total PeCDF	191			
Total HxCDF	312			
Total HpCDF	548			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	34.9	25 - 164	
	13C-1,2,3,7,8-PeCDD	51.9	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	62.0	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	67.1	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	69.9	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	82.5	23 - 140	
	13C-OCDD	82.4	17 - 157	
	13C-2,3,7,8-TCDF	27.2	24 - 169	
	13C-1,2,3,7,8-PeCDF	46.9	24 - 185	
	13C-2,3,4,7,8-PeCDF	41.6	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	66.7	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	69.5	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	72.2	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	67.8	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	81.6	26 - 138	
	13C-OCDF	78.3	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	38.9	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	13.0

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: FD-201905241300

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 0:00

Sample Data
Matrix: Sediment
Sample Size: 9.18 g
% Solids: 54.9

Laboratory Data
Lab Sample: 1901247-07 Date Received: 30-May-2019 10:09
QC Batch: B9F0172 Date Extracted: 18-Jun-2019 8:48
Date Analyzed : 19-Jul-19 21:18 Column: DB-225
27-Jun-19 10:14 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	0.387		
1,2,3,7,8-PeCDD	1.07			J
1,2,3,4,7,8-HxCDD	1.20			J
1,2,3,6,7,8-HxCDD	7.20			
1,2,3,7,8,9-HxCDD	2.90			J
1,2,3,4,6,7,8-HpCDD	163			
OCDD	1550			
2,3,7,8-TCDF	1.34			
1,2,3,7,8-PeCDF	0.986			J
2,3,4,7,8-PeCDF	1.34			J
1,2,3,4,7,8-HxCDF	4.79			J
1,2,3,6,7,8-HxCDF	ND		1.64	
2,3,4,6,7,8-HxCDF	1.51			J
1,2,3,7,8,9-HxCDF	0.492			J
1,2,3,4,6,7,8-HpCDF	25.3			
1,2,3,4,7,8,9-HpCDF	2.07			J
OCDF	72.9			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	35.9	25 - 164	
	13C-1,2,3,7,8-PeCDD	52.1	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	75.6	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	79.7	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	88.0	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	91.3	23 - 140	
	13C-OCDD	81.2	17 - 157	
	13C-2,3,7,8-TCDF	33.5	24 - 169	
	13C-1,2,3,7,8-PeCDF	51.0	24 - 185	
	13C-2,3,4,7,8-PeCDF	43.8	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	75.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	78.2	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	83.3	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	83.7	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	86.7	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	88.7	26 - 138	
	13C-OCDF	75.3	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	35.7	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	5.85

TOTALS	
Total TCDD	1.20
Total PeCDD	2.97
Total HxCDD	54.5
Total HpCDD	405
Total TCDF	3.34
Total PeCDF	13.3
Total HxCDF	43.2
Total HpCDF	90.8

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: T4-PDI2019-SC30-190524-01-03

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 13:00

Sample Data
Matrix: Sediment
Sample Size: 10.7 g
% Solids: 55.0

Laboratory Data
Lab Sample: 1901247-08 Date Received: 30-May-2019 10:09
QC Batch: B9F0255 Date Extracted: 27-Jun-2019 5:48
Date Analyzed : 10-Jul-19 02:47 Column: ZB-5MS
19-Jul-19 21:50 Column: DB-225

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND		0.415	
1,2,3,7,8-PeCDD	0.523			J
1,2,3,4,7,8-HxCDD	ND		0.907	
1,2,3,6,7,8-HxCDD	6.35			
1,2,3,7,8,9-HxCDD	2.76			J
1,2,3,4,6,7,8-HpCDD	167			
OCDD	1590			
2,3,7,8-TCDF	1.11			
1,2,3,7,8-PeCDF	2.32			J
2,3,4,7,8-PeCDF	1.46			J
1,2,3,4,7,8-HxCDF	6.95			
1,2,3,6,7,8-HxCDF	2.06			J
2,3,4,6,7,8-HxCDF	1.68			J
1,2,3,7,8,9-HxCDF	1.03			J
1,2,3,4,6,7,8-HpCDF	24.7			
1,2,3,4,7,8,9-HpCDF	2.72			J
OCDF	65.1			
TOTALS				
Total TCDD	1.68		2.38	
Total PeCDD	4.34		7.46	
Total HxCDD	47.5		50.1	
Total HpCDD	457			
Total TCDF	4.86			
Total PeCDF	21.0		21.5	
Total HxCDF	46.0		46.9	
Total HpCDF	89.8			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	69.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	50.3	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	76.0	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	67.0	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	71.0	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	86.1	23 - 140	
	13C-OCDD	69.4	17 - 157	
	13C-2,3,7,8-TCDF	65.5	24 - 169	
	13C-1,2,3,7,8-PeCDF	69.2	24 - 185	
	13C-2,3,4,7,8-PeCDF	63.9	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	72.6	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	67.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	70.4	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	75.0	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	74.7	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	90.3	26 - 138	
	13C-OCDF	72.3	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	85.5	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	5.66

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: T4-PDI2019-SC30-190524-03-05

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 13:00

Sample Data
Matrix: Sediment
Sample Size: 9.29 g
% Solids: 53.8

Laboratory Data
Lab Sample: 1901247-09 Date Received: 30-May-2019 10:09
QC Batch: B9F0255 Date Extracted: 27-Jun-2019 5:48
Date Analyzed : 10-Jul-19 03:35 Column: ZB-5MS
19-Jul-19 22:22 Column: DB-225

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND		0.729	
1,2,3,7,8-PeCDD	ND		2.15	
1,2,3,4,7,8-HxCDD	2.94			J
1,2,3,6,7,8-HxCDD	20.5			
1,2,3,7,8,9-HxCDD	8.09			
1,2,3,4,6,7,8-HpCDD	409			
OCDD	5230			
2,3,7,8-TCDF	1.88			
1,2,3,7,8-PeCDF	2.87			J
2,3,4,7,8-PeCDF	1.64			J
1,2,3,4,7,8-HxCDF	10.8			
1,2,3,6,7,8-HxCDF	6.41			
2,3,4,6,7,8-HxCDF	5.33			
1,2,3,7,8,9-HxCDF	1.45			J
1,2,3,4,6,7,8-HpCDF	69.6			
1,2,3,4,7,8,9-HpCDF	5.88			
OCDF	190			
TOTALS				
Total TCDD	6.50		8.63	
Total PeCDD	15.1		22.7	
Total HxCDD	159			
Total HpCDD	942			
Total TCDF	19.8		21.4	
Total PeCDF	59.1		59.5	
Total HxCDF	135			
Total HpCDF	237			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	87.5	25 - 164	
	13C-1,2,3,7,8-PeCDD	86.1	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	98.8	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	89.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	94.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	111	23 - 140	
	13C-OCDD	114	17 - 157	
	13C-2,3,7,8-TCDF	77.0	24 - 169	
	13C-1,2,3,7,8-PeCDF	85.4	24 - 185	
	13C-2,3,4,7,8-PeCDF	85.0	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	95.2	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	89.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	93.1	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	99.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	94.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	113	26 - 138	
	13C-OCDF	114	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	78.5	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	12.8

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: Duplicate **EPA Method 1613B**

Source Client ID:	T4-PDI2019-SC30-190524-03-05	QC Batch:	B9F0255	Lab Sample:	B9F0255-DUP2
Source LabNumber:	1901247-09	Date Extracted:	27-Jun-2019 5:48	Date Analyzed:	10-Jul-19 05:10 Column: ZB-5MS
Matrix:	Solid				
Sample Size:	11.2 g				

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND		0.380		IS	13C-2,3,7,8-TCDD	77.6	25 - 164	
1,2,3,7,8-PeCDD	0.952			J		13C-1,2,3,7,8-PeCDD	74.9	25 - 181	
1,2,3,4,7,8-HxCDD	1.78			J		13C-1,2,3,4,7,8-HxCDD	86.8	32 - 141	
1,2,3,6,7,8-HxCDD	9.69					13C-1,2,3,6,7,8-HxCDD	78.7	28 - 130	
1,2,3,7,8,9-HxCDD	3.60			J		13C-1,2,3,7,8,9-HxCDD	85.9	32 - 141	
1,2,3,4,6,7,8-HpCDD	191					13C-1,2,3,4,6,7,8-HpCDD	98.7	23 - 140	
OCDD	2480					13C-OCDD	101	17 - 157	
2,3,7,8-TCDF	0.937					13C-2,3,7,8-TCDF	73.1	24 - 169	
1,2,3,7,8-PeCDF	1.56			J		13C-1,2,3,7,8-PeCDF	72.4	24 - 185	
2,3,4,7,8-PeCDF	ND		1.47			13C-2,3,4,7,8-PeCDF	72.7	21 - 178	
1,2,3,4,7,8-HxCDF	5.18					13C-1,2,3,4,7,8-HxCDF	85.0	26 - 152	
1,2,3,6,7,8-HxCDF	3.12			J		13C-1,2,3,6,7,8-HxCDF	79.0	26 - 123	
2,3,4,6,7,8-HxCDF	2.60			J		13C-2,3,4,6,7,8-HxCDF	81.5	28 - 136	
1,2,3,7,8,9-HxCDF	0.776			J		13C-1,2,3,7,8,9-HxCDF	86.1	29 - 147	
1,2,3,4,6,7,8-HpCDF	33.5					13C-1,2,3,4,6,7,8-HpCDF	81.0	28 - 143	
1,2,3,4,7,8,9-HpCDF	2.86			J		13C-1,2,3,4,7,8,9-HpCDF	100	26 - 138	
OCDF	88.7					13C-OCDF	101	17 - 157	
					CRS	37Cl-2,3,7,8-TCDD	82.8	35 - 197	
						Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)			
						TEQMinWHO2005Dioxin	6.81		
TOTALS									
Total TCDD	1.25		3.81						
Total PeCDD	8.65		10.9						
Total HxCDD	74.4		76.0						
Total HpCDD	448								
Total TCDF	7.05		7.80						
Total PeCDF	25.2		28.0						
Total HxCDF	62.8		63.2						
Total HpCDF	119								

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight.

Sample ID: Duplicate **EPA Method 1613B**

Source Client ID: T4-PDI2019-SC30-190524-03-05
Source LabNumber: 1901247-09
Matrix: Solid

Duplicate Lab Sample: B9F0255-DUP2

Analyte	Dup Conc. (ng/Kg)	Source Conc.	RPD	RPD Limits
2,3,7,8-TCDD	ND	ND	NA	25
1,2,3,7,8-PeCDD	0.952	ND	#	25
1,2,3,4,7,8-HxCDD	1.78	2.94	**49.3**	25
1,2,3,6,7,8-HxCDD	9.69	20.5	**71.6**	25
1,2,3,7,8,9-HxCDD	3.60	8.09	**76.9**	25
1,2,3,4,6,7,8-HpCDD	191	409	**72.4**	25
OCDD	2480	5230	**71.4**	25
2,3,7,8-TCDF	0.937	1.88	**66.8**	25
1,2,3,7,8-PeCDF	1.56	2.87	**59.4**	25
2,3,4,7,8-PeCDF	ND	1.64	#	25
1,2,3,4,7,8-HxCDF	5.18	10.8	**70.0**	25
1,2,3,6,7,8-HxCDF	3.12	6.41	**69.0**	25
2,3,4,6,7,8-HxCDF	2.60	5.33	**68.9**	25
1,2,3,7,8,9-HxCDF	0.776	1.45	**60.5**	25
1,2,3,4,6,7,8-HpCDF	33.5	69.6	**70.2**	25
1,2,3,4,7,8,9-HpCDF	2.86	5.88	**69.2**	25
OCDF	88.7	190	**72.8**	25

	Labeled Standard	Dup %R	Source %R	LCL-UCL
IS	13C-2,3,7,8-TCDD	77.6	87.5	25 - 164
	13C-1,2,3,7,8-PeCDD	74.9	86.1	25 - 181
	13C-1,2,3,4,7,8-HxCDD	86.8	98.8	32 - 141
	13C-1,2,3,6,7,8-HxCDD	78.7	89.2	28 - 130
	13C-1,2,3,7,8,9-HxCDD	85.9	94.8	32 - 141
	13C-1,2,3,4,6,7,8-HpCDD	98.7	111	23 - 140
	13C-OCDD	101	114	17 - 157
	13C-2,3,7,8-TCDF	73.1	77.0	24 - 169
	13C-1,2,3,7,8-PeCDF	72.4	85.4	24 - 185
	13C-2,3,4,7,8-PeCDF	72.7	85.0	21 - 178
	13C-1,2,3,4,7,8-HxCDF	85.0	95.2	26 - 152
	13C-1,2,3,6,7,8-HxCDF	79.0	89.7	26 - 123
	13C-2,3,4,6,7,8-HxCDF	81.5	93.1	28 - 136
	13C-1,2,3,7,8,9-HxCDF	86.1	99.2	29 - 147
	13C-1,2,3,4,6,7,8-HpCDF	81.0	94.6	28 - 143
	13C-1,2,3,4,7,8,9-HpCDF	100	113	26 - 138
	13C-OCDF	101	114	17 - 157
CRS	37Cl-2,3,7,8-TCDD	82.8	78.5	35 - 197

LCL-UCL - Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.Results reported to the MDL

Sample ID: T4-PDI2019-SC30-190524-05-07

EPA Method 1613B

Client Data
Name: Anchor QEA, LLC
Project: Port of Portland T4 PDI
Date Collected: 24-May-2019 13:00

Sample Data
Matrix: Sediment
Sample Size: 7.85 g
% Solids: 67.4

Laboratory Data
Lab Sample: 1901247-10 Date Received: 30-May-2019 10:09
QC Batch: B9F0172 Date Extracted: 18-Jun-2019 8:48
Date Analyzed : 27-Jun-19 11:50 Column: ZB-5MS

Analyte	Conc. (ng/Kg)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND		0.324	
1,2,3,7,8-PeCDD	ND		0.326	
1,2,3,4,7,8-HxCDD	ND	0.286		
1,2,3,6,7,8-HxCDD	1.95			J
1,2,3,7,8,9-HxCDD	0.962			J
1,2,3,4,6,7,8-HpCDD	53.3			
OCDD	667			
2,3,7,8-TCDF	0.389			J
1,2,3,7,8-PeCDF	1.01			J
2,3,4,7,8-PeCDF	0.304			J
1,2,3,4,7,8-HxCDF	2.44			J
1,2,3,6,7,8-HxCDF	1.19			J
2,3,4,6,7,8-HxCDF	0.756			J
1,2,3,7,8,9-HxCDF	0.297			J
1,2,3,4,6,7,8-HpCDF	14.9			
1,2,3,4,7,8,9-HpCDF	ND		1.15	
OCDF	47.5			
TOTALS				
Total TCDD	ND		0.324	
Total PeCDD	ND		1.86	
Total HxCDD	18.6			
Total HpCDD	129			
Total TCDF	1.77		2.34	
Total PeCDF	7.19		7.93	
Total HxCDF	24.4			
Total HpCDF	55.1		56.3	

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	70.9	25 - 164	
	13C-1,2,3,7,8-PeCDD	80.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	96.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	92.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	93.1	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	104	23 - 140	
	13C-OCDD	106	17 - 157	
	13C-2,3,7,8-TCDF	59.9	24 - 169	
	13C-1,2,3,7,8-PeCDF	77.8	24 - 185	
	13C-2,3,4,7,8-PeCDF	75.4	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	93.0	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	94.8	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	95.4	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	89.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	96.5	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	104	26 - 138	
	13C-OCDF	96.7	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	68.0	35 - 197	

Toxic Equivalent Quotient (TEQ) Data (pg/g dry wt)

TEQMinWHO2005Dioxin	1.82

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight. The sample size is reported in wet weight.
Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limits of Detection
LOQ	Limits of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-21
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: VISTA-20190524-153937

POC: # Cindy Fields ((206)-903-3394)
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

Project: Port of Portland T4 PDI
Client: The Port of Portland

1901247 1.4°C, 1.3°C

Sample Custodian: CO
Lab: Vista Analytical Laboratory

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	# Containers	Lab QC*	Test Request	Method	TAT**	Preservative
001	FD-201905241445	FD	SE	05/24/2019		1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C
002	T4-PDI2019-SC27-190524-01-03	N	SE	05/24/2019	14:45	2	X				
								Dioxins and Furans	E1613B	30	0 – 6 °C
003	T4-PDI2019-SC27-190524-03-05	N	SE	05/24/2019	14:45	1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C
004	T4-PDI2019-SC27-190524-05-07	N	SE	05/24/2019	14:45	1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C
005	T4-PDI2019-SC28-190524-07-09	N	SE	05/24/2019	10:01	1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C
006	T4-PDI2019-SC28-190524-09-10.1	N	SE	05/24/2019	10:01	1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C
007	FD-201905241300	FD	SE	05/24/2019		1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C
008	T4-PDI2019-SC30-190524-01-03	N	SE	05/24/2019	13:00	1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C
009	T4-PDI2019-SC30-190524-03-05	N	SE	05/24/2019	13:00	2	X				
								Dioxins and Furans	E1613B	30	0 – 6 °C
010	T4-PDI2019-SC30-190524-05-07	N	SE	05/24/2019	13:00	1	☐				
								Dioxins and Furans	E1613B	30	0 – 6 °C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Casey Jarisch	Signature: D. Thomas	Signature: Tanna Godfrey	Signature: [illegible]	Signature:	Signature:
Print Name: Casey Jarisch	Print Name:	Print Name: Tanna Godfrey	Print Name: Ashley Mason	Print Name:	Print Name:
Company: Anchor QEA	Company: Apex	Company: Apex	Company: Vista	Company:	Company:
Date/Time: 05/25/19 0645	Date/Time: 05/25/19 0645	Date/Time: 5-29-19 12:25	Date/Time: 05/30/19 1009	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 2

Vista Work Order #: 1901247 TAT std

Samples Arrival:	Date/Time 05/30/19 1009	Initials: aom	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 5/30/19 1701	Initials: BAB MMS	Location: WR-2 Shelf/Rack: G4

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 1.3 (uncorrected)	Probe used: Y / N	Thermometer ID: IR-3
Temp °C: 1.3 (corrected)		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill 1 of 2 Trk # 7753 3804 0790	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	

If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Preservation Documented: $Na_2S_2O_3$ Trizma None Other	Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose

Comments: T4-PDI2019-SC27-190524-01-03 (B jar)

SC30

03-05
03-05
05-07

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 2 of 2

Vista Work Order #: 1901247 TAT Std

Samples Arrival:	Date/Time 05/30/19 1009	Initials: ajr	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 05/30/19 1701	Initials: WWS JBLB	Location: WR-2 Shelf/Rack: G-4

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 1.4 (uncorrected)	Probe used: Y / N	Thermometer ID: IR-3
Temp °C: 1.4 (corrected)		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill 2 of 2 Trk # 7753 3804 0882	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Preservation Documented: $Na_2S_2O_3$ Trizma None Other	Yes	No	NA

Shipping Container	Vista	Client	Retain	Return	Dispose

Comments: T4-PDI2019-SC27-190524-01-03 (A jar) FD-20190524/1445 1300

SC28 → SC30

05-07
07-09
09-10.1
01-03

ID.: LR – SLC Rev No.: 3 Rev Date: 05 October 2018 Page: 1 of 1

EXTRACTION INFORMATION

Process Sheet

Workorder: 1901247

Prep Expiration: 2020-05-23
Client: Anchor QEA, LLC

Workorder Due: 20-Jun-19 00:00
TAT: 21

Method: **1613 Full List**
Matrix: **Solid**
Client Matrix: Sediment
Also run: **Percent Solids**

Prep Batch: B9F0172

Prep Data Entered: ao 06/21/19
Date and Initials

Initial Sequence: S9F0057

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1901247-01	☑	FD-201905241445	30-May-19 10:09	WR-2 G-4	
1901247-02	☑	T4-PDI2019-SC27-190524-01-03	30-May-19 10:09	WR-2 G-4	**Dup**
1901247-03	☑	T4-PDI2019-SC27-190524-03-05	30-May-19 10:09	WR-2 G-4	
1901247-04	☑	T4-PDI2019-SC27-190524-05-07	30-May-19 10:09	WR-2 G-4	
1901247-05	☑	T4-PDI2019-SC28-190524-07-09	30-May-19 10:09	WR-2 G-4	
1901247-06	☑	T4-PDI2019-SC28-190524-09-10.1	30-May-19 10:09	WR-2 G-4	
1901247-07	☑	FD-201905241300	30-May-19 10:09	WR-2 G-4	
1901247-08	☑	T4-PDI2019-SC30-190524-01-03	30-May-19 10:09	WR-2 G-4	
1901247-09	☑	T4-PDI2019-SC30-190524-03-05	30-May-19 10:09	WR-2 G-4	**Dup**
1901247-10	☑	T4-PDI2019-SC30-190524-05-07	30-May-19 10:09	WR-2 G-4	

+ 1901384.

Batch w/ 1901248; 1901249. (fz) 06/03/19

WO Comments: **PREP: Requires one dup and ~~one SRM~~ per batch of 20 samples.**
Extract 1g of SRM 1944 - see sample control for SRM sample.

Pre-Prep Check Out: _____ Prep Check Out: _____ Prep Reconciled Initals/Date: BNB 06/13/19

Pre-Prep Check In: _____ Prep Check In: _____ Spike Reconciled Initals/Date: DF 06/18/19

VialBoxID: Chicken Nuggets

PREPARATION BENCH SHEET

Matrix: Solid

B9F0172

Chemist: AO

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 18-Jun-19 08:48

C	VISTA Sample ID	G Eqv	Sample Amt. (g)	IS/NS CHEM/WIT DATE	CRS CHEM/WIT DATE	AP CHEM/ DATE	ABSG CHEM/ DATE	AA CHEM/ DATE	Florisil CHEM/ DATE	RS CHEM/WIT DATE
☐	B9F0172-BLK1 (A)	NA	(5.00)	AO DF 06/18/19	BL MD 06/20/19	NA	BL 06/20/19	BL 06/20/19	BL 06/20/19	AO MD 06/21/19
☐	B9F0172-BS1 (A)	↓	(5.00)	↓	↓	↓	↓	↓	↓	↓
☐	B9F0172-DUP1 1901247-02	9.50	9.68							
☐	B9F0172-DUP2 1901247-09	9.29	9.53							
☐	B9F0172-DUP3 1901248-04	8.87	8.87							
☐	B9F0172-DUP4 1901384-04	6.42	6.83							
☐	1901247-01	8.74	8.95							
☐	1901247-02 (A)	9.50	9.97							
☐	1901247-03	9.87	10.05							
☐	1901247-04	9.61	9.75							
☐	1901247-05	7.29	7.49							
☐	1901247-06 (A)	8.52	8.75							
☐	1901247-07 (A)	9.11	9.18							
☐	1901247-08	9.08	9.71							
☐	1901247-09 (A)	9.29	9.47	↓	↓	↓	↓	↓	↓	↓

IS Name (V7)	NS Name (V8)	CRS Name (V3)	RS Name (V3)	Cycle Time	APP: SEFUN SOX SDS	Check Out: Chemist/Date: AO 06/18/19
PCDD/F 19C1902, 10uL	PCDD/F 18F1913, 10uL	PCDD/F 18J1001, 10uL	PCDD/F 18J1002, 10uL	Start Date/Time 06/18/19 1330	SOLV: TOL	Check In: Chemist/Date: AO 06/18/19
PCB	PCB	PCB	PCB	Other NA		Balance ID: HRMS-8
PAH	PAH	PAH	PAH	Stop Date/Time 06/19/19 530	Final Volume(s) C14 20uL	

Comments:

1 = Sample approached dryness on rotovap
2 = Sample bumped on rotovap; lost < 5%
3 = Sample poured through Na2SO4 to remove water
4 = Precipitate present at Final Volume
5 = Sample homogenized in secondary container
6 = Sample clogged during extaction; pipetted and used Nitrogen to assist

(A) Comment 3. BL 06/20/19

PREPARATION BENCH SHEET

Matrix: Solid

B9F0172

Chemist: AO

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 18-Jun-19 08:48

C	VISTA Sample ID	G Eqv	Sample Amt. (g)	IS/NS CHEM/WIT DATE	CRS CHEM/WIT DATE	AP CHEM/ DATE	ABSG CHEM/ DATE	AA CHEM/ DATE	Florisil CHEM/ DATE	RS CHEM/WIT DATE
☐	1901247-10	7.42	7.85	AO DF 06/18/19	BL MD 06/20/19	N/A	BL 06/20/19	BL 06/20/19	BL 06/20/19	AO MD 06/21/19
☐	1901248-01	9.35	~~9.87~~ (A)							
☐	1901248-02	9.55	9.61							
☐	1901248-03	9.30	9.87							
☐	1901248-04	8.87	9.09							
☐	1901249-02	9.97	9.98							
☐	1901305-02	6.46	6.70							
☐	1901305-06	6.64	6.81							
☐	1901305-07	6.21	6.34							
☐	1901384-04	6.42	6.60							

(A) 9.45 AO 06/18/19

IS Name (V7)	NS Name (V8)	CRS Name (V3)	RS Name (V3)	Cycle Time	APP: SEFUN (SOX) SDS	Check Out: Chemist/Date: AO 06/18/19
PCDD/F 19C1902, 10uL	PCDD/F 18C1913, 10uL	PCDD/F 18J1001, 10uL	PCDD/F 18J1002, 10uL	Start Date/Time	SOLV: Toluene	Check In: Chemist/Date: AO 06/18/19
PCB	PCB	PCB	PCB		Other N/A	
PAH	PAH	PAH	PAH	Stop Date/Time	Final Volume(s) C14 20uL	Balance ID: HRMS-8

Comments:

1 = Sample approached dryness on rotovap
2 = Sample bumped on rotovap; lost < 5%
3 = Sample poured through Na2SO4 to remove water
4 = Precipitate present at Final Volume
5 = Sample homogenized in secondary container
6 = Sample clogged during extaction; pipetted and used Nitrogen to assist

Solids estimate

Batch: B9F0131

Lab ID	Analysis	% Solids	Entered	Target weight	Weigh this much
1901247-01	Percent Solids	57.22		5.00	8.74
1901247-02	Percent Solids	52.60		5.00	9.50
1901247-03	Percent Solids	50.64		5.00	9.87
1901247-04	Percent Solids	52.04		5.00	9.61
1901247-05	Percent Solids	68.63		5.00	7.29
1901247-06	Percent Solids	58.70		5.00	8.52
1901247-07	Percent Solids	54.90		5.00	9.11
1901247-08	Percent Solids	55.04		5.00	9.08
1901247-09	Percent Solids	53.80		5.00	9.29
1901247-10	Percent Solids	67.43		5.00	7.42
1901248-01	Percent Solids	53.49		5.00	9.35
1901248-02	Percent Solids	52.34		5.00	9.55
1901248-03	Percent Solids	53.78		5.00	9.30
1901248-04	Percent Solids	56.37		5.00	8.87
1901249-02	Percent Solids	50.15		5.00	9.97

Percent Moisture/ Percent Solids

D2216-90 BATCH ID B9F0131

Analyst: BNB **Test Code:** %Moist/%Solids

Analyte: **Units:** %

Dried at 110°C+/-5°C

Oven ID: 01 02

Data Entry Verified by: (Initial and Date) AO 06/17/19

Inst HRMS-8

Date/Time IN:	Date/Time OUT
06/13/19 1140	06/17/19 1248

	B	C	D	E	F	G	H	I	K	L	M	N	O	P
				Intial and Date:	BNB 06/13/19	AO 06/17/19			BNB 06/13/19					BNB 06/13/19
Particle Size	SampID		SampType	Pan Tare Wt. (gms)	Wet Pan and Sample Weight (g)	Dry Pan and Sample Weight (g)	Dry Sample Weight (g)	%Solids RawVal	Visual Inspection	Cl-	pH Before	pH After	Acid Added	Sample Homogenized*
	1901247-01		Sample	1.2800	6.8200	4.4500	3.1700	57.22	MUD	NA	NA	NA	NA	X
	1901247-02		Sample	1.2800	9.1500	5.4200	4.1400	52.60	MUD	NA	NA	NA	NA	X
	1901247-03		Sample	1.2800	6.7500	4.0500	2.7700	50.64	MUD	NA	NA	NA	NA	X
	1901247-04		Sample	1.2700	8.6100	5.0900	3.8200	52.04	MUD	NA	NA	NA	NA	X
	1901247-05		Sample	1.2900	9.2600	6.7600	5.4700	68.63	MUD	NA	NA	NA	NA	X
	1901247-06		Sample	1.2700	5.4100	3.7000	2.4300	58.70	MUD	NA	NA	NA	NA	X
	1901247-07		Sample	1.2700	9.9400	6.0300	4.7600	54.90	MUD	NA	NA	NA	NA	X
	1901247-08		Sample	1.2700	9.6100	5.8600	4.5900	55.04	MUD	NA	NA	NA	NA	X
	1901247-09		Sample	1.2700	12.7200	7.4300	6.1600	53.80	MUD	NA	NA	NA	NA	X
	1901247-10		Sample	1.2800	10.0300	7.1800	5.9000	67.43	MUD	NA	NA	NA	NA	X
	1901248-01		Sample	1.2800	14.0300	8.1000	6.8200	53.49	MUD	NA	NA	NA	NA	X
	1901248-02		Sample	1.2700	8.9700	5.3000	4.0300	52.34	MUD	NA	NA	NA	NA	X
	1901248-03		Sample	1.2700	11.0700	6.5400	5.2700	53.78	MUD	NA	NA	NA	NA	X
	1901248-04		Sample	1.2700	7.7800	4.9400	3.6700	56.37	MUD	NA	NA	NA	NA	X
	1901249-02		Sample	1.2800	11.1700	6.2400	4.9600	50.15	MUD	NA	NA	NA	NA	X

*Sample homogenized in sample container unless otherwise noted.

Percent Moisture/ Percent Solids

D2216-90 BATCH ID B9F0131

Analyst: BNB	**Test Code:** %Moist/%Solids
Analyte:	**Units:** %
Dried at 110°C+/-5°C	
Oven ID: 01 02	

Data Entry Verified by: (Initial and Date) NA

Inst HRMS-8

Date/Time IN: 06/18/19 1140 Date/Time OUT: 06/14/19 1248

	B	C	D	E	F	G	H	I	K	L	M	N	O	P
				Intial and Date:	BNB 06/13/19	00 06/17/19			BNB 06/13/19			NA		BNB 06/18/19
Particle Size	SampID		SampType	Pan Tare Wt. (gms)	Wet Pan and Sample Weight (g)	Dry Pan and Sample Weight (g)	Dry Sample Weight (g)	%Solids RawVal	Visual Inspection	Cl-	pH Before	pH After	Acid Added	Sample Homogenized*
	1901247-01		Sample	1.28	6.82	~~4.48~~*			Mud					X
	1901247-02		Sample	1.28	9.15	5.42								X
	1901247-03		Sample	1.28	6.75	4.05								X
	1901247-04		Sample	1.27	8.61	5.09								X
	1901247-05		Sample	1.29	9.26	6.76								X
	1901247-06		Sample	1.27	5.41	3.70								X
	1901247-07		Sample	1.27	9.94	6.03								X
	1901247-08		Sample	1.27	9.61	5.86								X
	1901247-09		Sample	1.27	12.72	7.43								X
	1901247-10		Sample	1.28	10.03	7.18								X
	1901248-01		Sample	1.28	14.03	8.10								X
	1901248-02		Sample	1.27	8.97	5.30								X
	1901248-03		Sample	1.27	11.07	6.54								X
	1901248-04		Sample	1.27	7.78	4.94								X
	1901249-02		Sample	1.28	11.17	6.24								X

BNB 06/13/19

BNB 06/18/19

*4.45 00 06/17/19

*Sample homogenized in sample container unless otherwise noted.

Batch: B9F0172

Matrix: Solid

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1901247-01	8.95	57.22021	5.1212	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-02	9.97	52.60483	5.2447	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-03	10.05	50.63986	5.0893	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-04	9.75	52.0436	5.0743	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-05	7.49	68.63237	5.1406	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-06	8.75	58.69566	5.1359	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-07	9.18	54.90197	5.0400	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-08	9.71	55.03598	5.3440	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-09	9.47	53.79913	5.0948	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901247-10	7.85	67.42857	5.2931	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901248-01	9.45	53.4902	5.0548	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901248-02	9.61	52.33766	5.0296	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901248-03	9.87	53.77551	5.3076	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901248-04	9.09	56.37481	5.1245	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901249-02	9.98	50.15166	5.0051	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901305-02	6.7	77.42364	5.1874	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901305-06	6.81	75.32096	5.1294	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901305-07	6.34	80.5668	5.1079	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
1901384-04	6.6	77.83843	5.1373	20	18-Jun-19 08:48	ACO			Sediment	1613 Full List
B9F0172-BLK1	5			20	18-Jun-19 08:48	ACO				QC
B9F0172-BS1	5			20	18-Jun-19 08:48	ACO	18F1913	10		QC
B9F0172-DUP1	9.68	52.6048	5.09	20	18-Jun-19 08:48	ACO				QC
B9F0172-DUP2	9.53	53.799		20	18-Jun-19 08:48	ACO				QC
B9F0172-DUP3	8.87	~~52.0436~~ NA		20	18-Jun-19 08:48	ACO				QC
B9F0172-DUP4	6.83			20	18-Jun-19 08:48	ACO				QC

All bolded data on report verified against written benchsheet by (initial/date) AO 06/21/19

Printed: 6/21/2019 1:56:33PM

RUSH

Process Sheet

Workorder: 1901247

RX (D) 06/26/19

Prep Expiration: 2020-05-23

Client: Anchor QEA, LLC

Workorder Due: 20-Jun-19 00:00

TAT: 21

Method: **1613 Full List**

Matrix: **Solid**

Client Matrix: Sediment

Also run: **Percent Solids**

Prep Batch: B9F0225~~5~~5*

Prep Data Entered: LW 07/05/19
Date and Initials

Initial Sequence: S9G0009

LabSampleID		Recon	ClientSampleID	Date Received	Location	Comments
1901247-01	A	☒	FD-201905241445 ✓	30-May-19 10:09	WR-2 G-4	
[redacted]		☐	[redacted]	30-May-19 10:09	WR-2 G-4	**Dup**
[redacted]		☐	[redacted]	30-May-19 10:09	WR-2 G-4	
[redacted]		☐	[redacted]	30-May-19 10:09	WR-2 G-4	
1901247-05	A	☒	T4-PDI2019-SC28-190524-07-09 ✓	30-May-19 10:09	WR-2 G-4	
[redacted]		☐	[redacted]	30-May-19 10:09	WR-2 G-4	
[redacted]		☐	[redacted]	30-May-19 10:09	WR-2 G-4	
1901247-08	A	☒	T4-PDI2019-SC30-190524-01-03 ✓	30-May-19 10:09	WR-2 G-4	
1901247-09	A	☒	T4-PDI2019-SC30-190524-03-05 ✓	30-May-19 10:09	WR-2 G-4	**Dup**
[redacted]		☐	[redacted]	30-May-19 10:09	WR-2 G-4	

WO Comments: **PREP: Requires one dup** [redacted]

Pre-Prep Check Out: N/A

Pre-Prep Check In: N/A

Prep Check Out: 06/27/19 MD

Prep Check In: N/A

Prep Reconciled Initals/Date: MD 06/27/19

Spike Reconciled Initals/Date: ZL 06/27/19

VialBoxID: Okama Gamesphere

Page 1 of 2

* 06/27/19 MD

PREPARATION BENCH SHEET

Matrix: Solid

B9F0255

Chemist: MD

Method: 1613 Full List

Prepared using: HRMS - Soxhlet

Prep Date/Time: 27-Jun-19 05:48

C	VISTA Sample ID	G Eqv	Sample Amt. (g)	IS/NS CHEM/WIT DATE	CRS CHEM/WIT DATE	AP CHEM/ DATE	ABSG CHEM/ DATE	AA CHEM/ DATE	Florisil CHEM/ DATE	RS CHEM/WIT DATE
☐	B9F0255-BLK1	N/A	(5.00)	BL MD 06/27/19	AO BL 06/28/19	NA	AO 06/28/19	AO 06/28/19	HN 07/05/19	AO HN 07/05/19
☐	B9F0255-BS1	↓	(5.00)	↓	↓	↓	↓	↓	↓	↓
☐	B9F0255-DUP1 1901384-04RE1	6.42	7.10							
☐	B9F0255-DUP2 1901247-09RE1 (3)	9.29	11.24							
☐	1901247-01RE1	8.74	10.90							
☐	1901247-05RE1	7.29	8.60							
☐	1901247-08RE1 (A)	9.08	10.66							
☐	1901247-09RE1	9.29	9.29							
☐	1901249-02RE1 (3)	9.97	9.98							
☐	1901305-02RE1	6.46	6.47							
☐	1901305-06RE1	6.64	6.65							
☐	1901384-04RE1	6.42	6.42	↓	↓	↓	↓	↓	↓	↓

(A) Analyst inadvertantly spilt some of the extract. LW 06/28/19
~30% was lost.

(3) AO 06/28/19

IS Name (V6)	NS Name (V8)	CRS Name (V3)	RS Name (V3)	Cycle Time	APP: SEFUN (SOX) (SDS)	Check Out: Chemist/Date: MD 06/27/19
PCDD/F 19C1902, 10µL	PCDD/F 18F1913, 10µL	PCDD/F 18J1001, 10µL	PCDD/F 18J1002, 10µL	Start Date/Time 06/27/19 1403	SOLV: Tol.	Check In: Chemist/Date: N/A
PCB	PCB	PCB	PCB	Stop Date/Time 06/28/19 0603	Other N/A	Balance ID: HRMS-9
PAH	PAH	PAH	PAH		Final Volume(s) 80µL C14	

Comments:

1 = Sample approached dryness on rotovap
2 = Sample bumped on rotovap; lost < 5%
3 = Sample poured through Na2SO4 to remove water
4 = Precipitate present at Final Volume
5 = Sample homogenized in secondary container
6 = Sample clogged during extaction; pipetted and used Nitrogen to assist

Solids estimate

Batch: B9F0131

Lab ID	Analysis	% Solids	Entered	Target weight	Weigh this much
1901247-01	Percent Solids	57.22		5.00	8.74
1901247-02	Percent Solids	52.60		5.00	9.50
1901247-03	Percent Solids	50.64		5.00	9.87
1901247-04	Percent Solids	52.04		5.00	9.61
1901247-05	Percent Solids	68.63		5.00	7.29
1901247-06	Percent Solids	58.70		5.00	8.52
1901247-07	Percent Solids	54.90		5.00	9.11
1901247-08	Percent Solids	55.04		5.00	9.08
1901247-09	Percent Solids	53.80		5.00	9.29
1901247-10	Percent Solids	67.43		5.00	7.42
1901248-01	Percent Solids	53.49		5.00	9.35
1901248-02	Percent Solids	52.34		5.00	9.55
1901248-03	Percent Solids	53.78		5.00	9.30
1901248-04	Percent Solids	56.37		5.00	8.87
1901249-02	Percent Solids	50.15		5.00	9.97

Batch: B9F0255

Matrix: Solid

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1901247-01RE1	**10.9** ✓	**57.22021** ✓	**6.2370** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
1901247-05RE1	**8.6** ✓	**68.63237** ✓	**5.9024** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
1901247-08RE1	**10.66** ✓	**55.03598** ✓	**5.8668** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
1901247-09RE1	**9.29** ✓	**53.79913** ✓	**4.9979** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
1901249-02RE1	**9.98** ✓	**50.15166** ✓	**5.0051** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
1901305-02RE1	**6.47** ✓	**77.42364** ✓	**5.0093** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
1901305-06RE1	**6.65** ✓	**75.32096** ✓	**5.0088** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
1901384-04RE1	**6.42** ✓	**77.83843** ✓	**4.9972** ✓	**20**	**27-Jun-19 05:48**	**MSD**			Sediment	1613 Full List
B9F0255-BLK1	**5** ✓			**20**	**27-Jun-19 05:48**	**MSD**				QC
B9F0255-BS1	**5** ✓			**20**	**27-Jun-19 05:48**	**MSD**	**18F1913** ✓	**10**		QC
B9F0255-DUP1	**7.1** ✓	77.83843	5.5265	**20**	**27-Jun-19 05:48**	**MSD**				QC
B9F0255-DUP2	**11.24** ✓	53.79913	6.0470	**20**	**27-Jun-19 05:48**	**MSD**				QC

All bolded data on report verified against written benchsheet by (initial/date) LW 07/05/19

Printed: 7/5/2019 12:31:52PM
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SAMPLE DATA – EPA METHOD 1613

Client ID: Method Blank Filename: 190625D1 S:4 Acq:25-JUN-19 17:28:52 ConCal: ST190625D1-1

Lab ID: B9F0172-BLK1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.000 EndCAL: NA

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
2,3,7,8-TCDD	*	* n	0.90	NotF¶	*		176	2.5	0.518
1,2,3,7,8-PeCDD	*	* n	0.87	NotF¶	*		215	2.5	0.496
1,2,3,4,7,8-HxCDD	*	* n	1.05	NotF¶	*		166	2.5	0.470
1,2,3,6,7,8-HxCDD	*	* n	0.93	NotF¶	*		166	2.5	0.487
1,2,3,7,8,9-HxCDD	*	* n	0.96	NotF¶	*		166	2.5	0.499
1,2,3,4,6,7,8-HpCDD	*	* n	0.99	NotF¶	*		205	2.5	0.496
OCDD	*	* n	0.99	NotF¶	*		176	2.5	0.524
2,3,7,8-TCDF	*	* n	0.94	NotF¶	*		262	2.5	0.481
1,2,3,7,8-PeCDF	*	* n	0.92	NotF¶	*		240	2.5	0.611
2,3,4,7,8-PeCDF	*	* n	0.96	NotF¶	*		240	2.5	0.603
1,2,3,4,7,8-HxCDF	*	* n	1.15	NotF¶	*		218	2.5	0.257
1,2,3,6,7,8-HxCDF	*	* n	1.04	NotF¶	*		218	2.5	0.235
2,3,4,6,7,8-HxCDF	*	* n	1.10	NotF¶	*		218	2.5	0.245
1,2,3,7,8,9-HxCDF	*	* n	1.03	NotF¶	*		218	2.5	0.451
1,2,3,4,6,7,8-HpCDF	*	* n	1.06	NotF¶	*		135	2.5	0.296
1,2,3,4,7,8,9-HpCDF	*	* n	1.23	NotF¶	*		135	2.5	0.333
OCDF	*	* n	0.94	NotF¶	*		177	2.5	0.496

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	*		176	0.518
Total Penta-Dioxins	*	*		215	0.496
Total Hexa-Dioxins	*	*		166	0.486
Total Hepta-Dioxins	*	*		205	0.496
Total Tetra-Furans	*	*		262	0.481
Total Penta-Furans	0.0000	0.0000		240	0.607
Total Hexa-Furans	*	*		218	0.288
Total Hepta-Furans	*	*		135	0.315

							Rec	Qual
IS	13C-2,3,7,8-TCDD	3.15e+06	0.84 y	1.11	26:04	188.15	47.0	
IS	13C-1,2,3,7,8-PeCDD	2.93e+06	0.61 y	0.98	30:33	198.34	49.6	
IS	13C-1,2,3,4,7,8-HxCDD	2.69e+06	1.35 y	0.68	33:49	213.26	53.3	
IS	13C-1,2,3,6,7,8-HxCDD	3.58e+06	1.39 y	0.84	33:56	228.18	57.0	
IS	13C-1,2,3,7,8,9-HxCDD	3.80e+06	1.38 y	0.81	34:15	250.91	62.7	
IS	13C-1,2,3,4,6,7,8-HpCDD	3.33e+06	1.00 y	0.69	37:41	260.66	65.2	
IS	13C-OCDD	6.41e+06	0.90 y	0.62	40:57	550.49	68.8	
IS	13C-2,3,7,8-TCDF	4.96e+06	0.83 y	1.05	25:19	155.69	38.9	
IS	13C-1,2,3,7,8-PeCDF	4.08e+06	1.52 y	0.95	29:23	141.22	35.3	
IS	13C-2,3,4,7,8-PeCDF	3.79e+06	1.57 y	0.94	30:17	133.90	33.5	
IS	13C-1,2,3,4,7,8-HxCDF	3.82e+06	0.51 y	0.86	32:56	239.18	59.8	
IS	13C-1,2,3,6,7,8-HxCDF	4.96e+06	0.51 y	1.02	33:04	260.23	65.1	
IS	13C-2,3,4,6,7,8-HxCDF	4.76e+06	0.50 y	0.95	33:40	268.36	67.1	
IS	13C-1,2,3,7,8,9-HxCDF	3.74e+06	0.51 y	0.87	34:39	231.41	57.9	
IS	13C-1,2,3,4,6,7,8-HpCDF	2.72e+06	0.38 y	0.81	36:27	180.60	45.2	
IS	13C-1,2,3,4,7,8,9-HpCDF	2.21e+06	0.38 y	0.63	38:14	187.85	47.0	
IS	13C-OCDF	7.62e+06	0.92 y	0.78	41:11	522.63	65.3	
C/Up	37Cl-2,3,7,8-TCDD	1.47e+06		1.22	26:06	79.830	49.9	
RS/RT	13C-1,2,3,4-TCDD	6.06e+06	0.88 y	1.00	25:29	400.00		
RS	13C-1,2,3,4-TCDF	1.21e+07	0.81 y	1.00	24:05	400.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	7.46e+06	0.52 y	1.00	33:21	400.00		

Integrations by Analyst: DB Date: 6/28/19

Reviewed by Analyst: CT Date: 06/28/19

File:190625D1 #1-514 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5

File:190625D1 #1-184 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5

353.8576 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:4 F:2

File:190625D1 #1-399 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5

389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:4 F:3

File:190625D1 #1-399 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-355 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:4 F:4

File:190625D1 #1-432 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
457.7377 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:4 F:5

File:190625D1 #1-514 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5

303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-514 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:4

File:190625D1 #1-184 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-399 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-399 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-355 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-355 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
417.8253 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-432 Acq:25-JUN-2019 17:28:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BLK1 Method Blank 5 Exp:OCDD_DB5
441.7428 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

FORM 8A
PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory Extraction Batch: B9F0172-BS1

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): SOLID OPR Data Filename: 190625D1-2

Ext. Date: Shift: Day Analysis Date: 25-JUN-19 Time: 15:53:21

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

NATIVE ANALYTES	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
2,3,7,8-TCDD	10	14.3	6.7 - 15.8 7.3 - 14.6 (2)
1,2,3,7,8-PeCDD	50	55.8	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	52.3	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	53.7	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	51.6	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	48.3	35.0 - 70.0
OCDD	100	99.2	78.0 - 144.0
2,3,7,8-TCDF	10	10.0	7.5 - 15.8 8.0 - 14.7 (2)
1,2,3,7,8-PeCDF	50	45.9	40.0 - 67.0
2,3,4,7,8-PeCDF	50	46.3	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	52.7	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	54.5	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	53.7	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	54.8	39.0 - 65.0
1,2,3,4,6,7,8-HpCDF	50	46.7	41.0 - 61.0
1,2,3,4,7,8,9-HpCDF	50	46.1	39.0 - 69.0
OCDF	100	104	63.0 - 170.0

(1) Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613. 10/94

Analyst: DB

Date: 6/26/19

FORM 8B
PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory Extraction Batch: B9F0172-BS1

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): SOLID OPR Data Filename: 190625D1-2

Ext. Date: Shift: Day Analysis Date: 25-JUN-19 Time: 15:53:21

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

LABELED COMPOUNDS	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
13C-2,3,7,8-TCDD	100	70.2	20.0 - 175.0
			25.0 - 141.0 (2)
13C-1,2,3,7,8-PeCDD	100	84.0	21.0 - 227.0
13C-1,2,3,4,7,8-HxCDD	100	88.5	21.0 - 193.0
13C-1,2,3,6,7,8-HxCDD	100	87.3	25.0 - 163.0
13C-1,2,3,7,8,9-HxCDD	100	90.0	21.0 - 193.0
13C-1,2,3,4,6,7,8-HpCDD	100	82.9	26.0 - 166.0
13C-OCDD	200	177	26.0 - 397.0
13C-2,3,7,8-TCDF	100	56.8	22.0 - 152.0
			26.0 - 126.0 (2)
13C-1,2,3,7,8-PeCDF	100	60.8	21.0 - 192.0
13C-2,3,4,7,8-PeCDF	100	62.3	13.0 - 328.0
13C-1,2,3,4,7,8-HxCDF	100	83.1	19.0 - 202.0
13C-1,2,3,6,7,8-HxCDF	100	83.3	21.0 - 159.0
13C-2,3,4,6,7,8-HxCDF	100	87.5	22.0 - 176.0
13C-1,2,3,7,8,9-HxCDF	100	89.0	17.0 - 205.0
13C-1,2,3,4,6,7,8-HpCDF	100	71.1	21.0 - 158.0
13C-1,2,3,4,7,8,9-HpCDF	100	77.4	20.0 - 186.0
13C-OCDF	200	170	26.0 - 397.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	30.8	12.4 - 76.4

(1) Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613. 10/94

Analyst: DB

Date: 6/26/19

Client ID: OPR Filename: 190625D1 S:2 Acq:25-JUN-19 15:53:21 ConCal: ST190625D1-1
Lab ID: B9F0172-BS1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	5.61e+05	0.82 y	0.90	26:06	14.253		*	2.5	*
	1,2,3,7,8-PeCDD	2.25e+06	0.62 y	0.87	30:34	55.787		*	2.5	*
	1,2,3,4,7,8-HxCDD	2.25e+06	1.28 y	1.05	33:51	52.266		*	2.5	*
	1,2,3,6,7,8-HxCDD	2.52e+06	1.17 y	0.93	33:57	53.743		*	2.5	*
	1,2,3,7,8,9-HxCDD	2.49e+06	1.23 y	0.96	34:16	51.575		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	1.86e+06	1.00 y	0.99	37:42	48.276		*	2.5	*
	OCDD	3.71e+06	0.89 y	0.99	40:58	99.213		*	2.5	*
	2,3,7,8-TCDF	6.27e+05	0.77 y	0.94	25:21	10.011		*	2.5	*
	1,2,3,7,8-PeCDF	2.73e+06	1.62 y	0.92	29:24	45.925		*	2.5	*
	2,3,4,7,8-PeCDF	2.87e+06	1.66 y	0.96	30:18	46.278		*	2.5	*
	1,2,3,4,7,8-HxCDF	2.97e+06	1.22 y	1.15	32:58	52.667		*	2.5	*
	1,2,3,6,7,8-HxCDF	3.30e+06	1.18 y	1.04	33:05	54.475		*	2.5	*
	2,3,4,6,7,8-HxCDF	3.37e+06	1.19 y	1.10	33:42	53.679		*	2.5	*
	1,2,3,7,8,9-HxCDF	2.99e+06	1.21 y	1.03	34:40	54.838		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	1.96e+06	0.94 y	1.06	36:28	46.655		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	1.90e+06	0.92 y	1.23	38:16	46.109		*	2.5	*
	OCDF	4.46e+06	0.91 y	0.94	41:13	104.27		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	15.2	19.6		*	*
Total Penta-Dioxins	55.8	57.0		*	*
Total Hexa-Dioxins	159	160		*	*
Total Hepta-Dioxins	49.7	51.7		*	*
Total Tetra-Furans	12.1	17.0		*	*
Total Penta-Furans	93.633	98.228		*	*
Total Hexa-Furans	216	218		*	*
Total Hepta-Furans	93.2	96.0		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	4.37e+06	0.84 y	1.11	26:05	70.164	70.2	
IS	13C-1,2,3,7,8-PeCDD	4.62e+06	0.64 y	0.98	30:33	84.040	84.0	
IS	13C-1,2,3,4,7,8-HxCDD	4.10e+06	1.37 y	0.68	33:50	88.515	88.5	
IS	13C-1,2,3,6,7,8-HxCDD	5.04e+06	1.32 y	0.84	33:56	87.348	87.3	
IS	13C-1,2,3,7,8,9-HxCDD	5.02e+06	1.38 y	0.81	34:15	90.034	90.0	
IS	13C-1,2,3,4,6,7,8-HpCDD	3.90e+06	1.02 y	0.69	37:41	82.884	82.9	
IS	13C-OCDD	7.59e+06	0.89 y	0.62	40:57	176.95	88.5	
IS	13C-2,3,7,8-TCDF	6.64e+06	0.78 y	1.05	25:20	56.763	56.8	
IS	13C-1,2,3,7,8-PeCDF	6.45e+06	1.59 y	0.95	29:23	60.768	60.8	
IS	13C-2,3,4,7,8-PeCDF	6.48e+06	1.64 y	0.94	30:17	62.291	62.3	
IS	13C-1,2,3,4,7,8-HxCDF	4.89e+06	0.51 y	0.86	32:57	83.113	83.1	
IS	13C-1,2,3,6,7,8-HxCDF	5.84e+06	0.53 y	1.02	33:04	83.330	83.3	
IS	13C-2,3,4,6,7,8-HxCDF	5.72e+06	0.53 y	0.95	33:41	87.512	87.5	
IS	13C-1,2,3,7,8,9-HxCDF	5.30e+06	0.51 y	0.87	34:39	89.035	89.0	
IS	13C-1,2,3,4,6,7,8-HpCDF	3.94e+06	0.38 y	0.81	36:28	71.118	71.1	
IS	13C-1,2,3,4,7,8,9-HpCDF	3.36e+06	0.40 y	0.63	38:15	77.360	77.4	
IS	13C-OCDF	9.10e+06	0.89 y	0.78	41:12	169.51	84.8	
C/Up	37Cl-2,3,7,8-TCDD	2.11e+06		1.22	26:06	30.832	77.1	
RS/RT	13C-1,2,3,4-TCDD	5.63e+06	0.88 y	1.00	25:29	100.00		
RS	13C-1,2,3,4-TCDF	1.11e+07	0.78 y	1.00	24:05	100.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	6.87e+06	0.51 y	1.00	33:22	100.00		

Integrations by Analyst: DB Date: 6/26/19

Reviewed by Analyst: CT Date: 06/28/19

File:190625D1 #1-514 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-184 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5

353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:2 F:2

File:190625D1 #1-400 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5

389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:2 F:3

File:190625D1 #1-400 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-355 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5

423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:2 F:4

File:190625D1 #1-432 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:2 F:5

File:190625D1 #1-514 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-514 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5
339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:2

File:190625D1 #1-184 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5

339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-400 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5

373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-400 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-355 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5

407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-432 Acq:25-JUN-2019 15:53:21 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-BS1 OPR 5 Exp:OCDD_DB5
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: Method Blank Filename: 190708D2 S:8 Acq: 8-JUL-19 21:13:25 ConCal: ST190708D2-1

Lab ID: B9F0255-BLK1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.000 EndCAL: NA

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
2,3,7,8-TCDD	*	* n	0.90	NotF	*		119	2.5	0.0756
1,2,3,7,8-PeCDD	*	* n	0.87	NotF	*		203	2.5	0.124
1,2,3,4,7,8-HxCDD	*	* n	1.05	NotF	*		147	2.5	0.133
1,2,3,6,7,8-HxCDD	*	* n	0.93	NotF	*		147	2.5	0.143
1,2,3,7,8,9-HxCDD	*	* n	0.96	NotF	*		147	2.5	0.137
1,2,3,4,6,7,8-HpCDD	*	* n	0.99	NotF	*		141	2.5	0.0952
OCDD	*	* n	0.99	NotF	*		140	2.5	0.142
2,3,7,8-TCDF	*	* n	0.94	NotF	*		119	2.5	0.0551
1,2,3,7,8-PeCDF	*	* n	0.92	NotF	*		179	2.5	0.105
2,3,4,7,8-PeCDF	*	* n	0.96	NotF	*		179	2.5	0.102
1,2,3,4,7,8-HxCDF	*	* n	1.15	NotF	*		125	2.5	0.0499
1,2,3,6,7,8-HxCDF	*	* n	1.04	NotF	*		125	2.5	0.0537
2,3,4,6,7,8-HxCDF	*	* n	1.10	NotF	*		125	2.5	0.0542
1,2,3,7,8,9-HxCDF	*	* n	1.03	NotF	*		125	2.5	0.0615
1,2,3,4,6,7,8-HpCDF	*	* n	1.06	NotF	*		131	2.5	0.0550
1,2,3,4,7,8,9-HpCDF	*	* n	1.23	NotF	*		131	2.5	0.0559
OCDF	*	* n	0.94	NotF	*		161	2.5	0.138

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	*		119	0.0756
Total Penta-Dioxins	*	*		203	0.124
Total Hexa-Dioxins	*	*		147	0.138
Total Hepta-Dioxins	*	*		141	0.0952
Total Tetra-Furans	*	*		119	0.0551
Total Penta-Furans	0.0000	0.0000		179	0.104
Total Hexa-Furans	*	*		125	0.0548
Total Hepta-Furans	*	*		131	0.0555

							Rec	Qual
IS	13C-2,3,7,8-TCDD	1.10e+07	0.78 y	1.11	26:43	319.47	79.9	
IS	13C-1,2,3,7,8-PeCDD	9.35e+06	0.63 y	0.98	31:00	307.26	76.8	
IS	13C-1,2,3,4,7,8-HxCDD	7.86e+06	1.30 y	0.68	34:21	321.96	80.5	
IS	13C-1,2,3,6,7,8-HxCDD	8.94e+06	1.29 y	0.84	34:28	293.98	73.5	
IS	13C-1,2,3,7,8,9-HxCDD	9.13e+06	1.28 y	0.81	34:46	311.34	77.8	
IS	13C-1,2,3,4,6,7,8-HpCDD	9.88e+06	1.04 y	0.69	38:09	398.82	99.7	
IS	13C-OCDD	1.46e+07	0.90 y	0.62	41:31	648.35	81.0	
IS	13C-2,3,7,8-TCDF	1.54e+07	0.79 y	1.05	26:01	302.71	75.7	
IS	13C-1,2,3,7,8-PeCDF	1.38e+07	1.57 y	0.95	29:53	298.58	74.6	
IS	13C-2,3,4,7,8-PeCDF	1.33e+07	1.62 y	0.94	30:45	292.90	73.2	
IS	13C-1,2,3,4,7,8-HxCDF	1.01e+07	0.52 y	0.86	33:26	327.20	81.8	
IS	13C-1,2,3,6,7,8-HxCDF	1.14e+07	0.52 y	1.02	33:34	308.94	77.2	
IS	13C-2,3,4,6,7,8-HxCDF	1.07e+07	0.52 y	0.95	34:11	312.36	78.1	
IS	13C-1,2,3,7,8,9-HxCDF	1.11e+07	0.52 y	0.87	35:11	353.79	88.4	
IS	13C-1,2,3,4,6,7,8-HpCDF	1.09e+07	0.44 y	0.81	37:01	372.02	93.0	
IS	13C-1,2,3,4,7,8,9-HpCDF	8.75e+06	0.43 y	0.63	38:44	383.10	95.8	
IS	13C-OCDF	1.81e+07	0.88 y	0.78	41:47	639.78	80.0	
C/Up	37Cl-2,3,7,8-TCDD	5.18e+06		1.22	26:44	136.66	85.4	
RS/RT	13C-1,2,3,4-TCDD	1.25e+07	0.79 y	1.00	26:11	400.00		
RS	13C-1,2,3,4-TCDF	1.94e+07	0.81 y	1.00	24:52	400.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.45e+07	0.52 y	1.00	33:52	400.00		

Integrations by Analyst: DB Date: 7/9/19

Reviewed by Analyst: CT Date: 07/11/19

File:190708D2 #1-514 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5`

319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5

353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:8 F:2

File:190708D2 #1-355 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5

389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:8 F:3

File:190708D2 #1-355 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:8 F:4

File:190708D2 #1-432 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:8 F:5

File:190708D2 #1-514 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:8

File:190708D2 #1-211 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5

339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5

373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-432 Acq: 8-JUL-2019 21:13:25 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BLK1 Method Blank 5 Exp:OCDD_DB5
441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

FORM 8A
PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory Extraction Batch: B9F0255-BS1

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): SOLID OPR Data Filename: 190708D2-3

Ext. Date: Shift: Day Analysis Date: 8-JUL-19 Time: 17:15:01

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

NATIVE ANALYTES	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
2,3,7,8-TCDD	10	10.6	6.7 - 15.8 7.3 - 14.6 (2)
1,2,3,7,8-PeCDD	50	56.0	35.0 - 71.0
1,2,3,4,7,8-HxCDD	50	54.2	35.0 - 82.0
1,2,3,6,7,8-HxCDD	50	54.0	38.0 - 67.0
1,2,3,7,8,9-HxCDD	50	51.4	32.0 - 81.0
1,2,3,4,6,7,8-HpCDD	50	49.6	35.0 - 70.0
OCDD	100	103	78.0 - 144.0
2,3,7,8-TCDF	10	9.42	7.5 - 15.8 8.0 - 14.7 (2)
1,2,3,7,8-PeCDF	50	55.2	40.0 - 67.0
2,3,4,7,8-PeCDF	50	57.3	34.0 - 80.0
1,2,3,4,7,8-HxCDF	50	51.4	36.0 - 67.0
1,2,3,6,7,8-HxCDF	50	52.4	42.0 - 65.0
2,3,4,6,7,8-HxCDF	50	53.2	35.0 - 78.0
1,2,3,7,8,9-HxCDF	50	52.6	39.0 - 65.0
1,2,3,4,6,7,8-HpCDF	50	54.0	41.0 - 61.0
1,2,3,4,7,8,9-HpCDF	50	52.9	39.0 - 69.0
OCDF	100	101	63.0 - 170.0

(1) Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613. 10/94

Analyst: DB

Date: 7/9/19

FORM 8B
PCDD/PCDF ONGOING PRECISION AND RECOVERY (OPR)

Lab Name: Vista Analytical Laboratory Extraction Batch: B9F0255-BS1

Contract No.: SAS No.:

Matrix (aqueous/solid/leachate): SOLID OPR Data Filename: 190708D2-3

Ext. Date: Shift: Day Analysis Date: 8-JUL-19 Time: 17:15:01

ALL CONCENTRATIONS REPORTED ON THIS FORM ARE CONCENTRATIONS IN EXTRACT.

LABELED COMPOUNDS	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (1) (ng/mL)
13C-2,3,7,8-TCDD	100	89.7	20.0 - 175.0 25.0 - 141.0 (2)
13C-1,2,3,7,8-PeCDD	100	92.4	21.0 - 227.0
13C-1,2,3,4,7,8-HxCDD	100	98.4	21.0 - 193.0
13C-1,2,3,6,7,8-HxCDD	100	91.5	25.0 - 163.0
13C-1,2,3,7,8,9-HxCDD	100	95.7	21.0 - 193.0
13C-1,2,3,4,6,7,8-HpCDD	100	100	26.0 - 166.0
13C-OCDD	200	208	26.0 - 397.0
13C-2,3,7,8-TCDF	100	81.8	22.0 - 152.0 26.0 - 126.0 (2)
13C-1,2,3,7,8-PeCDF	100	86.5	21.0 - 192.0
13C-2,3,4,7,8-PeCDF	100	85.9	13.0 - 328.0
13C-1,2,3,4,7,8-HxCDF	100	97.3	19.0 - 202.0
13C-1,2,3,6,7,8-HxCDF	100	91.6	21.0 - 159.0
13C-2,3,4,6,7,8-HxCDF	100	91.8	22.0 - 176.0
13C-1,2,3,7,8,9-HxCDF	100	95.5	17.0 - 205.0
13C-1,2,3,4,6,7,8-HpCDF	100	88.4	21.0 - 158.0
13C-1,2,3,4,7,8,9-HpCDF	100	96.1	20.0 - 186.0
13C-OCDF	200	207	26.0 - 397.0
CLEANUP STANDARD			
37Cl-2,3,7,8-TCDD	40	32.7	12.4 - 76.4

(1) Contract-required concentration limits for OPR as specified in Table 6, Method 1613. 10/94

(2) Contract-required concentration limits for OPR as specified in Table 6a, Method 1613. 10/94

Analyst: DB

Date: 7/9/19

Client ID: OPR Filename: 190708D2 S:3 Acq: 8-JUL-19 17:15:01 ConCal: ST190708D2-1

Lab ID: B9F0255-BS1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.00e+06	0.82 y	0.90	26:44	10.597		*	2.5	*
	1,2,3,7,8-PeCDD	4.67e+06	0.62 y	0.87	31:01	56.002		*	2.5	*
	1,2,3,4,7,8-HxCDD	4.30e+06	1.22 y	1.05	34:22	54.231		*	2.5	*
	1,2,3,6,7,8-HxCDD	4.39e+06	1.23 y	0.93	34:29	53.993		*	2.5	*
	1,2,3,7,8,9-HxCDD	4.36e+06	1.22 y	0.96	34:47	51.396		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	3.84e+06	1.02 y	0.99	38:09	49.586		*	2.5	*
	OCDD	7.52e+06	0.87 y	0.99	41:32	103.10		*	2.5	*
	2,3,7,8-TCDF	1.25e+06	0.75 y	0.94	26:01	9.4185		*	2.5	*
	1,2,3,7,8-PeCDF	6.88e+06	1.61 y	0.92	29:53	55.218		*	2.5	*
	2,3,4,7,8-PeCDF	7.22e+06	1.61 y	0.96	30:45	57.289		*	2.5	*
	1,2,3,4,7,8-HxCDF	5.61e+06	1.24 y	1.15	33:27	51.365		*	2.5	*
	1,2,3,6,7,8-HxCDF	5.78e+06	1.24 y	1.04	33:35	52.360		*	2.5	*
	2,3,4,6,7,8-HxCDF	5.80e+06	1.23 y	1.10	34:12	53.244		*	2.5	*
	1,2,3,7,8,9-HxCDF	5.10e+06	1.23 y	1.03	35:12	52.610		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	4.67e+06	1.02 y	1.06	37:01	53.985		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	4.47e+06	1.03 y	1.23	38:44	52.870		*	2.5	*
	OCDF	8.76e+06	0.89 y	0.94	41:47	101.21		*	2.5	*
IS	13C-2,3,7,8-TCDD	1.05e+07	0.78 y	1.11	26:42	89.666				
IS	13C-1,2,3,7,8-PeCDD	9.56e+06	0.63 y	0.98	30:60	92.361				
IS	13C-1,2,3,4,7,8-HxCDD	7.55e+06	1.30 y	0.68	34:21	98.435				
IS	13C-1,2,3,6,7,8-HxCDD	8.74e+06	1.29 y	0.84	34:28	91.479				
IS	13C-1,2,3,7,8,9-HxCDD	8.82e+06	1.24 y	0.81	34:46	95.677				
IS	13C-1,2,3,4,6,7,8-HpCDD	7.82e+06	1.05 y	0.69	38:09	100.45				
IS	13C-OCDD	1.48e+07	0.91 y	0.62	41:31	208.44				
IS	13C-2,3,7,8-TCDF	1.41e+07	0.77 y	1.05	25:60	81.833				
IS	13C-1,2,3,7,8-PeCDF	1.35e+07	1.59 y	0.95	29:52	86.531				
IS	13C-2,3,4,7,8-PeCDF	1.32e+07	1.54 y	0.94	30:44	85.948				
IS	13C-1,2,3,4,7,8-HxCDF	9.47e+06	0.51 y	0.86	33:26	97.306				
IS	13C-1,2,3,6,7,8-HxCDF	1.06e+07	0.51 y	1.02	33:34	91.615				
IS	13C-2,3,4,6,7,8-HxCDF	9.93e+06	0.51 y	0.95	34:11	91.790				
IS	13C-1,2,3,7,8,9-HxCDF	9.40e+06	0.51 y	0.87	35:11	95.460				
IS	13C-1,2,3,4,6,7,8-HpCDF	8.12e+06	0.44 y	0.81	37:00	88.422				
IS	13C-1,2,3,4,7,8,9-HpCDF	6.90e+06	0.44 y	0.63	38:43	96.130				
IS	13C-OCDF	1.84e+07	0.88 y	0.78	41:46	207.14				
C/Up	37Cl-2,3,7,8-TCDD	4.22e+06		1.22	26:44	32.728				
RS/RT	13C-1,2,3,4-TCDD	1.06e+07	0.80 y	1.00	26:10	100.00				
RS	13C-1,2,3,4-TCDF	1.64e+07	0.79 y	1.00	24:51	100.00				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.14e+07	0.52 y	1.00	33:52	100.00				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	10.7	11.5		*	*
Total Penta-Dioxins	56.0	56.3		*	*
Total Hexa-Dioxins	160	160		*	*
Total Hepta-Dioxins	49.6	51.2		*	*
Total Tetra-Furans	9.72	11.1		*	*
Total Penta-Furans	113.98	115.58		*	*
Total Hexa-Furans	210	210		*	*
Total Hepta-Furans	107	108		*	*

	Rec	Qual
IS	89.7	
IS	92.4	
IS	98.4	
IS	91.5	
IS	95.7	
IS	100	
IS	104	
IS	81.8	
IS	86.5	
IS	85.9	
IS	97.3	
IS	91.6	
IS	91.8	
IS	95.5	
IS	88.4	
IS	96.1	
IS	104	
C/Up	81.8	

Integrations by Analyst: DB Date: 7/9/19

Reviewed by Analyst: CT Date: 07/11/19

File:190708D2 #1-514 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5

319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5
353.8576 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:3 F:2

File:190708D2 #1-354 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5
389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:3 F:3

File:190708D2 #1-354 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-356 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5
423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:3 F:4

File:190708D2 #1-431 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5

457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:3 F:5

File:190708D2 #1-514 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5

File:190708D2 #1-514 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5
339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:3

File:190708D2 #1-211 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5

339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-354 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5

File:190708D2 #1-354 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-356 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5

407.7818 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-431 Acq: 8-JUL-2019 17:15:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-BS1 OPR 5 Exp:OCDD_DB5
441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: FD-201905241445 Filename: 190708D2 S:15 Acq:9-JUL-19 02:46:28 ConCal: ST190708D2-1
Lab ID: 1901247-01RE1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 6.237 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	2.70e+04	0.59 n	0.90	26:44	0.91897		*	2.5	*
	1,2,3,7,8-PeCDD	9.57e+04	0.59 y	0.87	31:01	3.4485		*	2.5	*
	1,2,3,4,7,8-HxCDD	1.34e+05	1.16 y	1.05	34:22	4.8918		*	2.5	*
	1,2,3,6,7,8-HxCDD	8.91e+05	1.17 y	0.93	34:29	33.086		*	2.5	*
	1,2,3,7,8,9-HxCDD	2.98e+05	1.16 y	0.96	34:47	10.195		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	1.53e+07	1.02 y	0.99	38:09	470.22		*	2.5	*
	OCDD	1.15e+08	0.90 y	0.99	41:33	4053.1		*	2.5	*
	2,3,7,8-TCDF	2.15e+05	0.75 y	0.94	26:01	5.6201		*	2.5	*
	1,2,3,7,8-PeCDF	3.21e+05	1.45 y	0.92	29:53	7.8932		*	2.5	*
	2,3,4,7,8-PeCDF	1.97e+05	1.60 y	0.96	30:45	4.6902		*	2.5	*
	1,2,3,4,7,8-HxCDF	5.66e+05	1.23 y	1.15	33:27	14.756		*	2.5	*
	1,2,3,6,7,8-HxCDF	2.72e+05	1.31 y	1.04	33:35	7.1139		*	2.5	*
	2,3,4,6,7,8-HxCDF	2.37e+05	1.24 y	1.10	34:12	5.9866		*	2.5	*
	1,2,3,7,8,9-HxCDF	5.18e+04	1.23 y	1.03	35:12	1.4365		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	1.89e+06	1.01 y	1.06	37:02	52.804		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	1.95e+05	0.98 y	1.23	38:44	5.1405		*	2.5	*
	OCDF	3.34e+06	0.88 y	0.94	41:47	101.92		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	6.01	12.1		*	*
Total Penta-Dioxins	29.9	30.3		*	*
Total Hexa-Dioxins	215	215		*	*
Total Hepta-Dioxins	1030	1030		*	*
Total Tetra-Furans	44.4	45.2		*	*
Total Penta-Furans	86.807	87.374		*	*
Total Hexa-Furans	161	161		*	*
Total Hepta-Furans	199	199		*	*

								Rec	Qual
IS	13C-2,3,7,8-TCDD	1.05e+07	0.79 y	1.11	26:43	254.59		79.4	
IS	13C-1,2,3,7,8-PeCDD	1.02e+07	0.62 y	0.98	31:00	281.03		87.6	
IS	13C-1,2,3,4,7,8-HxCDD	8.39e+06	1.33 y	0.68	34:22	311.61		97.2	
IS	13C-1,2,3,6,7,8-HxCDD	9.28e+06	1.28 y	0.84	34:29	276.81		86.3	
IS	13C-1,2,3,7,8,9-HxCDD	9.74e+06	1.27 y	0.81	34:47	300.94		93.8	
IS	13C-1,2,3,4,6,7,8-HpCDD	1.06e+07	1.05 y	0.69	38:09	386.26		120	
IS	13C-OCDD	1.85e+07	0.91 y	0.62	41:32	742.00		116	
IS	13C-2,3,7,8-TCDF	1.30e+07	0.80 y	1.05	26:00	223.32		69.6	
IS	13C-1,2,3,7,8-PeCDF	1.42e+07	1.58 y	0.95	29:53	267.46		83.4	
IS	13C-2,3,4,7,8-PeCDF	1.40e+07	1.61 y	0.94	30:45	270.66		84.4	
IS	13C-1,2,3,4,7,8-HxCDF	1.07e+07	0.52 y	0.86	33:27	312.11		97.3	
IS	13C-1,2,3,6,7,8-HxCDF	1.18e+07	0.51 y	1.02	33:35	289.82		90.4	
IS	13C-2,3,4,6,7,8-HxCDF	1.16e+07	0.52 y	0.95	34:12	305.55		95.3	
IS	13C-1,2,3,7,8,9-HxCDF	1.12e+07	0.53 y	0.87	35:12	324.77		101	
IS	13C-1,2,3,4,6,7,8-HpCDF	1.08e+07	0.44 y	0.81	37:01	335.43		105	
IS	13C-1,2,3,4,7,8,9-HpCDF	9.93e+06	0.43 y	0.63	38:44	394.13		123	
IS	13C-OCDF	2.24e+07	0.90 y	0.78	41:47	717.66		112	
C/Up	37Cl-2,3,7,8-TCDD	4.22e+06		1.22	26:44	93.220		72.7	
RS/RT	13C-1,2,3,4-TCDD	1.19e+07	0.80 y	1.00	26:10	320.67			
RS	13C-1,2,3,4-TCDF	1.78e+07	0.80 y	1.00	24:52	320.67			
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.28e+07	0.51 y	1.00	33:53	320.67			

Integrations by Analyst: DB Date: 7/16/19

Reviewed by Analyst: [illegible] Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 20 File: 190708D2 S: 15 I: 1 F: 1
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 12.086 Unnamed Concentration: 11.167

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
23:36	3.834e+04	4.892e+04	0.78	y	8.725e+04	2.9664	
23:56	1.896e+04	2.622e+04	0.72	y	4.518e+04	1.5361	
24:18	1.579e+04	1.706e+04	0.93	n	3.019e+04	1.0265	
25:00	8.334e+03	6.710e+03	1.24	n	1.188e+04	0.40378	
25:12	9.545e+03	7.878e+03	1.21	n	1.394e+04	0.47410	
25:21	1.301e+04	2.094e+04	0.62	n	2.990e+04	1.0164	
25:31	3.825e+03	4.867e+03	0.79	y	8.692e+03	0.29551	
25:43	6.095e+03	8.930e+03	0.68	y	1.503e+04	0.51084	
25:52	6.380e+03	8.094e+03	0.79	y	1.447e+04	0.49212	
26:10	4.925e+03	8.212e+03	0.60	n	1.132e+04	0.38487	
26:30	1.814e+04	2.895e+04	0.63	n	4.170e+04	1.4178	
26:44	1.176e+04	1.986e+04	0.59	n	2.703e+04	0.91897	2,3,7,8-TCDD
27:00	6.884e+03	7.135e+03	0.96	n	1.263e+04	0.42938	
27:32	2.632e+03	3.640e+03	0.72	y	6.272e+03	0.21322	

Totals class: PeCDD EMPC Entry #: 21

Run: 20 File: 190708D2 S: 15 I: 1 F: 2
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 30.285 Unnamed Concentration: 26.836

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
29:02	1.017e+05	1.617e+05	0.63	y	2.633e+05	9.4940	
29:28	2.369e+04	3.480e+04	0.68	y	5.849e+04	2.1085	
29:53	4.714e+04	7.162e+04	0.66	y	1.188e+05	4.2815	
30:03	4.056e+04	5.901e+04	0.69	y	9.957e+04	3.5896	
30:07	1.892e+04	3.199e+04	0.59	y	5.091e+04	1.8353	
30:20	4.111e+04	6.130e+04	0.67	y	1.024e+05	3.6920	
30:38	5.549e+03	8.599e+03	0.65	y	1.415e+04	0.51005	
31:01	3.562e+04	6.003e+04	0.59	y	9.565e+04	3.4485	1,2,3,7,8-PeCDD
31:05	4.395e+03	1.014e+04	0.43	n	1.137e+04	0.40994	
31:21	9.847e+03	1.554e+04	0.63	y	2.538e+04	0.91517	

Totals class: HxCDD EMPC Entry #: 23

Run: 20 File: 190708D2 S: 15 I: 1 F: 3
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 215.44 Unnamed Concentration: 167.272

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:46	1.103e+06	8.768e+05	1.26	y	1.980e+06	71.201	
33:22	1.118e+05	8.332e+04	1.34	y	1.951e+05	7.0155	
33:38	1.291e+06	1.046e+06	1.23	y	2.337e+06	84.048	
33:46	4.751e+04	3.617e+04	1.31	y	8.369e+04	3.0094	
34:22	7.210e+04	6.224e+04	1.16	y	1.343e+05	4.8918	1,2,3,4,7,8-HxCDD
34:29	4.803e+05	4.105e+05	1.17	y	8.908e+05	33.086	1,2,3,6,7,8-HxCDD
34:41	3.184e+04	2.371e+04	1.34	y	5.555e+04	1.9977	
34:47	1.600e+05	1.379e+05	1.16	y	2.979e+05	10.195	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 20 File: 190708D2 S: 15 I: 1 F: 4
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 1032.4 Unnamed Concentration: 562.147

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
37:21	9.297e+06	9.005e+06	1.03 y	1.830e+07	562.15	
38:09	7.734e+06	7.575e+06	1.02 y	1.531e+07	470.22	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 20 File: 190708D2 S: 15 I: 1 F: 1
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 45.232 Unnamed Concentration: 39.612

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
21:42	1.539e+04	1.904e+04	0.81	y	3.443e+04	0.89839	
22:14	3.271e+04	4.530e+04	0.72	y	7.801e+04	2.0357	
22:49	8.922e+04	1.031e+05	0.86	y	1.924e+05	5.0198	
23:16	5.542e+04	6.588e+04	0.84	y	1.213e+05	3.1653	
23:36	9.429e+04	1.078e+05	0.87	y	2.021e+05	5.2741	
23:58	5.064e+04	6.275e+04	0.81	y	1.134e+05	2.9590	
24:05	2.568e+04	3.784e+04	0.68	y	6.352e+04	1.6576	
24:14	3.163e+04	3.670e+04	0.86	y	6.833e+04	1.7831	
24:33	8.095e+03	1.093e+04	0.74	y	1.902e+04	0.49639	
24:40	2.247e+04	2.604e+04	0.86	y	4.850e+04	1.2657	
24:47	2.821e+04	3.992e+04	0.71	y	6.812e+04	1.7777	
24:54	3.046e+04	3.524e+04	0.86	y	6.571e+04	1.7147	
25:16	8.802e+04	1.108e+05	0.79	y	1.988e+05	5.1887	
25:30	1.401e+04	1.685e+04	0.83	y	3.086e+04	0.80528	
25:41	5.590e+03	6.509e+03	0.86	y	1.210e+04	0.31573	
25:50	9.482e+03	1.015e+04	0.93	n	1.797e+04	0.46892	
25:56	1.844e+04	2.512e+04	0.73	y	4.356e+04	1.1368	
26:01	9.210e+04	1.233e+05	0.75	y	2.154e+05	5.6201	2,3,7,8-TCDF
26:20	3.472e+04	4.610e+04	0.75	y	8.082e+04	2.1091	
26:32	5.302e+03	8.951e+03	0.59	n	1.219e+04	0.31803	
27:40	2.196e+04	2.487e+04	0.88	y	4.683e+04	1.2222	

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 20 File: 190708D2 S: 15 I: 1 F: 1
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 39.035 Unnamed Concentration: 39.035

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
27:37	9.949e+05	6.186e+05	1.61 y	1.614e+06	39.035	

Totals class: PeCDF EMPC Entry #: 31

Run: 20 File: 190708D2 S: 15 I: 1 F: 2
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 48.339 Unnamed Concentration: 35.756

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:53	7.217e+04	4.708e+04	1.53	y	1.193e+05	2.8851	
29:01	4.107e+05	2.675e+05	1.54	y	6.782e+05	16.407	
29:21	1.368e+04	7.874e+03	1.74	y	2.155e+04	0.52146	
29:32	1.359e+05	8.577e+04	1.58	y	2.217e+05	5.3624	
29:43	3.139e+04	2.232e+04	1.41	y	5.371e+04	1.2994	
29:53	1.904e+05	1.311e+05	1.45	y	3.215e+05	7.8932	1,2,3,7,8-PeCDF
30:06	1.117e+05	6.950e+04	1.61	y	1.812e+05	4.3829	
30:39	1.988e+04	1.398e+04	1.42	y	3.386e+04	0.81913	
30:45	1.211e+05	7.569e+04	1.60	y	1.968e+05	4.6902	2,3,4,7,8-PeCDF
30:47	9.277e+04	5.237e+04	1.77	y	1.451e+05	3.5112	
31:36	1.425e+04	1.119e+04	1.27	n	2.345e+04	0.56734	

Totals class: HxCDF EMPC Entry #: 33

Run: 20 File: 190708D2 S: 15 I: 1 F: 3
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 161.28 Unnamed Concentration: 131.984

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:13	3.640e+05	2.909e+05	1.25	y	6.549e+05	17.211	
32:23	8.857e+05	7.203e+05	1.23	y	1.606e+06	42.209	
32:46	2.380e+04	1.754e+04	1.36	y	4.134e+04	1.0865	
32:58	1.387e+06	1.177e+06	1.18	y	2.564e+06	67.378	
33:21	2.293e+04	1.703e+04	1.35	y	3.996e+04	1.0503	
33:27	3.116e+05	2.541e+05	1.23	y	5.657e+05	14.756	1,2,3,4,7,8-HxCDF
33:35	1.540e+05	1.179e+05	1.31	y	2.719e+05	7.1139	1,2,3,6,7,8-HxCDF
33:53	1.281e+04	7.831e+03	1.64	n	1.754e+04	0.46099	
34:02	9.367e+03	8.003e+03	1.17	y	1.737e+04	0.45652	
34:12	1.316e+05	1.057e+05	1.24	y	2.374e+05	5.9866	2,3,4,6,7,8-HxCDF
35:12	2.858e+04	2.323e+04	1.23	y	5.181e+04	1.4365	1,2,3,7,8,9-HxCDF
35:16	4.519e+04	3.592e+04	1.26	y	8.111e+04	2.1317	

Totals class: HpCDF EMPC Entry #: 35

Run: 20 File: 190708D2 S: 15 I: 1 F: 4
Acquired: 9-JUL-19 02:46:28 Processed: 9-JUL-19 09:42:06

Total Concentration: 198.69 Unnamed Concentration: 140.748

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
37:02	9.537e+05	9.408e+05	1.01 y	1.894e+06	52.804	1,2,3,4,6,7,8-HpCDF
37:22	2.153e+04	2.411e+04	0.89 y	4.564e+04	1.2440	
37:32	2.597e+06	2.521e+06	1.03 y	5.118e+06	139.50	
38:44	9.639e+04	9.866e+04	0.98 y	1.950e+05	5.1405	1,2,3,4,7,8,9-HpCDF

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

319.8965 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
319.8965 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
319.8965 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
319.8965 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

353.8576 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:15 F:2

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
353.8576 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
353.8576 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

389.8156 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:15 F:3

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
389.8156 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
389.8156 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
389.8156 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
389.8156 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
401.8559 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

423.7767 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:15 F:4

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
423.7767 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-432 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

457.7377 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:15 F:5

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
303.9016 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
303.9016 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
303.9016 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
303.9016 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
303.9016 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

File:190708D2 #1-514 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
339.8597 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:15 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

339.8597 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
339.8597 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
339.8597 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
339.8597 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
339.8597 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:15 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:15 F:2

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

373.8207 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
373.8207 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
373.8207 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
373.8207 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
373.8207 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
373.8207 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:15 F:3

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
383.8639 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:15 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
407.7818 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5
407.7818 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:15 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-432 Acq: 9-JUL-2019 02:46:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#15 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE1 FD-201905241445 6.237 Exp:OCDD_DB5

441.7428 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:15 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: FD-201905241445 Filename: 190719D1 S:16 Acq:20-JUL-19 01:01:38 / ConCal: ST190719D1-1
Lab ID: 1901247-01RE2 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 6.237 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.06e+07	0.81 y	15:14	1.00	320.7	-
13C-2,3,7,8-TCDF	1.51e+07	0.78 y	17:21	1.02	230.6	71.9
2,3,7,8-TCDF	2.61e+05	0.85 y	17:21	0.95	5.834	

Integrations by Analyst: DB
Date: 7/20/19

Reviewed by Analyst: [illegible]
Date: 7/22/19

File:190719D1 #1-1682 Acq:20-JUL-2019 01:01:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#16 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE2 FD-201905241445 10.9 Exp:TCDF_DB225

303.9016 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1682 Acq:20-JUL-2019 01:01:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#16 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE2 FD-201905241445 10.9 Exp:TCDF_DB225
303.9016 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1682 Acq:20-JUL-2019 01:01:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#16 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-01RE2 FD-201905241445 10.9 Exp:TCDF_DB225
331.9368 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:16 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:16

Client ID: T4-PDI2019-SC27-190524 Filename: 190626D1 S:13 Acq:27-JUN-19 01:15:40 ConCal: ST190626D1-1
Lab ID: 1901247-02 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.245 EndCAL: NA

	Name	Resp	RA		RRF	RT	Conc	Qual	noise	Fac	DL	Rec	Qual
	2,3,7,8-TCDD	*	*	n	0.90	NotF	*		141	2.5	0.187		
	1,2,3,7,8-PeCDD	*	*	n	0.87	NotF	*		176	2.5	0.166		
	1,2,3,4,7,8-HxCDD	*	*	n	1.05	NotF	*		256	2.5	0.343		
	1,2,3,6,7,8-HxCDD	1.63e+04	0.95	n	0.93	33:56	0.98137		*	2.5	*		
	1,2,3,7,8,9-HxCDD	*	*	n	0.96	NotF	*		256	2.5	0.373		
	1,2,3,4,6,7,8-HpCDD	6.72e+05	0.99	y	0.99	37:41	39.114		*	2.5	*		
	OCDD	5.06e+06	0.91	y	0.99	40:57	337.85		*	2.5	*		
	2,3,7,8-TCDF	*	*	n	0.94	NotF	*		224	2.5	0.238		
	1,2,3,7,8-PeCDF	*	*	n	0.92	NotF	*		267	2.5	0.303		
	2,3,4,7,8-PeCDF	*	*	n	0.96	NotF	*		267	2.5	0.283		
	1,2,3,4,7,8-HxCDF	8.36e+03	0.84	n	1.15	32:56	0.38325		*	2.5	*		
	1,2,3,6,7,8-HxCDF	*	*	n	1.04	NotF	*		168	2.5	0.0928		
	2,3,4,6,7,8-HxCDF	4.45e+03	0.94	n	1.10	33:39	0.18318		*	2.5	*		
	1,2,3,7,8,9-HxCDF	*	*	n	1.03	NotF	*		168	2.5	0.168		
	1,2,3,4,6,7,8-HpCDF	8.61e+04	1.02	y	1.06	36:27	4.4492		*	2.5	*		
	1,2,3,4,7,8,9-HpCDF	*	*	n	1.23	NotF	*		185	2.5	0.175		
	OCDF	3.15e+05	0.94	y	0.94	41:11	17.417		*	2.5	*		
IS	13C-2,3,7,8-TCDD	6.29e+06	0.79	y	1.11	26:03	193.96					50.9	
IS	13C-1,2,3,7,8-PeCDD	6.54e+06	0.62	y	0.98	30:32	228.41					59.9	
IS	13C-1,2,3,4,7,8-HxCDD	5.53e+06	1.28	y	0.68	33:49	267.64					70.2	
IS	13C-1,2,3,6,7,8-HxCDD	6.82e+06	1.25	y	0.84	33:55	264.96					69.5	
IS	13C-1,2,3,7,8,9-HxCDD	7.08e+06	1.26	y	0.81	34:14	285.35					74.8	
IS	13C-1,2,3,4,6,7,8-HpCDD	6.62e+06	1.06	y	0.69	37:40	315.99					82.9	
IS	13C-OCDD	1.16e+07	0.91	y	0.62	40:57	606.64					79.5	
IS	13C-2,3,7,8-TCDF	8.17e+06	0.79	y	1.05	25:18	172.56					45.3	
IS	13C-1,2,3,7,8-PeCDF	8.97e+06	1.63	y	0.95	29:23	208.66					54.7	
IS	13C-2,3,4,7,8-PeCDF	8.65e+06	1.61	y	0.94	30:16	205.38					53.9	
IS	13C-1,2,3,4,7,8-HxCDF	7.21e+06	0.49	y	0.86	32:56	275.23					72.2	
IS	13C-1,2,3,6,7,8-HxCDF	8.95e+06	0.50	y	1.02	33:03	286.50					75.1	
IS	13C-2,3,4,6,7,8-HxCDF	8.46e+06	0.50	y	0.95	33:40	290.49					76.2	
IS	13C-1,2,3,7,8,9-HxCDF	7.33e+06	0.49	y	0.87	34:38	276.62					72.5	
IS	13C-1,2,3,4,6,7,8-HpCDF	6.93e+06	0.41	y	0.81	36:26	280.66					73.6	
IS	13C-1,2,3,4,7,8,9-HpCDF	5.84e+06	0.42	y	0.63	38:15	302.45					79.3	
IS	13C-OCDF	1.47e+07	0.91	y	0.78	41:11	614.43					80.6	
C/Up	37Cl-2,3,7,8-TCDD	3.00e+06			1.22	26:04	84.088					55.1	
RS/RT	13C-1,2,3,4-TCDD	1.12e+07	0.80	y	1.00	25:28	381.34						
RS	13C-1,2,3,4-TCDF	1.72e+07	0.82	y	1.00	24:04	381.34						
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.17e+07	0.49	y	1.00	33:20	381.34						

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	*		141	0.187
Total Penta-Dioxins	0.364	0.364		*	*
Total Hexa-Dioxins	8.32	9.30		*	*
Total Hepta-Dioxins	104	104		*	*
Total Tetra-Furans	*	*		224	0.238
Total Penta-Furans	0.47230	0.47230		*	*
Total Hexa-Furans	5.20	5.77		*	*
Total Hepta-Furans	17.2	17.2		*	*

Integrations by Analyst: DB Date: 7/11/19

Reviewed by Analyst: [illegible] Date: 7/22/19

Totals class: PeCDD EMPC Entry #: 21

Run: 13 File: 190626D1 S: 13 I: 1 F: 2
Acquired: 27-JUN-19 01:15:40 Processed: 27-JUN-19 09:43:36

Total Concentration: 0.36362 Unnamed Concentration: 0.364

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
28:29	1.998e+03	3.442e+03	0.58 y	5.440e+03	0.36362	

Totals class: HxCDD EMPC Entry #: 23

Run: 13 File: 190626D1 S: 13 I: 1 F: 3
Acquired: 27-JUN-19 01:15:40 Processed: 27-JUN-19 09:43:36

Total Concentration: 9.3014 Unnamed Concentration: 8.320

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:17	4.043e+04	3.036e+04	1.33	y	7.079e+04	4.2725	
33:07	3.573e+04	3.133e+04	1.14	y	6.707e+04	4.0475	
33:56	9.029e+03	9.471e+03	0.95	n	1.631e+04	0.98137	1,2,3,6,7,8-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 13 File: 190626D1 S: 13 I: 1 F: 4
Acquired: 27-JUN-19 01:15:40 Processed: 27-JUN-19 09:43:36

Total Concentration: 104.16 Unnamed Concentration: 65.048

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:50	5.555e+05	5.618e+05	0.99 y	1.117e+06	65.048	
37:41	3.347e+05	3.371e+05	0.99 y	6.718e+05	39.114	1,2,3,4,6,7,8-HpCDD

Totals class: PeCDF EMPC Entry #: 31

Run: 13 File: 190626D1 S: 13 I: 1 F: 2
Acquired: 27-JUN-19 01:15:40 Processed: 27-JUN-19 09:43:36

Total Concentration: 0.47230 Unnamed Concentration: 0.472

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
28:28	6.522e+03	3.729e+03	1.75 y	1.025e+04	0.47230	

Totals class: HxCDF EMPC Entry #: 33

Run: 13 File: 190626D1 S: 13 I: 1 F: 3
Acquired: 27-JUN-19 01:15:40 Processed: 27-JUN-19 09:43:36

Total Concentration: 5.7713 Unnamed Concentration: 5.205

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
31:45	6.586e+03	5.691e+03	1.16	y	1.228e+04	0.54390	
31:56	1.912e+04	1.788e+04	1.07	y	3.701e+04	1.6396	
32:28	3.664e+04	3.156e+04	1.16	y	6.820e+04	3.0214	
32:56	4.626e+03	5.512e+03	0.84	n	8.357e+03	0.38325	1,2,3,4,7,8-HxCDF
33:39	2.465e+03	2.609e+03	0.94	n	4.453e+03	0.18318	2,3,4,6,7,8-HxCDF

Totals class: HpCDF EMPC Entry #: 35

Run: 13 File: 190626D1 S: 13 I: 1 F: 4
Acquired: 27-JUN-19 01:15:40 Processed: 27-JUN-19 09:43:36

Total Concentration: 17.159 Unnamed Concentration: 12.710

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:27	4.351e+04	4.263e+04	1.02 y	8.614e+04	4.4492	1,2,3,4,6,7,8-HpCDF
37:03	1.196e+05	1.221e+05	0.98 y	2.416e+05	12.710	

File:190626D1 #1-513 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

319.8965 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-185 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

353.8576 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:13 F:2

File:190626D1 #1-185 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
353.8576 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

389.8156 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:13 F:3

File:190626D1 #1-399 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
389.8156 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
401.8559 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-355 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

File:190626D1 #1-355 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
423.7767 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-432 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

457.7377 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:13 F:5

File:190626D1 #1-432 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
457.7377 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-513 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

303.9016 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-513 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
339.8597 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:13 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:13

File:190626D1 #1-185 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

339.8597 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-185 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
339.8597 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:13 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

373.8207 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
373.8207 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
373.8207 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
383.8639 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:13 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-355 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

407.7818 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-355 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
407.7818 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:13 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-432 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5

441.7428 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-432 Acq:27-JUN-2019 01:15:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#13 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-02 T4-PDI2019-SC27-190524-01-03 9.97 Exp:OCDD_DB5
441.7428 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:13 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: Duplicate Filename: 190626D1 S:14 Acq:27-JUN-19 02:03:10 ConCal: ST190626D1-1

Lab ID: B9F0172-DUP1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.096 EndCAL: NA

	Name	Resp	RA		RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	*	*	n	0.90	NotFound	*		243	2.5	0.335
	1,2,3,7,8-PeCDD	7.96e+03	0.65	y	0.87	30:36	0.59951		*	2.5	*
	1,2,3,4,7,8-HxCDD	2.56e+04	1.07	y	1.05	33:49	1.7382		*	2.5	*
	1,2,3,6,7,8-HxCDD	1.41e+05	1.14	y	0.93	33:56	8.1909		*	2.5	*
	1,2,3,7,8,9-HxCDD	6.77e+04	1.37	y	0.96	34:14	3.7030		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	4.35e+06	1.03	y	0.99	37:41	260.85		*	2.5	*
	OCDD	3.74e+07	0.90	y	0.99	40:56	2396.3		*	2.5	*
	2,3,7,8-TCDF	2.65e+04	0.83	y	0.94	25:19	1.3761	OK	*	2.5	*
	1,2,3,7,8-PeCDF	2.46e+04	1.51	y	0.92	29:22	1.2588		*	2.5	*
	2,3,4,7,8-PeCDF	2.19e+04	1.32	y	0.96	30:16	1.1578		*	2.5	*
	1,2,3,4,7,8-HxCDF	1.06e+05	1.23	y	1.15	32:56	5.0096		*	2.5	*
	1,2,3,6,7,8-HxCDF	4.34e+04	1.18	y	1.04	33:04	1.8173		*	2.5	*
	2,3,4,6,7,8-HxCDF	3.62e+04	1.29	y	1.10	33:40	1.4794		*	2.5	*
	1,2,3,7,8,9-HxCDF	8.44e+03	1.85	n	1.03	34:39	0.44486		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	6.15e+05	1.04	y	1.06	36:27	33.219		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	4.72e+04	1.14	y	1.23	38:14	2.7604		*	2.5	*
	OCDF	1.85e+06	0.90	y	0.94	41:11	104.77		*	2.5	*
IS	13C-2,3,7,8-TCDD	6.14e+06	0.81	y	1.11	26:04	197.91				
IS	13C-1,2,3,7,8-PeCDD	5.97e+06	0.62	y	0.98	30:32	218.24				
IS	13C-1,2,3,4,7,8-HxCDD	5.50e+06	1.28	y	0.68	33:49	270.54				
IS	13C-1,2,3,6,7,8-HxCDD	7.28e+06	1.26	y	0.84	33:55	287.44				
IS	13C-1,2,3,7,8,9-HxCDD	7.46e+06	1.27	y	0.81	34:14	305.36				
IS	13C-1,2,3,4,6,7,8-HpCDD	6.62e+06	1.04	y	0.69	37:40	320.61				
IS	13C-OCDD	1.24e+07	0.91	y	0.62	40:56	661.15				
IS	13C-2,3,7,8-TCDF	8.02e+06	0.82	y	1.05	25:18	177.01				
IS	13C-1,2,3,7,8-PeCDF	8.32e+06	1.68	y	0.95	29:22	202.46				
IS	13C-2,3,4,7,8-PeCDF	7.75e+06	1.57	y	0.94	30:16	192.21				
IS	13C-1,2,3,4,7,8-HxCDF	7.20e+06	0.49	y	0.86	32:56	279.22				
IS	13C-1,2,3,6,7,8-HxCDF	9.02e+06	0.51	y	1.02	33:03	293.48				
IS	13C-2,3,4,6,7,8-HxCDF	8.75e+06	0.50	y	0.95	33:40	305.39				
IS	13C-1,2,3,7,8,9-HxCDF	7.23e+06	0.50	y	0.87	34:39	277.01				
IS	13C-1,2,3,4,6,7,8-HpCDF	6.83e+06	0.42	y	0.81	36:26	280.70				
IS	13C-1,2,3,4,7,8,9-HpCDF	5.47e+06	0.43	y	0.63	38:14	287.78				
IS	13C-OCDF	1.48e+07	0.89	y	0.78	41:10	627.46				
C/Up	37Cl-2,3,7,8-TCDD	2.81e+06			1.22	26:05	82.370				
RS/RT	13C-1,2,3,4-TCDD	1.10e+07	0.80	y	1.00	25:28	392.44				
RS	13C-1,2,3,4-TCDF	1.69e+07	0.79	y	1.00	24:04	392.44				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.18e+07	0.50	y	1.00	33:21	392.44				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	3.21	3.21		*	*
Total Penta-Dioxins	6.75	8.82		*	*
Total Hexa-Dioxins	88.3	88.3		*	*
Total Hepta-Dioxins	739	739		*	*
Total Tetra-Furans	6.95	7.70		*	*
Total Penta-Furans	13.531	18.801		*	*
Total Hexa-Furans	50.5	51.4		*	*
Total Hepta-Furans	122	122		*	*

	Rec	Qual
IS 13C-2,3,7,8-TCDD	50.4	
IS 13C-1,2,3,7,8-PeCDD	55.6	
IS 13C-1,2,3,4,7,8-HxCDD	68.9	
IS 13C-1,2,3,6,7,8-HxCDD	73.2	
IS 13C-1,2,3,7,8,9-HxCDD	77.8	
IS 13C-1,2,3,4,6,7,8-HpCDD	81.7	
IS 13C-OCDD	84.2	
IS 13C-2,3,7,8-TCDF	45.1	
IS 13C-1,2,3,7,8-PeCDF	51.6	
IS 13C-2,3,4,7,8-PeCDF	49.0	
IS 13C-1,2,3,4,7,8-HxCDF	71.2	
IS 13C-1,2,3,6,7,8-HxCDF	74.8	
IS 13C-2,3,4,6,7,8-HxCDF	77.8	
IS 13C-1,2,3,7,8,9-HxCDF	70.6	
IS 13C-1,2,3,4,6,7,8-HpCDF	71.5	
IS 13C-1,2,3,4,7,8,9-HpCDF	73.3	
IS 13C-OCDF	79.9	
C/Up 37Cl-2,3,7,8-TCDD	52.5	

Integrations by Analyst: JB Date: 7/19/19

Reviewed by Analyst: [illegible] Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 14 File: 190626D1 S: 14 I: 1 F: 1
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 3.2056 Unnamed Concentration: 3.206

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
25:50	2.016e+04	2.500e+04	0.81	y	4.516e+04	3.2056	

Totals class: PeCDD EMPC Entry #: 21

Run: 14 File: 190626D1 S: 14 I: 1 F: 2
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 8.8175 Unnamed Concentration: 8.218

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:30	1.548e+04	2.433e+04	0.64	y	3.981e+04	2.9997	
28:56	3.855e+03	7.919e+03	0.49	n	9.975e+03	0.75159	
29:22	9.784e+03	1.068e+04	0.92	n	1.740e+04	1.3113	
29:33	3.704e+03	6.595e+03	0.56	y	1.030e+04	0.77600	
29:50	7.597e+03	1.151e+04	0.66	y	1.911e+04	1.4400	
30:32	4.726e+03	7.741e+03	0.61	y	1.247e+04	0.93936	
30:36	3.143e+03	4.813e+03	0.65	y	7.956e+03	0.59951	1,2,3,7,8-PeCDD

Totals class: HxCDD EMPC Entry #: 23

Run: 14 File: 190626D1 S: 14 I: 1 F: 3
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 88.289 Unnamed Concentration: 74.657

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:17	3.237e+05	2.749e+05	1.18	y	5.985e+05	35.684	
32:51	3.933e+04	3.455e+04	1.14	y	7.387e+04	4.4043	
33:07	2.694e+05	2.294e+05	1.17	y	4.989e+05	29.742	
33:15	3.182e+04	2.412e+04	1.32	y	5.594e+04	3.3348	
33:49	1.321e+04	1.236e+04	1.07	y	2.556e+04	1.7382	1,2,3,4,7,8-HxCDD
33:56	7.529e+04	6.596e+04	1.14	y	1.412e+05	8.1909	1,2,3,6,7,8-HxCDD
34:08	1.428e+04	1.074e+04	1.33	y	2.502e+04	1.4914	
34:14	3.912e+04	2.861e+04	1.37	y	6.773e+04	3.7030	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 14 File: 190626D1 S: 14 I: 1 F: 4
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 738.88 Unnamed Concentration: 478.031

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:49	3.987e+06	3.981e+06	1.00 y	7.968e+06	478.03	
37:41	2.208e+06	2.140e+06	1.03 y	4.348e+06	260.85	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 14 File: 190626D1 S: 14 I: 1 F: 1
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 7.6976 Unnamed Concentration: 6.321

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
21:49	1.476e+04	1.817e+04	0.81	y	3.293e+04	1.7092	
22:41	6.303e+03	1.175e+04	0.54	n	1.449e+04	0.75199	
23:07	9.995e+03	1.159e+04	0.86	y	2.159e+04	1.1206	
24:03	1.203e+04	1.414e+04	0.85	y	2.617e+04	1.3584	
24:30	1.200e+04	1.462e+04	0.82	y	2.661e+04	1.3813	
25:19	1.202e+04	1.449e+04	0.83	y	2.651e+04	1.3761	2,3,7,8-TCDF

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 14 File: 190626D1 S: 14 I: 1 F: 1
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 7.7704 Unnamed Concentration: 7.770

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
27:02	9.335e+04	5.612e+04	1.66	y	1.495e+05	7.7704	

Totals class: PeCDF EMPC Entry #: 31

Run: 14 File: 190626D1 S: 14 I: 1 F: 2
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 11.031 Unnamed Concentration: 8.614

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:20	1.243e+04	5.252e+03	2.37	n	1.339e+04	0.69629	
28:28	5.837e+04	3.167e+04	1.84	n	8.076e+04	4.1983	
29:01	1.785e+04	1.097e+04	1.63	y	2.882e+04	1.4981	
29:12	4.392e+03	3.791e+03	1.16	n	7.226e+03	0.37565	
29:22	1.481e+04	9.810e+03	1.51	y	2.462e+04	1.2588	1,2,3,7,8-PeCDF
29:36	1.109e+04	6.505e+03	1.70	y	1.759e+04	0.91469	
30:16	1.245e+04	9.425e+03	1.32	y	2.188e+04	1.1578	2,3,4,7,8-PeCDF
30:19	1.112e+04	6.787e+03	1.64	y	1.791e+04	0.93102	

Totals class: HxCDF EMPC Entry #: 33

Run: 14 File: 190626D1 S: 14 I: 1 F: 3
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 51.377 Unnamed Concentration: 42.626

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
31:46	5.391e+04	3.978e+04	1.36	y	9.369e+04	4.2381	
31:55	1.638e+05	1.402e+05	1.17	y	3.041e+05	13.754	
32:16	4.660e+03	3.735e+03	1.25	y	8.395e+03	0.37977	
32:28	2.833e+05	2.307e+05	1.23	y	5.140e+05	23.254	
32:50	7.021e+03	6.465e+03	1.09	y	1.349e+04	0.61007	
32:56	5.853e+04	4.745e+04	1.23	y	1.060e+05	5.0096	1,2,3,4,7,8-HxCDF
33:04	2.351e+04	1.987e+04	1.18	y	4.338e+04	1.8173	1,2,3,6,7,8-HxCDF
33:40	2.034e+04	1.582e+04	1.29	y	3.616e+04	1.4794	2,3,4,6,7,8-HxCDF
34:39	6.971e+03	3.769e+03	1.85	n	8.442e+03	0.44486	1,2,3,7,8,9-HxCDF
34:42	5.597e+03	3.852e+03	1.45	n	8.628e+03	0.39030	

Totals class: HpCDF EMPC Entry #: 35

Run: 14 File: 190626D1 S: 14 I: 1 F: 4
Acquired: 27-JUN-19 02:03:10 Processed: 27-JUN-19 09:43:37

Total Concentration: 122.00 Unnamed Concentration: 86.019

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:27	3.135e+05	3.017e+05	1.04 y	6.152e+05	33.219	1,2,3,4,6,7,8-HpCDF
37:02	7.802e+05	7.494e+05	1.04 y	1.530e+06	86.019	
38:14	2.514e+04	2.203e+04	1.14 y	4.717e+04	2.7604	1,2,3,4,7,8,9-HpCDF

File:190626D1 #1-514 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

319.8965 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-514 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
319.8965 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-184 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

353.8576 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:14 F:2

File:190626D1 #1-184 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
353.8576 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-184 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
353.8576 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-184 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
353.8576 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

389.8156 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:14 F:3

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
389.8156 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
389.8156 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
389.8156 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
401.8559 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-356 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

423.7767 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:14 F:4

File:190626D1 #1-356 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
423.7767 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-431 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

457.7377 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:14 F:5

File:190626D1 #1-514 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

303.9016 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-514 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
303.9016 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-514 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
303.9016 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-514 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

File:190626D1 #1-514 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
339.8597 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:14 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-184 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
339.8597 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-184 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
339.8597 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-184 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
339.8597 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:14 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:14 F:2

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

373.8207 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
373.8207 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
373.8207 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
373.8207 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
373.8207 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:14 F:3

File:190626D1 #1-399 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
383.8639 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:14 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-356 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

407.7818 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-356 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
407.7818 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-356 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
407.7818 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:14 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-431 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5

441.7428 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-431 Acq:27-JUN-2019 02:03:10 GC EI+ Voltage SIR Autospec-UltimaE
Sample#14 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1 Duplicate 9.68 Exp:OCDD_DB5
441.7428 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:14 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: Duplicate
Lab ID: B9F0172-DUP1RE1

Filename: 190719D1 S:4 Acq:19-JUL-19 18:39:52
GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 5.096

ConCal: ST190719D1-1
EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.23e+07	0.81 y	15:11	1.00	392.5	-
13C-2,3,7,8-TCDF	1.12e+07	0.82 y	17:18	1.02	192.8	49.1
2,3,7,8-TCDF	4.74e+04	0.81 y	17:19	0.95	1.757	

Integrations by Analyst: DB
Date: 7/20/19

Reviewed by Analyst: ML
Date: 7/22/19

File:190719D1 #1-1683 Acq:19-JUL-2019 18:39:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1RE1 Duplicate 5.096 Exp:TCDF_DB225
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 18:39:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1RE1 Duplicate 5.096 Exp:TCDF_DB225
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 18:39:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0172-DUP1RE1 Duplicate 5.096 Exp:TCDF_DB225
331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:4

Client ID: T4-PDI2019-SC27-190524 Filename: 190626D2 S:5 Acq:27-JUN-19 07:51:09 ConCal: ST190626D2-1
Lab ID: 1901247-03 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.089 EndCAL: NA

	Name	Resp	RA		RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	*	*	n	0.90	NotF	*		304	2.5	0.365
	1,2,3,7,8-PeCDD	1.32e+04	0.60	y	0.87	30:32	0.87846		*	2.5	*
	1,2,3,4,7,8-HxCDD	1.84e+04	1.67	n	1.05	33:49	1.2101		*	2.5	*
	1,2,3,6,7,8-HxCDD	1.40e+05	1.28	y	0.93	33:56	8.2680		*	2.5	*
	1,2,3,7,8,9-HxCDD	5.55e+04	1.19	y	0.96	34:14	3.1952		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	2.74e+06	1.02	y	0.99	37:41	150.40		*	2.5	*
	OCDD	1.95e+07	0.90	y	0.99	40:56	1298.9		*	2.5	*
	2,3,7,8-TCDF	2.89e+04	0.87	y	0.94	25:18	1.3669	OK	*	2.5	*
	1,2,3,7,8-PeCDF	2.56e+04	1.42	y	0.92	29:22	1.0809		*	2.5	*
	2,3,4,7,8-PeCDF	1.06e+04	2.21	n	0.96	30:15	0.47672		*	2.5	*
	1,2,3,4,7,8-HxCDF	7.37e+04	1.08	y	1.15	32:56	3.4072		*	2.5	*
	1,2,3,6,7,8-HxCDF	3.35e+04	0.98	n	1.04	33:03	1.3950		*	2.5	*
	2,3,4,6,7,8-HxCDF	2.67e+04	1.07	y	1.10	33:40	1.1230		*	2.5	*
	1,2,3,7,8,9-HxCDF	7.13e+03	0.83	n	1.03	34:37	0.36138		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	4.97e+05	1.02	y	1.06	36:26	23.801		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	3.97e+04	0.96	y	1.23	38:14	1.9406		*	2.5	*
	OCDF	1.18e+06	0.89	y	0.94	41:10	69.413		*	2.5	*
IS	13C-2,3,7,8-TCDD	6.70e+06	0.78	y	1.11	26:03	224.84				
IS	13C-1,2,3,7,8-PeCDD	6.77e+06	0.63	y	0.98	30:32	257.36				
IS	13C-1,2,3,4,7,8-HxCDD	5.69e+06	1.33	y	0.68	33:48	311.24				
IS	13C-1,2,3,6,7,8-HxCDD	7.17e+06	1.21	y	0.84	33:55	315.23				
IS	13C-1,2,3,7,8,9-HxCDD	7.09e+06	1.28	y	0.81	34:14	323.00				
IS	13C-1,2,3,4,6,7,8-HpCDD	7.23e+06	1.05	y	0.69	37:40	390.03				
IS	13C-OCDD	1.20e+07	0.92	y	0.62	40:56	709.28				
IS	13C-2,3,7,8-TCDF	8.80e+06	0.79	y	1.05	25:18	197.03				
IS	13C-1,2,3,7,8-PeCDF	1.01e+07	1.59	y	0.95	29:22	248.93				
IS	13C-2,3,4,7,8-PeCDF	9.15e+06	1.60	y	0.94	30:16	230.35				
IS	13C-1,2,3,4,7,8-HxCDF	7.37e+06	0.52	y	0.86	32:55	318.07				
IS	13C-1,2,3,6,7,8-HxCDF	9.10e+06	0.50	y	1.02	33:03	329.40				
IS	13C-2,3,4,6,7,8-HxCDF	8.53e+06	0.49	y	0.95	33:40	331.20				
IS	13C-1,2,3,7,8,9-HxCDF	7.52e+06	0.49	y	0.87	34:38	320.75				
IS	13C-1,2,3,4,6,7,8-HpCDF	7.71e+06	0.43	y	0.81	36:26	353.00				
IS	13C-1,2,3,4,7,8,9-HpCDF	6.56e+06	0.43	y	0.63	38:14	383.66				
IS	13C-OCDF	1.42e+07	0.91	y	0.78	41:10	672.02				
C/Up	37Cl-2,3,7,8-TCDD	3.08e+06			1.22	26:05	93.751				
RS/RT	13C-1,2,3,4-TCDD	1.06e+07	0.79	y	1.00	25:29	392.98				
RS	13C-1,2,3,4-TCDF	1.67e+07	0.82	y	1.00	24:04	392.98				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.06e+07	0.50	y	1.00	33:20	392.98				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	*		304	0.365
Total Penta-Dioxins	5.36	6.35		*	*
Total Hexa-Dioxins	57.1	58.3		*	*
Total Hepta-Dioxins	371	371		*	*
Total Tetra-Furans	3.65	4.69		*	*
Total Penta-Furans	11.734	13.267		*	*
Total Hexa-Furans	39.4	41.2		*	*
Total Hepta-Furans	96.2	96.2		*	*

	Rec	Qual
IS 13C-2,3,7,8-TCDD	57.2	
IS 13C-1,2,3,7,8-PeCDD	65.5	
IS 13C-1,2,3,4,7,8-HxCDD	79.2	
IS 13C-1,2,3,6,7,8-HxCDD	80.2	
IS 13C-1,2,3,7,8,9-HxCDD	82.2	
IS 13C-1,2,3,4,6,7,8-HpCDD	99.3	
IS 13C-OCDD	90.2	
IS 13C-2,3,7,8-TCDF	50.1	
IS 13C-1,2,3,7,8-PeCDF	63.3	
IS 13C-2,3,4,7,8-PeCDF	58.6	
IS 13C-1,2,3,4,7,8-HxCDF	80.9	
IS 13C-1,2,3,6,7,8-HxCDF	83.8	
IS 13C-2,3,4,6,7,8-HxCDF	84.3	
IS 13C-1,2,3,7,8,9-HxCDF	81.6	
IS 13C-1,2,3,4,6,7,8-HpCDF	89.8	
IS 13C-1,2,3,4,7,8,9-HpCDF	97.6	
IS 13C-OCDF	85.5	
C/Up 37Cl-2,3,7,8-TCDD	59.6	

Integrations by Analyst: DB Date: 7/11/19

Reviewed by Analyst: ML Date: 7/22/19

Totals class: PeCDD EMPC Entry #: 21

Run: 10 File: 190626D2 S: 5 I: 1 F: 2
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 6.3535 Unnamed Concentration: 5.475

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:30	1.343e+04	2.157e+04	0.62	y	3.499e+04	2.3289	
28:55	2.312e+03	3.794e+03	0.61	y	6.106e+03	0.40637	
29:22	6.254e+03	9.289e+03	0.67	y	1.554e+04	1.0345	
29:33	4.257e+03	6.501e+03	0.65	y	1.076e+04	0.71596	
29:51	7.257e+03	9.120e+03	0.80	n	1.487e+04	0.98938	
30:32	4.967e+03	8.232e+03	0.60	y	1.320e+04	0.87846	1,2,3,7,8-PeCDD

Totals class: HxCDD EMPC Entry #: 23

Run: 10 File: 190626D2 S: 5 I: 1 F: 3
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 58.269 Unnamed Concentration: 45.595

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:17	1.624e+05	1.346e+05	1.21	y	2.970e+05	17.985	
32:50	1.965e+04	1.648e+04	1.19	y	3.613e+04	2.1880	
33:07	1.981e+05	1.679e+05	1.18	y	3.660e+05	22.167	
33:13	2.086e+04	1.934e+04	1.08	y	4.019e+04	2.4340	
33:49	1.369e+04	8.204e+03	1.67	n	1.838e+04	1.2101	1,2,3,4,7,8-HxCDD
33:56	7.876e+04	6.157e+04	1.28	y	1.403e+05	8.2680	1,2,3,6,7,8-HxCDD
34:07	7.231e+03	6.329e+03	1.14	y	1.356e+04	0.82114	
34:14	3.017e+04	2.531e+04	1.19	y	5.548e+04	3.1952	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 10 File: 190626D2 S: 5 I: 1 F: 4
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 370.60 Unnamed Concentration: 220.200

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:50	2.009e+06	1.998e+06	1.01 y	4.007e+06	220.20	
37:41	1.383e+06	1.354e+06	1.02 y	2.737e+06	150.40	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 10 File: 190626D2 S: 5 I: 1 F: 1
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 4.6853 Unnamed Concentration: 3.318

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
21:48	1.068e+04	1.630e+04	0.66	y	2.698e+04	1.2779	
22:41	7.878e+03	7.559e+03	1.04	n	1.338e+04	0.63359	
23:06	6.284e+03	4.771e+03	1.32	n	8.444e+03	0.39988	
24:31	8.777e+03	1.249e+04	0.70	y	2.127e+04	1.0071	
25:18	1.344e+04	1.543e+04	0.87	y	2.886e+04	1.3669	2,3,7,8-TCDF

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 10 File: 190626D2 S: 5 I: 1 F: 1
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 5.7453 Unnamed Concentration: 5.745

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
27:02	7.986e+04	5.230e+04	1.53 y	1.322e+05	5.7453	

Totals class: PeCDF EMPC Entry #: 31

Run: 10 File: 190626D2 S: 5 I: 1 F: 2
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 7.5214 Unnamed Concentration: 5.964

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:28	4.938e+04	2.781e+04	1.78	y	7.719e+04	3.3553	
29:01	1.790e+04	9.525e+03	1.88	n	2.429e+04	1.0558	
29:22	1.502e+04	1.057e+04	1.42	y	2.559e+04	1.0809	1,2,3,7,8-PeCDF
29:37	9.273e+03	6.484e+03	1.43	y	1.576e+04	0.68495	
30:15	9.231e+03	4.169e+03	2.21	n	1.063e+04	0.47672	2,3,4,7,8-PeCDF
30:19	1.255e+04	7.412e+03	1.69	y	1.996e+04	0.86777	

Totals class: HxCDF EMPC Entry #: 33

Run: 10 File: 190626D2 S: 5 I: 1 F: 3
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 41.201 Unnamed Concentration: 34.914

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
31:45	4.755e+04	3.715e+04	1.28	y	8.470e+04	3.7990	
31:55	1.283e+05	9.175e+04	1.40	y	2.201e+05	9.8694	
32:28	2.561e+05	2.110e+05	1.21	y	4.672e+05	20.952	
32:56	3.826e+04	3.544e+04	1.08	y	7.370e+04	3.4072	1,2,3,4,7,8-HxCDF
33:03	1.857e+04	1.892e+04	0.98	n	3.354e+04	1.3950	1,2,3,6,7,8-HxCDF
33:40	1.381e+04	1.290e+04	1.07	y	2.672e+04	1.1230	2,3,4,6,7,8-HxCDF
34:37	3.945e+03	4.730e+03	0.83	n	7.126e+03	0.36138	1,2,3,7,8,9-HxCDF
34:40	3.826e+03	2.714e+03	1.41	y	6.539e+03	0.29329	

Totals class: HpCDF EMPC Entry #: 35

Run: 10 File: 190626D2 S: 5 I: 1 F: 4
Acquired: 27-JUN-19 07:51:09 Processed: 27-JUN-19 17:02:03

Total Concentration: 96.151 Unnamed Concentration: 70.410

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
36:26	2.510e+05	2.465e+05	1.02	y	4.975e+05	23.801	1,2,3,4,6,7,8-HpCDF
37:02	7.376e+05	7.132e+05	1.03	y	1.451e+06	70.410	
38:14	1.943e+04	2.025e+04	0.96	y	3.968e+04	1.9406	1,2,3,4,7,8,9-HpCDF

File:190626D2 #1-514 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:5 F:2

File:190626D2 #1-184 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:5 F:3

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

File:190626D2 #1-356 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-431 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:5 F:5

File:190626D2 #1-514 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:5

File:190626D2 #1-514 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
339.8597 S:5 BSUB(10000,15,-3.0)

341.8568 S:5 BSUB(10000,15,-3.0)

File:190626D2 #1-184 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0)

341.8568 S:5 F:2 BSUB(10000,15,-3.0)

File:190626D2 #1-184 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0)

341.8568 S:5 F:2 BSUB(10000,15,-3.0)

351.9000 S:5 F:2

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0)

375.8178 S:5 F:3 BSUB(10000,15,-3.0)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0)

375.8178 S:5 F:3 BSUB(10000,15,-3.0)

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0)

375.8178 S:5 F:3 BSUB(10000,15,-3.0)

383.8639 S:5 F:3

File:190626D2 #1-399 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-431 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5

441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-431 Acq:27-JUN-2019 07:51:09 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 Text:1901247-03 T4-PDI2019-SC27-190524-03-05 10.05 Exp:OCDD_DB5
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: T4-PDI2019-SC27-190524 Filename: 190719D1 S:7 Acq:19-JUL-19 20:15:12 ConCal: ST190719D1-1
Lab ID: 1901247-03RE1 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 5.089 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.08e+07	0.80 y	15:13	1.00	393.0	-
13C-2,3,7,8-TCDF	1.09e+07	0.81 y	17:19	1.02	201.4	51.2
2,3,7,8-TCDF	4.47e+04	0.88 y	17:20	0.95	1.701	

Integrations by Analyst: DB

Date: 7/20/19

Reviewed by Analyst: [illegible]

Date: 7/22/19

File:190719D1 #1-1683 Acq:19-JUL-2019 20:15:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-03RE1 T4-PDI2019-SC27-190524-03-05 10.05 Exp:TCDF_DB225

303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 20:15:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-03RE1 T4-PDI2019-SC27-190524-03-05 10.05 Exp:TCDF_DB225
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 20:15:12 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-03RE1 T4-PDI2019-SC27-190524-03-05 10.05 Exp:TCDF_DB225
331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:7

Client ID: T4-PDI2019-SC27-190524 Filename: 190626D2 S:6 Acq:27-JUN-19 08:38:57 ConCal: ST190626D2-1
Lab ID: 1901247-04 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.074 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.45e+04	0.70 y	0.90	26:03	1.2468		*	2.5	*
	1,2,3,7,8-PeCDD	9.21e+03	0.65 y	0.87	30:37	0.75393		*	2.5	*
	1,2,3,4,7,8-HxCDD	1.18e+05	1.31 y	1.05	33:48	8.2944		*	2.5	*
	1,2,3,6,7,8-HxCDD	8.97e+05	1.24 y	0.93	33:55	57.085		*	2.5	*
	1,2,3,7,8,9-HxCDD	3.20e+05	1.18 y	0.96	34:13	18.031		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	1.65e+07	1.03 y	0.99	37:39	904.89		*	2.5	*
	OCDD	1.36e+08	0.89 y	0.99	40:55	8210.5		*	2.5	*
	2,3,7,8-TCDF	1.17e+05	0.79 y	0.94	25:18	7.4036 OK		*	2.5	*
	1,2,3,7,8-PeCDF	1.84e+05	1.45 y	0.92	29:22	9.8338		*	2.5	*
	2,3,4,7,8-PeCDF	1.06e+05	1.62 y	0.96	30:15	6.1090		*	2.5	*
	1,2,3,4,7,8-HxCDF	4.64e+05	1.24 y	1.15	32:56	23.392		*	2.5	*
	1,2,3,6,7,8-HxCDF	2.57e+05	1.16 y	1.04	33:03	11.627		*	2.5	*
	2,3,4,6,7,8-HxCDF	2.03e+05	1.23 y	1.10	33:40	8.4703		*	2.5	*
	1,2,3,7,8,9-HxCDF	5.51e+04	1.21 y	1.03	34:37	2.9116		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	2.55e+06	1.04 y	1.06	36:26	121.14		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	1.84e+05	1.06 y	1.23	38:14	9.5963		*	2.5	*
	OCDF	3.85e+06	0.89 y	0.94	41:10	215.97		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	9.62	13.4		*	*
Total Penta-Dioxins	34.9	40.9		*	*
Total Hexa-Dioxins	320	320		*	*
Total Hepta-Dioxins	1790	1790		*	*
Total Tetra-Furans	53.9	56.8		*	*
Total Penta-Furans	110.11	115.70		*	*
Total Hexa-Furans	265	266		*	*
Total Hepta-Furans	372	372		*	*

								Rec	Qual
IS	13C-2,3,7,8-TCDD	5.08e+06	0.79 y	1.11	26:02	149.54		37.9	
IS	13C-1,2,3,7,8-PeCDD	5.52e+06	0.63 y	0.98	30:32	184.19		46.7	
IS	13C-1,2,3,4,7,8-HxCDD	5.32e+06	1.29 y	0.68	33:48	247.47		62.8	
IS	13C-1,2,3,6,7,8-HxCDD	6.66e+06	1.25 y	0.84	33:54	248.45		63.0	
IS	13C-1,2,3,7,8,9-HxCDD	7.28e+06	1.29 y	0.81	34:13	281.47		71.4	
IS	13C-1,2,3,4,6,7,8-HpCDD	7.27e+06	1.04 y	0.69	37:39	332.84		84.4	
IS	13C-OCDD	1.32e+07	0.91 y	0.62	40:55	663.33		84.1	
IS	13C-2,3,7,8-TCDF	6.61e+06	0.80 y	1.05	25:18	131.79		33.4	
IS	13C-1,2,3,7,8-PeCDF	8.01e+06	1.60 y	0.95	29:22	175.82		44.6	
IS	13C-2,3,4,7,8-PeCDF	7.14e+06	1.62 y	0.94	30:16	159.94		40.6	
IS	13C-1,2,3,4,7,8-HxCDF	6.78e+06	0.52 y	0.86	32:55	248.53		63.1	
IS	13C-1,2,3,6,7,8-HxCDF	8.39e+06	0.50 y	1.02	33:03	258.03		65.5	
IS	13C-2,3,4,6,7,8-HxCDF	8.60e+06	0.52 y	0.95	33:39	283.75		72.0	
IS	13C-1,2,3,7,8,9-HxCDF	7.24e+06	0.51 y	0.87	34:37	262.23		66.5	
IS	13C-1,2,3,4,6,7,8-HpCDF	7.78e+06	0.44 y	0.81	36:25	302.36		76.7	
IS	13C-1,2,3,4,7,8,9-HpCDF	6.17e+06	0.44 y	0.63	38:13	306.76		77.8	
IS	13C-OCDF	1.49e+07	0.90 y	0.78	41:09	600.13		76.1	
C/Up	37Cl-2,3,7,8-TCDD	2.62e+06		1.22	26:04	70.047		44.4	
RS/RT	13C-1,2,3,4-TCDD	1.21e+07	0.78 y	1.00	25:28	394.15			
RS	13C-1,2,3,4-TCDF	1.88e+07	0.80 y	1.00	24:03	394.15			
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.26e+07	0.51 y	1.00	33:20	394.15			

Integrations by Analyst: DB Date: 7/11/19

Reviewed by Analyst: MK Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 11 File: 190626D2 S: 6 I: 1 F: 1
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 13.405 Unnamed Concentration: 12.159

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
22:41	2.135e+04	2.564e+04	0.83	y	4.698e+04	4.0493	
23:02	9.839e+03	9.885e+03	1.00	n	1.750e+04	1.5079	
23:26	9.592e+03	1.015e+04	0.94	n	1.797e+04	1.5484	
24:11	5.218e+03	4.750e+03	1.10	n	8.408e+03	0.72460	
24:36	7.300e+03	9.347e+03	0.78	y	1.665e+04	1.4347	
25:27	3.901e+03	4.978e+03	0.78	y	8.879e+03	0.76519	
25:49	1.070e+04	1.400e+04	0.76	y	2.470e+04	2.1286	
26:03	5.943e+03	8.524e+03	0.70	y	1.447e+04	1.2468	2,3,7,8-TCDD

Totals class: PeCDD EMPC Entry #: 21

Run: 11 File: 190626D2 S: 6 I: 1 F: 2
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 40.913 Unnamed Concentration: 40.159

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:30	6.089e+04	9.711e+04	0.63	y	1.580e+05	12.941	
28:56	1.052e+04	1.799e+04	0.58	y	2.851e+04	2.3352	
29:23	3.281e+04	4.017e+04	0.82	n	6.548e+04	5.3626	
29:32	2.013e+04	3.287e+04	0.61	y	5.301e+04	4.3414	
29:38	1.586e+04	2.732e+04	0.58	y	4.319e+04	3.5370	
29:49	2.665e+04	3.703e+04	0.72	y	6.368e+04	5.2150	
30:07	3.554e+03	4.528e+03	0.78	n	7.380e+03	0.60443	
30:31	2.043e+04	3.309e+04	0.62	y	5.352e+04	4.3835	
30:37	3.629e+03	5.577e+03	0.65	y	9.205e+03	0.75393	1,2,3,7,8-PeCDD
30:53	7.375e+03	1.020e+04	0.72	y	1.758e+04	1.4395	

Totals class: HxCDD EMPC Entry #: 23

Run: 11 File: 190626D2 S: 6 I: 1 F: 3
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 319.96 Unnamed Concentration: 236.552

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:17	7.792e+05	6.491e+05	1.20	y	1.428e+06	89.878	
32:51	8.672e+04	8.022e+04	1.08	y	1.669e+05	10.505	
33:07	1.122e+06	9.107e+05	1.23	y	2.033e+06	127.91	
33:13	4.468e+04	3.486e+04	1.28	y	7.954e+04	5.0050	
33:48	6.662e+04	5.095e+04	1.31	y	1.176e+05	8.2944	1,2,3,4,7,8-HxCDD
33:55	4.964e+05	4.001e+05	1.24	y	8.965e+05	57.085	1,2,3,6,7,8-HxCDD
34:07	2.721e+04	2.442e+04	1.11	y	5.163e+04	3.2491	
34:13	1.737e+05	1.466e+05	1.18	y	3.203e+05	18.031	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 11 File: 190626D2 S: 6 I: 1 F: 4
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 1792.3 Unnamed Concentration: 887.423

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
36:48	8.202e+06	7.978e+06	1.03	y	1.618e+07	887.42	
37:39	8.361e+06	8.137e+06	1.03	y	1.650e+07	904.89	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 11 File: 190626D2 S: 6 I: 1 F: 1
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 56.782 Unnamed Concentration: 49.379

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
20:34	7.887e+03	6.104e+03	1.29	n	1.080e+04	0.68300	
21:08	1.634e+04	1.467e+04	1.11	n	2.597e+04	1.6415	
21:47	4.448e+04	5.381e+04	0.83	y	9.829e+04	6.2136	
22:17	2.976e+04	3.525e+04	0.84	y	6.501e+04	4.1098	
22:40	4.997e+04	6.286e+04	0.79	y	1.128e+05	7.1326	
23:05	2.917e+04	3.313e+04	0.88	y	6.230e+04	3.9385	
23:12	1.706e+04	2.067e+04	0.83	y	3.774e+04	2.3857	
23:23	1.870e+04	2.711e+04	0.69	y	4.582e+04	2.8964	
23:50	9.360e+03	1.219e+04	0.77	y	2.155e+04	1.3621	
24:01	2.980e+04	3.782e+04	0.79	y	6.762e+04	4.2751	
24:30	4.823e+04	6.100e+04	0.79	y	1.092e+05	6.9057	
24:45	7.123e+03	9.142e+03	0.78	y	1.627e+04	1.0283	
25:06	5.195e+03	5.255e+03	0.99	n	9.301e+03	0.58798	
25:11	8.242e+03	1.167e+04	0.71	y	1.991e+04	1.2589	
25:18	5.161e+04	6.551e+04	0.79	y	1.171e+05	7.4036	2,3,7,8-TCDF
25:38	1.739e+04	2.489e+04	0.70	y	4.228e+04	2.6727	
26:33	6.387e+03	8.024e+03	0.80	y	1.441e+04	0.91106	
27:03	9.625e+03	1.214e+04	0.79	y	2.176e+04	1.3759	

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 11 File: 190626D2 S: 6 I: 1 F: 1
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 52.658 Unnamed Concentration: 52.658

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
27:01	5.738e+05	3.767e+05	1.52 y	9.505e+05	52.658	

Totals class: PeCDF EMPC Entry #: 31

Run: 11 File: 190626D2 S: 6 I: 1 F: 2
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 63.044 Unnamed Concentration: 47.101

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:19	3.461e+04	2.441e+04	1.42	y	5.902e+04	3.2695	
28:27	2.553e+05	1.562e+05	1.63	y	4.115e+05	22.798	
29:00	7.387e+04	4.733e+04	1.56	y	1.212e+05	6.7144	
29:12	2.843e+04	1.869e+04	1.52	y	4.711e+04	2.6101	
29:22	1.090e+05	7.521e+04	1.45	y	1.842e+05	9.8338	1,2,3,7,8-PeCDF
29:35	5.583e+04	4.543e+04	1.23	n	9.185e+04	5.0887	
30:11	1.371e+04	8.368e+03	1.64	y	2.207e+04	1.2229	
30:15	6.549e+04	4.044e+04	1.62	y	1.059e+05	6.1090	2,3,4,7,8-PeCDF
30:19	5.602e+04	3.238e+04	1.73	y	8.841e+04	4.8979	
31:09	5.481e+03	4.882e+03	1.12	n	9.017e+03	0.49956	

Totals class: HxCDF EMPC Entry #: 33

Run: 11 File: 190626D2 S: 6 I: 1 F: 3
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 265.71 Unnamed Concentration: 219.308

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
31:45	3.980e+05	3.276e+05	1.21	y	7.256e+05	34.219	
31:55	9.013e+05	7.328e+05	1.23	y	1.634e+06	77.065	
32:16	1.466e+04	1.165e+04	1.26	y	2.631e+04	1.2409	
32:28	1.205e+06	9.650e+05	1.25	y	2.170e+06	102.35	
32:50	1.632e+04	1.441e+04	1.13	y	3.073e+04	1.4492	
32:56	2.569e+05	2.073e+05	1.24	y	4.641e+05	23.392	1,2,3,4,7,8-HxCDF
33:03	1.383e+05	1.188e+05	1.16	y	2.571e+05	11.627	1,2,3,6,7,8-HxCDF
33:19	6.449e+03	5.461e+03	1.18	y	1.191e+04	0.56167	
33:28	6.447e+03	6.993e+03	0.92	n	1.165e+04	0.54923	
33:40	1.118e+05	9.093e+04	1.23	y	2.027e+05	8.4703	2,3,4,6,7,8-HxCDF
34:37	3.019e+04	2.492e+04	1.21	y	5.511e+04	2.9116	1,2,3,7,8,9-HxCDF
34:40	2.221e+04	1.758e+04	1.26	y	3.979e+04	1.8765	

Totals class: HpCDF EMPC Entry #: 35

Run: 11 File: 190626D2 S: 6 I: 1 F: 4
Acquired: 27-JUN-19 08:38:57 Processed: 27-JUN-19 17:02:04

Total Concentration: 372.34 Unnamed Concentration: 241.598

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
36:26	1.300e+06	1.246e+06	1.04	y	2.546e+06	121.14	1,2,3,4,6,7,8-HpCDF
37:01	2.480e+06	2.373e+06	1.04	y	4.853e+06	241.60	
38:14	9.488e+04	8.930e+04	1.06	y	1.842e+05	9.5963	1,2,3,4,7,8,9-HpCDF

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:6 F:2

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:6 F:3

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

File:190626D2 #1-355 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:6 F:5

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:6

File:190626D2 #1-513 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0)

341.8568 S:6 F:2 BSUB(10000,15,-3.0)

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0)

341.8568 S:6 F:2 BSUB(10000,15,-3.0)

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0)

341.8568 S:6 F:2 BSUB(10000,15,-3.0)

File:190626D2 #1-184 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0)

341.8568 S:6 F:2 BSUB(10000,15,-3.0)

351.9000 S:6 F:2

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:6 F:3

File:190626D2 #1-400 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5

441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 08:38:57 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 Text:1901247-04 T4-PDI2019-SC27-190524-05-07 9.75 Exp:OCDD_DB5
441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: T4-PDI2019-SC27-190524 Filename: 190719D1 S:17 Acq:20-JUL-19 01:33:30 ConCal: ST190719D1-1
Lab ID: 1901247-04RE1 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 5.074 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.27e+07	0.81 y	15:13	1.00	394.1	-
13C-2,3,7,8-TCDF	8.14e+06	0.79 y	17:20	1.02	138.4	35.1
2,3,7,8-TCDF	1.46e+05	0.84 y	17:20	0.95	7.459	

Integrations by Analyst: DB
Date: 7/20/19

Reviewed by Analyst: [illegible]
Date: 7/22/19

File:190719D1 #1-1682 Acq:20-JUL-2019 01:33:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#17 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-04RE1 T4-PDI2019-SC27-190524-05-07 9.75 Exp:TCDF_DB225
303.9016 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1682 Acq:20-JUL-2019 01:33:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#17 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-04RE1 T4-PDI2019-SC27-190524-05-07 9.75 Exp:TCDF_DB225
303.9016 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1682 Acq:20-JUL-2019 01:33:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#17 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-04RE1 T4-PDI2019-SC27-190524-05-07 9.75 Exp:TCDF_DB225
331.9368 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:17 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:17

Client ID: T4-PDI2019-SC28 190524 Filename: 190709D2 S:5 Acq:10-JUL-19 02:00:11 ConCal: ST190709D2-1
Lab ID: 1901247-05RE1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.902 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	6.52e+03	0.52 n	0.90	26:42	0.30119		*	2.5	*
	1,2,3,7,8-PeCDD	1.64e+04	0.63 y	0.87	31:00	1.0391		*	2.5	*
	1,2,3,4,7,8-HxCDD	2.05e+04	1.35 y	1.05	34:21	1.1075		*	2.5	*
	1,2,3,6,7,8-HxCDD	9.22e+04	1.22 y	0.93	34:28	5.1290		*	2.5	*
	1,2,3,7,8,9-HxCDD	3.57e+04	1.20 y	0.96	34:46	1.8321		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	1.86e+06	1.02 y	0.99	38:08	86.070		*	2.5	*
	OCDD	2.02e+07	0.91 y	0.99	41:31	1335.0		*	2.5	*
	2,3,7,8-TCDF	2.07e+04	1.07 n	0.94	26:00	0.70695		*	2.5	*
	1,2,3,7,8-PeCDF	3.94e+04	1.36 y	0.92	29:52	1.4256		*	2.5	*
	2,3,4,7,8-PeCDF	4.80e+04	1.45 y	0.96	30:44	1.8116		*	2.5	*
	1,2,3,4,7,8-HxCDF	7.71e+04	1.21 y	1.15	33:26	3.1120		*	2.5	*
	1,2,3,6,7,8-HxCDF	2.28e+05	1.16 y	1.04	33:34	9.0951		*	2.5	*
	2,3,4,6,7,8-HxCDF	1.12e+05	1.19 y	1.10	34:12	4.3602		*	2.5	*
	1,2,3,7,8,9-HxCDF	1.29e+04	1.35 y	1.03	35:11	0.55267		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	3.20e+06	1.02 y	1.06	37:00	128.35		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	4.46e+04	0.95 y	1.23	38:43	1.8671		*	2.5	*
	OCDF	1.23e+06	0.91 y	0.94	41:46	66.734		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	5.23	6.00		*	*
Total Penta-Dioxins	10.2	14.5		*	*
Total Hexa-Dioxins	52.1	53.2		*	*
Total Hepta-Dioxins	245	245		*	*
Total Tetra-Furans	26.0	31.6		*	*
Total Penta-Furans	83.848	84.356		*	*
Total Hexa-Furans	129	129		*	*
Total Hepta-Furans	254	254		*	*

								Rec	Qual
IS	13C-2,3,7,8-TCDD	8.15e+06	0.76 y	1.11	26:42	265.85		78.5	
IS	13C-1,2,3,7,8-PeCDD	6.13e+06	0.57 y	0.98	30:59	226.50		66.8	
IS	13C-1,2,3,4,7,8-HxCDD	5.97e+06	1.29 y	0.68	34:21	307.95		90.9	
IS	13C-1,2,3,6,7,8-HxCDD	6.55e+06	1.24 y	0.84	34:27	270.99		80.0	
IS	13C-1,2,3,7,8,9-HxCDD	6.86e+06	1.26 y	0.81	34:45	294.07		86.8	
IS	13C-1,2,3,4,6,7,8-HpCDD	7.39e+06	1.07 y	0.69	38:08	375.25		111	
IS	13C-OCDD	1.04e+07	0.89 y	0.62	41:30	578.38		85.3	
IS	13C-2,3,7,8-TCDF	1.05e+07	0.78 y	1.05	25:59	244.15		72.1	
IS	13C-1,2,3,7,8-PeCDF	1.02e+07	1.59 y	0.95	29:52	260.19		76.8	
IS	13C-2,3,4,7,8-PeCDF	9.38e+06	1.57 y	0.94	30:44	245.20		72.4	
IS	13C-1,2,3,4,7,8-HxCDF	7.28e+06	0.51 y	0.86	33:25	295.87		87.3	
IS	13C-1,2,3,6,7,8-HxCDF	8.18e+06	0.50 y	1.02	33:34	278.72		82.3	
IS	13C-2,3,4,6,7,8-HxCDF	7.92e+06	0.52 y	0.95	34:10	289.49		85.4	
IS	13C-1,2,3,7,8,9-HxCDF	7.69e+06	0.51 y	0.87	35:11	308.66		91.1	
IS	13C-1,2,3,4,6,7,8-HpCDF	7.92e+06	0.43 y	0.81	37:00	341.40		101	
IS	13C-1,2,3,4,7,8,9-HpCDF	6.61e+06	0.43 y	0.63	38:42	364.18		107	
IS	13C-OCDF	1.33e+07	0.88 y	0.78	41:45	593.50		87.6	
C/Up	37Cl-2,3,7,8-TCDD	3.65e+06		1.22	26:43	108.09		79.7	
RS/RT	13C-1,2,3,4-TCDD	9.39e+06	0.78 y	1.00	26:09	338.85			
RS	13C-1,2,3,4-TCDF	1.38e+07	0.80 y	1.00	24:51	338.85			
RS/RT	13C-1,2,3,4,6,9-HxCDF	9.74e+06	0.51 y	1.00	33:52	338.85			

Integrations by Analyst: DB Date: 7/18/19

Reviewed by Analyst: NL Date: 7/22/15

Totals class: TCDD EMPC Entry #: 19

Run: 10 File: 190709D2 S: 5 I: 1 F: 1
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 6.0017 Unnamed Concentration: 5.700

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
23:35	1.989e+04	2.410e+04	0.83	y	4.400e+04	2.0310	
23:54	6.317e+03	8.283e+03	0.76	y	1.460e+04	0.67397	
24:16	6.706e+03	7.823e+03	0.86	y	1.453e+04	0.67070	
24:57	3.650e+03	4.804e+03	0.76	y	8.454e+03	0.39023	
25:08	4.275e+03	3.360e+03	1.27	n	5.948e+03	0.27456	
25:19	7.164e+03	8.380e+03	0.85	y	1.554e+04	0.71752	
25:29	2.064e+03	2.564e+03	0.81	y	4.628e+03	0.21363	
25:41	2.682e+03	2.349e+03	1.14	n	4.158e+03	0.19195	
25:49	1.899e+03	2.340e+03	0.81	y	4.239e+03	0.19567	
26:30	3.350e+03	4.042e+03	0.83	y	7.392e+03	0.34124	
26:42	2.838e+03	5.502e+03	0.52	n	6.525e+03	0.30119	2,3,7,8-TCDD

Totals class: PeCDD EMPC Entry #: 21

Run: 10 File: 190709D2 S: 5 I: 1 F: 2
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 14.454 Unnamed Concentration: 13.415

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
29:01	3.241e+04	4.622e+04	0.70	y	7.863e+04	4.9868	
29:26	9.263e+03	8.942e+03	1.04	n	1.458e+04	0.92437	
29:52	2.378e+04	2.905e+04	0.82	n	4.735e+04	3.0032	
30:01	7.704e+03	1.420e+04	0.54	y	2.190e+04	1.3889	
30:06	6.859e+03	9.610e+03	0.71	y	1.647e+04	1.0445	
30:19	1.046e+04	1.697e+04	0.62	y	2.742e+04	1.7392	
31:00	6.323e+03	1.006e+04	0.63	y	1.638e+04	1.0391	1,2,3,7,8-PeCDD
31:21	2.908e+03	3.171e+03	0.92	n	5.169e+03	0.32783	

Totals class: HxCDD EMPC Entry #: 23

Run: 10 File: 190709D2 S: 5 I: 1 F: 3
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 53.160 Unnamed Concentration: 45.092

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:45	2.290e+05	1.827e+05	1.25	y	4.116e+05	22.123	
33:21	2.563e+04	2.116e+04	1.21	y	4.679e+04	2.5149	
33:37	1.951e+05	1.654e+05	1.18	y	3.605e+05	19.376	
33:44	1.109e+04	1.203e+04	0.92	n	2.004e+04	1.0770	
34:21	1.178e+04	8.720e+03	1.35	y	2.050e+04	1.1075	1,2,3,4,7,8-HxCDD
34:28	5.072e+04	4.146e+04	1.22	y	9.218e+04	5.1290	1,2,3,6,7,8-HxCDD
34:46	1.946e+04	1.622e+04	1.20	y	3.568e+04	1.8321	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 10 File: 190709D2 S: 5 I: 1 F: 4
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 244.68 Unnamed Concentration: 158.605

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
37:20	1.717e+06	1.704e+06	1.01	y	3.421e+06	158.60	
38:08	9.362e+05	9.201e+05	1.02	y	1.856e+06	86.070	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 10 File: 190709D2 S: 5 I: 1 F: 1
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 31.641 Unnamed Concentration: 30.934

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
21:38	8.998e+03	9.491e+03	0.95	n	1.680e+04	0.57514	
22:12	1.986e+04	2.962e+04	0.67	y	4.948e+04	1.6940	
22:47	1.263e+05	1.574e+05	0.80	y	2.836e+05	9.7102	
23:09	6.803e+03	1.022e+04	0.67	y	1.702e+04	0.58261	
23:16	1.055e+04	1.077e+04	0.98	n	1.907e+04	0.65291	
23:34	4.879e+04	6.734e+04	0.72	y	1.161e+05	3.9757	
23:57	6.610e+04	7.825e+04	0.84	y	1.444e+05	4.9418	
24:38	8.244e+03	9.403e+03	0.88	y	1.765e+04	0.60415	
24:46	2.882e+04	3.273e+04	0.88	y	6.155e+04	2.1073	
25:15	2.700e+04	2.826e+04	0.96	n	5.001e+04	1.7122	
26:00	1.247e+04	1.167e+04	1.07	n	2.065e+04	0.70695	2,3,7,8-TCDF
26:18	4.204e+03	5.393e+03	0.78	y	9.597e+03	0.32853	
26:46	4.583e+03	5.804e+03	0.79	y	1.039e+04	0.35558	
27:13	2.286e+04	2.685e+04	0.85	y	4.972e+04	1.7021	
27:22	1.882e+04	1.952e+04	0.96	n	3.456e+04	1.1830	
27:38	1.257e+04	1.336e+04	0.94	n	2.364e+04	0.80928	

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 10 File: 190709D2 S: 5 I: 1 F: 1
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 48.735 Unnamed Concentration: 48.735

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
27:36	8.037e+05	5.159e+05	1.56 y	1.320e+06	48.735	

Totals class: PeCDF EMPC Entry #: 31

Run: 10 File: 190709D2 S: 5 I: 1 F: 2
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 35.622 Unnamed Concentration: 32.384

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:58	2.920e+05	1.866e+05	1.57	y	4.786e+05	17.675	
29:31	1.092e+05	7.257e+04	1.50	y	1.818e+05	6.7133	
29:42	8.360e+03	8.882e+03	0.94	n	1.375e+04	0.50797	
29:52	2.271e+04	1.668e+04	1.36	y	3.939e+04	1.4256	1,2,3,7,8-PeCDF
30:06	6.206e+04	4.135e+04	1.50	y	1.034e+05	3.8191	
30:44	2.840e+04	1.961e+04	1.45	y	4.800e+04	1.8116	2,3,4,7,8-PeCDF
30:47	6.019e+04	3.916e+04	1.54	y	9.935e+04	3.6691	

Totals class: HxCDF EMPC Entry #: 33

Run: 10 File: 190709D2 S: 5 I: 1 F: 3
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 129.03 Unnamed Concentration: 111.910

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:13	1.963e+05	1.659e+05	1.18	y	3.622e+05	14.665	
32:23	4.680e+05	3.691e+05	1.27	y	8.371e+05	33.888	
32:45	8.122e+03	6.842e+03	1.19	y	1.496e+04	0.60582	
32:57	8.506e+05	6.843e+05	1.24	y	1.535e+06	62.141	
33:26	4.219e+04	3.493e+04	1.21	y	7.713e+04	3.1120	1,2,3,4,7,8-HxCDF
33:34	1.224e+05	1.055e+05	1.16	y	2.279e+05	9.0951	1,2,3,6,7,8-HxCDF
34:12	6.061e+04	5.108e+04	1.19	y	1.117e+05	4.3602	2,3,4,6,7,8-HxCDF
35:11	7.411e+03	5.508e+03	1.35	y	1.292e+04	0.55267	1,2,3,7,8,9-HxCDF
35:14	8.480e+03	6.600e+03	1.28	y	1.508e+04	0.61054	

Totals class: HpCDF EMPC Entry #: 35

Run: 10 File: 190709D2 S: 5 I: 1 F: 4
Acquired: 10-JUL-19 02:00:11 Processed: 10-JUL-19 10:06:17

Total Concentration: 254.33 Unnamed Concentration: 124.118

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
37:00	1.612e+06	1.583e+06	1.02 y	3.196e+06	128.35	1,2,3,4,6,7,8-HpCDF
37:31	1.519e+06	1.502e+06	1.01 y	3.021e+06	124.12	
38:43	2.178e+04	2.286e+04	0.95 y	4.464e+04	1.8671	1,2,3,4,7,8,9-HpCDF

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:5 F:2

File:190709D2 #1-211 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:5 F:3

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

File:190709D2 #1-356 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:5 F:5

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0)

305.8987 S:5 BSUB(10000,15,-3.0)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0)

305.8987 S:5 BSUB(10000,15,-3.0)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0)

305.8987 S:5 BSUB(10000,15,-3.0)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0)

305.8987 S:5 BSUB(10000,15,-3.0)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0)

305.8987 S:5 BSUB(10000,15,-3.0)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
303.9016 S:5 BSUB(10000,15,-3.0)

305.8987 S:5 BSUB(10000,15,-3.0)

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:5

File:190709D2 #1-514 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:5 F:2

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:5 F:3

File:190709D2 #1-355 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

File:190709D2 #1-356 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5

441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq:10-JUL-2019 02:00:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-05RE1 T4-PDI2019-SC28-190524-07-09 8.6 Exp:OCDD_DB5
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: T4-PDI2019-SC28-190524 Filename: 190626D2 S:7 Acq:27-JUN-19 09:26:40 ConCal: ST190626D2-1
Lab ID: 1901247-06 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.136 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	*	* n	0.90	NotF	*		330	2.5	0.619
	1,2,3,7,8-PeCDD	2.10e+04	0.56 y	0.87	30:31	1.6021		*	2.5	*
	1,2,3,4,7,8-HxCDD	1.79e+04	1.25 y	1.05	33:48	1.2790		*	2.5	*
	1,2,3,6,7,8-HxCDD	1.51e+05	1.30 y	0.93	33:55	9.0058		*	2.5	*
	1,2,3,7,8,9-HxCDD	5.33e+04	1.37 y	0.96	34:13	3.0628		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	1.94e+06	1.00 y	0.99	37:40	108.61		*	2.5	*
	OCDD	2.65e+07	0.90 y	0.99	40:56	1639.8		*	2.5	*
	2,3,7,8-TCDF	1.83e+04	0.66 y	0.94	25:17	1.4660		*	2.5	*
	1,2,3,7,8-PeCDF	5.24e+04	1.77 y	0.92	29:21	2.7384		*	2.5	*
	2,3,4,7,8-PeCDF	1.01e+05	1.56 y	0.96	30:15	5.8701		*	2.5	*
	1,2,3,4,7,8-HxCDF	1.41e+05	1.26 y	1.15	32:55	6.7189		*	2.5	*
	1,2,3,6,7,8-HxCDF	4.55e+05	1.21 y	1.04	33:03	19.392		*	2.5	*
	2,3,4,6,7,8-HxCDF	2.20e+05	1.30 y	1.10	33:40	9.1445		*	2.5	*
	1,2,3,7,8,9-HxCDF	2.21e+04	1.10 y	1.03	34:37	1.1445		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	5.85e+06	1.03 y	1.06	36:25	276.70		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	7.21e+04	1.03 y	1.23	38:14	3.5815		*	2.5	*
	OCDF	2.27e+06	0.89 y	0.94	41:09	123.96		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	10.8	12.8		*	*
Total Penta-Dioxins	16.8	27.0		*	*
Total Hexa-Dioxins	88.8	88.8		*	*
Total Hepta-Dioxins	291	291		*	*
Total Tetra-Furans	87.7	88.4		*	*
Total Penta-Furans	191.16	191.16		*	*
Total Hexa-Furans	312	312		*	*
Total Hepta-Furans	548	548		*	*

								Rec	Qual
IS	13C-2,3,7,8-TCDD	4.46e+06	0.79 y	1.11	26:03	135.97		34.9	
IS	13C-1,2,3,7,8-PeCDD	5.85e+06	0.63 y	0.98	30:31	202.02		51.9	
IS	13C-1,2,3,4,7,8-HxCDD	5.20e+06	1.26 y	0.68	33:48	241.63		62.0	
IS	13C-1,2,3,6,7,8-HxCDD	7.00e+06	1.28 y	0.84	33:54	261.11		67.1	
IS	13C-1,2,3,7,8,9-HxCDD	7.04e+06	1.26 y	0.81	34:13	272.27		69.9	
IS	13C-1,2,3,4,6,7,8-HpCDD	7.02e+06	1.07 y	0.69	37:39	321.44		82.5	
IS	13C-OCDD	1.28e+07	0.91 y	0.62	40:55	641.52		82.4	
IS	13C-2,3,7,8-TCDF	5.17e+06	0.77 y	1.05	25:17	106.00		27.2	
IS	13C-1,2,3,7,8-PeCDF	8.08e+06	1.60 y	0.95	29:21	182.69		46.9	
IS	13C-2,3,4,7,8-PeCDF	7.02e+06	1.58 y	0.94	30:15	162.08		41.6	
IS	13C-1,2,3,4,7,8-HxCDF	7.09e+06	0.53 y	0.86	32:54	259.57		66.7	
IS	13C-1,2,3,6,7,8-HxCDF	8.80e+06	0.51 y	1.02	33:02	270.52		69.5	
IS	13C-2,3,4,6,7,8-HxCDF	8.53e+06	0.51 y	0.95	33:39	281.33		72.2	
IS	13C-1,2,3,7,8,9-HxCDF	7.29e+06	0.50 y	0.87	34:37	263.92		67.8	
IS	13C-1,2,3,4,6,7,8-HpCDF	7.73e+06	0.44 y	0.81	36:25	300.21		77.1	
IS	13C-1,2,3,4,7,8,9-HpCDF	6.40e+06	0.44 y	0.63	38:13	317.68		81.6	
IS	13C-OCDF	1.52e+07	0.90 y	0.78	41:09	609.96		78.3	
C/Up	37Cl-2,3,7,8-TCDD	2.19e+06		1.22	26:04	60.588		38.9	
RS/RT	13C-1,2,3,4-TCDD	1.16e+07	0.80 y	1.00	25:27	389.42			
RS	13C-1,2,3,4-TCDF	1.80e+07	0.81 y	1.00	24:03	389.42			
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.24e+07	0.51 y	1.00	33:19	389.42			

Integrations by Analyst: DB Date: 7/11/19

Reviewed by Analyst: [illegible] Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 12 File: 190626D2 S: 7 I: 1 F: 1
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 12.790 Unnamed Concentration: 12.790

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
22:40	3.323e+04	4.167e+04	0.80	y	7.490e+04	7.2513	
23:02	8.370e+03	8.593e+03	0.97	n	1.521e+04	1.4726	
23:26	5.078e+03	6.596e+03	0.77	y	1.167e+04	1.1303	
24:34	6.142e+03	7.372e+03	0.83	y	1.351e+04	1.3084	
25:27	2.348e+03	4.030e+03	0.58	n	5.398e+03	0.52261	
25:49	5.032e+03	6.374e+03	0.79	y	1.141e+04	1.1043	

Totals class: PeCDD EMPC Entry #: 21

Run: 12 File: 190626D2 S: 7 I: 1 F: 2
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 26.968 Unnamed Concentration: 25.366

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:29	4.875e+04	8.153e+04	0.60	y	1.303e+05	9.9375	
28:55	8.167e+03	1.562e+04	0.52	n	2.113e+04	1.6118	
29:21	3.982e+04	4.357e+04	0.91	n	7.103e+04	5.4176	
29:32	1.217e+04	2.060e+04	0.59	y	3.277e+04	2.4995	
29:36	9.868e+03	1.572e+04	0.63	y	2.559e+04	1.9517	
29:49	1.928e+04	2.502e+04	0.77	n	4.078e+04	3.1106	
30:31	7.549e+03	1.345e+04	0.56	y	2.100e+04	1.6021	1,2,3,7,8-PeCDD
30:52	4.481e+03	6.492e+03	0.69	y	1.097e+04	0.83702	

Totals class: HxCDD EMPC Entry #: 23

Run: 12 File: 190626D2 S: 7 I: 1 F: 3
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 88.754 Unnamed Concentration: 75.407

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
32:16	2.875e+05	2.515e+05	1.14 y	5.391e+05	33.544	
32:50	4.731e+04	3.602e+04	1.31 y	8.333e+04	5.1854	
33:07	3.173e+05	2.561e+05	1.24 y	5.734e+05	35.677	
33:48	9.944e+03	7.979e+03	1.25 y	1.792e+04	1.2790	1,2,3,4,7,8-HxCDD
33:55	8.506e+04	6.545e+04	1.30 y	1.505e+05	9.0058	1,2,3,6,7,8-HxCDD
34:06	9.064e+03	7.000e+03	1.29 y	1.606e+04	0.99960	
34:13	3.078e+04	2.251e+04	1.37 y	5.329e+04	3.0628	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 12 File: 190626D2 S: 7 I: 1 F: 4
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 290.92 Unnamed Concentration: 182.307

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:48	1.633e+06	1.617e+06	1.01 y	3.250e+06	182.31	
37:40	9.672e+05	9.691e+05	1.00 y	1.936e+06	108.61	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 12 File: 190626D2 S: 7 I: 1 F: 1
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 88.361 Unnamed Concentration: 86.895

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
20:33	4.876e+03	4.348e+03	1.12	n	7.695e+03	0.61539	
21:08	2.530e+04	3.001e+04	0.84	y	5.531e+04	4.4231	
21:47	1.581e+05	1.954e+05	0.81	y	3.535e+05	28.269	
22:40	4.644e+04	6.207e+04	0.75	y	1.085e+05	8.6773	
23:05	7.699e+04	9.733e+04	0.79	y	1.743e+05	13.940	
24:00	3.588e+04	4.525e+04	0.79	y	8.113e+04	6.4883	
24:29	3.538e+04	4.347e+04	0.81	y	7.886e+04	6.3062	
25:12	6.031e+03	7.056e+03	0.85	y	1.309e+04	1.0466	
25:17	7.300e+03	1.103e+04	0.66	y	1.833e+04	1.4660	2,3,7,8-TCDF
26:05	7.465e+03	9.496e+03	0.79	y	1.696e+04	1.3564	
26:33	3.773e+04	4.941e+04	0.76	y	8.714e+04	6.9687	
26:42	3.025e+04	4.606e+04	0.66	y	7.631e+04	6.1021	
27:01	1.501e+04	1.878e+04	0.80	y	3.379e+04	2.7021	

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 12 File: 190626D2 S: 7 I: 1 F: 1
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 107.39 Unnamed Concentration: 107.394

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
27:00	1.188e+06	7.687e+05	1.55 y	1.957e+06	107.39	

Totals class: PeCDF EMPC Entry #: 31

Run: 12 File: 190626D2 S: 7 I: 1 F: 2
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 83.765 Unnamed Concentration: 75.156

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
28:19	2.738e+04	1.941e+04	1.41 y	4.679e+04	2.5680	
28:27	4.475e+05	2.586e+05	1.73 y	7.061e+05	38.757	
29:00	2.054e+05	1.194e+05	1.72 y	3.248e+05	17.830	
29:21	3.350e+04	1.888e+04	1.77 y	5.238e+04	2.7384	1,2,3,7,8-PeCDF
29:34	8.933e+04	5.588e+04	1.60 y	1.452e+05	7.9703	
30:15	6.174e+04	3.964e+04	1.56 y	1.014e+05	5.8701	2,3,4,7,8-PeCDF
30:18	8.977e+04	5.654e+04	1.59 y	1.463e+05	8.0306	

Totals class: HxCDF EMPC Entry #: 33

Run: 12 File: 190626D2 S: 7 I: 1 F: 3
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 312.31 Unnamed Concentration: 275.915

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
31:45	4.725e+05	3.881e+05	1.22	y	8.606e+05	39.222	
31:54	1.087e+06	8.754e+05	1.24	y	1.962e+06	89.440	
32:15	1.652e+04	1.203e+04	1.37	y	2.855e+04	1.3013	
32:27	1.742e+06	1.434e+06	1.21	y	3.176e+06	144.74	
32:55	7.864e+04	6.234e+04	1.26	y	1.410e+05	6.7189	1,2,3,4,7,8-HxCDF
33:03	2.493e+05	2.059e+05	1.21	y	4.552e+05	19.392	1,2,3,6,7,8-HxCDF
33:40	1.240e+05	9.564e+04	1.30	y	2.197e+05	9.1445	2,3,4,6,7,8-HxCDF
34:37	1.156e+04	1.052e+04	1.10	y	2.208e+04	1.1445	1,2,3,7,8,9-HxCDF
34:40	1.382e+04	1.269e+04	1.09	y	2.651e+04	1.2080	

Totals class: HpCDF EMPC Entry #: 35

Run: 12 File: 190626D2 S: 7 I: 1 F: 4
Acquired: 27-JUN-19 09:26:40 Processed: 27-JUN-19 17:02:04

Total Concentration: 547.93 Unnamed Concentration: 267.652

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:25	2.969e+06	2.877e+06	1.03 y	5.847e+06	276.70	1,2,3,4,6,7,8-HpCDF
37:01	2.795e+06	2.713e+06	1.03 y	5.508e+06	267.65	
38:14	3.656e+04	3.552e+04	1.03 y	7.208e+04	3.5815	1,2,3,4,7,8,9-HpCDF

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

353.8576 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:7 F:2

File:190626D2 #1-184 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
353.8576 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
353.8576 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:7 F:3

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
401.8559 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:7 F:4

File:190626D2 #1-356 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-431 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:7 F:5

File:190626D2 #1-431 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
339.8597 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:7

File:190626D2 #1-514 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
339.8597 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:7 F:2

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:7 F:3

File:190626D2 #1-399 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-431 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5

441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-431 Acq:27-JUN-2019 09:26:40 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 Text:1901247-06 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:OCDD_DB5
441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: T4-PDI2019-SC28-190524¶ Filename: 190719D1 S:8 Acq:19-JUL-19 20:46:59 ConCal: ST190719D1-1
Lab ID: 1901247-06RE1 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 5.136 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.27e+07	0.81 y	15:13	1.00	389.4	-
13C-2,3,7,8-TCDF	6.69e+06	0.80 y	17:20	1.02	112.2	28.8
2,3,7,8-TCDF	2.62e+04	0.88 y	17:21	0.95	1.608	

Integrations by Analyst: DB
Date: 7/20/19

Reviewed by Analyst: [illegible]
Date: 7/22/19

File:190719D1 #1-1682 Acq:19-JUL-2019 20:46:59 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-06RE1 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:TCDF_DB2£
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1682 Acq:19-JUL-2019 20:46:59 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-06RE1 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:TCDF_DB2£
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1682 Acq:19-JUL-2019 20:46:59 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-06RE1 T4-PDI2019-SC28-190524-09-10.1 8.75 Exp:TCDF_DB2£

331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:8

Client ID: FD-201905241300 Filename: 190626D2 S:8 Acq:27-JUN-19 10:14:26 ConCal: ST190626D2-1
Lab ID: 1901247-07 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.040 EndCAL: NA

Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
2,3,7,8-TCDD	*	* n	0.90	NotF	*		229	2.5	0.387
1,2,3,7,8-PeCDD	1.37e+04	0.64 y	0.87	30:30	1.0750		*	2.5	*
1,2,3,4,7,8-HxCDD	1.97e+04	1.12 y	1.05	33:48	1.2006		*	2.5	*
1,2,3,6,7,8-HxCDD	1.37e+05	1.06 y	0.93	33:55	7.1982		*	2.5	*
1,2,3,7,8,9-HxCDD	6.11e+04	1.14 y	0.96	34:12	2.9050		*	2.5	*
1,2,3,4,6,7,8-HpCDD	3.10e+06	1.01 y	0.99	37:39	163.40		*	2.5	*
OCDD	2.37e+07	0.90 y	0.99	40:54	1550.7		*	2.5	*
2,3,7,8-TCDF	1.83e+04	0.78 y	0.94	25:17	1.3408		*	2.5	*
1,2,3,7,8-PeCDF	1.82e+04	1.42 y	0.92	29:20	0.98646		*	2.5	*
2,3,4,7,8-PeCDF	2.16e+04	1.76 y	0.96	30:14	1.3405		*	2.5	*
1,2,3,4,7,8-HxCDF	1.09e+05	1.30 y	1.15	32:55	4.7946		*	2.5	*
1,2,3,6,7,8-HxCDF	4.17e+04	1.01 n	1.04	33:02	1.6417		*	2.5	*
2,3,4,6,7,8-HxCDF	4.01e+04	1.29 y	1.10	33:38	1.5089		*	2.5	*
1,2,3,7,8,9-HxCDF	1.13e+04	1.36 y	1.03	34:36	0.49224		*	2.5	*
1,2,3,4,6,7,8-HpCDF	5.76e+05	1.04 y	1.06	36:25	25.250		*	2.5	*
1,2,3,4,7,8,9-HpCDF	4.36e+04	0.92 y	1.23	38:12	2.0735		*	2.5	*
OCDF	1.23e+06	0.90 y	0.94	41:08	72.855		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	1.20	1.20		*	*
Total Penta-Dioxins	2.97	5.66		*	*
Total Hexa-Dioxins	54.5	55.2		*	*
Total Hepta-Dioxins	405	405		*	*
Total Tetra-Furans	3.34	3.34		*	*
Total Penta-Furans	13.331	17.139		*	*
Total Hexa-Furans	43.2	44.8		*	*
Total Hepta-Furans	90.8	90.8		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	4.52e+06	0.75 y	1.11	26:01	142.45	35.9	
IS	13C-1,2,3,7,8-PeCDD	5.80e+06	0.64 y	0.98	30:30	206.85	52.1	
IS	13C-1,2,3,4,7,8-HxCDD	6.20e+06	1.27 y	0.68	33:47	300.15	75.6	
IS	13C-1,2,3,6,7,8-HxCDD	8.14e+06	1.29 y	0.84	33:54	316.15	79.7	
IS	13C-1,2,3,7,8,9-HxCDD	8.67e+06	1.23 y	0.81	34:12	349.03	88.0	
IS	13C-1,2,3,4,6,7,8-HpCDD	7.61e+06	1.04 y	0.69	37:38	362.41	91.3	
IS	13C-OCDD	1.23e+07	0.92 y	0.62	40:54	644.40	81.2	
IS	13C-2,3,7,8-TCDF	5.75e+06	0.81 y	1.05	25:16	133.12	33.5	
IS	13C-1,2,3,7,8-PeCDF	7.93e+06	1.63 y	0.95	29:21	202.26	51.0	
IS	13C-2,3,4,7,8-PeCDF	6.67e+06	1.58 y	0.94	30:14	173.63	43.8	
IS	13C-1,2,3,4,7,8-HxCDF	7.82e+06	0.51 y	0.86	32:54	298.17	75.1	
IS	13C-1,2,3,6,7,8-HxCDF	9.70e+06	0.51 y	1.02	33:02	310.16	78.2	
IS	13C-2,3,4,6,7,8-HxCDF	9.63e+06	0.52 y	0.95	33:38	330.42	83.3	
IS	13C-1,2,3,7,8,9-HxCDF	8.82e+06	0.51 y	0.87	34:36	332.32	83.7	
IS	13C-1,2,3,4,6,7,8-HpCDF	8.51e+06	0.43 y	0.81	36:24	344.02	86.7	
IS	13C-1,2,3,4,7,8,9-HpCDF	6.81e+06	0.44 y	0.63	38:12	352.00	88.7	
IS	13C-OCDF	1.43e+07	0.89 y	0.78	41:08	597.77	75.3	
C/Up	37Cl-2,3,7,8-TCDD	1.98e+06		1.22	26:03	56.703	35.7	
RS/RT	13C-1,2,3,4-TCDD	1.14e+07	0.81 y	1.00	25:26	396.83		
RS	13C-1,2,3,4-TCDF	1.63e+07	0.82 y	1.00	24:01	396.83		
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.22e+07	0.51 y	1.00	33:19	396.83		

Integrations by Analyst: DB Date: 7/16/19

Reviewed by Analyst: MM Date: 7/23/19

Totals class: TCDD EMPC Entry #: 19

Run: 13 File: 190626D2 S: 8 I: 1 F: 1
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 1.2037 Unnamed Concentration: 1.204

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
25:48	5.310e+03	7.051e+03	0.75	y	1.236e+04	1.2037	

Totals class: PeCDD EMPC Entry #: 21

Run: 13 File: 190626D2 S: 8 I: 1 F: 2
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 5.6603 Unnamed Concentration: 4.585

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:28	9.832e+03	1.432e+04	0.69	y	2.415e+04	1.8961	
29:20	4.179e+03	8.250e+03	0.51	n	1.081e+04	0.84875	
29:30	5.375e+03	6.460e+03	0.83	n	1.053e+04	0.82655	
29:48	6.920e+03	7.924e+03	0.87	n	1.292e+04	1.0139	
30:30	5.339e+03	8.355e+03	0.64	y	1.369e+04	1.0750	1,2,3,7,8-PeCDD

Totals class: HxCDD EMPC Entry #: 23

Run: 13 File: 190626D2 S: 8 I: 1 F: 3
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 55.210 Unnamed Concentration: 43.907

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:16	2.042e+05	1.595e+05	1.28	y	3.637e+05	19.274	
32:49	2.314e+04	1.932e+04	1.20	y	4.246e+04	2.2503	
33:05	2.073e+05	1.703e+05	1.22	y	3.776e+05	20.012	
33:13	1.609e+04	1.457e+04	1.10	y	3.066e+04	1.6250	
33:48	1.042e+04	9.285e+03	1.12	y	1.970e+04	1.2006	1,2,3,4,7,8-HxCDD
33:55	7.077e+04	6.656e+04	1.06	y	1.373e+05	7.1982	1,2,3,6,7,8-HxCDD
34:05	9.266e+03	6.275e+03	1.48	n	1.406e+04	0.74488	
34:12	3.259e+04	2.850e+04	1.14	y	6.109e+04	2.9050	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 13 File: 190626D2 S: 8 I: 1 F: 4
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 405.45 Unnamed Concentration: 242.052

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
36:48	2.322e+06	2.265e+06	1.03	y	4.587e+06	242.05	
37:39	1.554e+06	1.543e+06	1.01	y	3.097e+06	163.40	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 13 File: 190626D2 S: 8 I: 1 F: 1
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 3.3413 Unnamed Concentration: 2.001

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
23:02	4.466e+03	6.085e+03	0.73	y	1.055e+04	0.77251	
24:28	7.755e+03	9.018e+03	0.86	y	1.677e+04	1.2280	
25:17	8.044e+03	1.027e+04	0.78	y	1.831e+04	1.3408	2,3,7,8-TCDF

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 13 File: 190626D2 S: 8 I: 1 F: 1
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 6.9369 Unnamed Concentration: 6.937

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
27:00	7.508e+04	4.478e+04	1.68	y	1.199e+05	6.9369	

Totals class: PeCDF EMPC Entry #: 31

Run: 13 File: 190626D2 S: 8 I: 1 F: 2
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 10.202 Unnamed Concentration: 7.875

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:17	8.898e+03	6.201e+03	1.43	y	1.510e+04	0.87386	
28:26	4.732e+04	2.581e+04	1.83	n	6.581e+04	3.8088	
28:58	1.328e+04	9.943e+03	1.34	y	2.322e+04	1.3441	
29:20	1.068e+04	7.492e+03	1.42	y	1.817e+04	0.98646	1,2,3,7,8-PeCDF
29:34	1.148e+04	6.472e+03	1.77	y	1.795e+04	1.0387	
30:14	1.376e+04	7.813e+03	1.76	y	2.157e+04	1.3405	2,3,4,7,8-PeCDF
30:18	8.525e+03	5.470e+03	1.56	y	1.399e+04	0.80997	

Totals class: HxCDF EMPC Entry #: 33

Run: 13 File: 190626D2 S: 8 I: 1 F: 3
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 44.822 Unnamed Concentration: 36.384

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
31:44	5.328e+04	4.772e+04	1.12	y	1.010e+05	4.1361	
31:53	1.596e+05	1.356e+05	1.18	y	2.952e+05	12.088	
32:26	2.574e+05	2.092e+05	1.23	y	4.666e+05	19.109	
32:49	6.018e+03	5.628e+03	1.07	y	1.165e+04	0.47692	
32:55	6.166e+04	4.730e+04	1.30	y	1.090e+05	4.7946	1,2,3,4,7,8-HxCDF
33:02	2.306e+04	2.283e+04	1.01	n	4.166e+04	1.6417	1,2,3,6,7,8-HxCDF
33:38	2.262e+04	1.752e+04	1.29	y	4.014e+04	1.5089	2,3,4,6,7,8-HxCDF
34:36	6.499e+03	4.773e+03	1.36	y	1.127e+04	0.49224	1,2,3,7,8,9-HxCDF
34:39	8.145e+03	5.868e+03	1.39	y	1.401e+04	0.57386	

Totals class: HpCDF EMPC Entry #: 35

Run: 13 File: 190626D2 S: 8 I: 1 F: 4
Acquired: 27-JUN-19 10:14:26 Processed: 27-JUN-19 17:02:05

Total Concentration: 90.846 Unnamed Concentration: 63.522

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:25	2.943e+05	2.822e+05	1.04 y	5.765e+05	25.250	1,2,3,4,6,7,8-HpCDF
37:01	7.048e+05	6.864e+05	1.03 y	1.391e+06	63.522	
38:12	2.093e+04	2.267e+04	0.92 y	4.360e+04	2.0735	1,2,3,4,7,8,9-HpCDF

File:190626D2 #1-514 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

File:190626D2 #1-514 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:8 F:2

File:190626D2 #1-184 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:8 F:3

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:8 F:4

File:190626D2 #1-355 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:8 F:5

File:190626D2 #1-514 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

File:190626D2 #1-514 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:8

File:190626D2 #1-514 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:8 F:2

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:8 F:3

File:190626D2 #1-400 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5

441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 10:14:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 Text:1901247-07 FD-201905241300 9.18 Exp:OCDD_DB5
441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: FD-201905241300 Filename: 190719D1 S:9 Acq:19-JUL-19 21:18:48 ConCal: ST190719D1-1
Lab ID: 1901247-07RE1 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 5.040 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.24e+07	0.82 y	15:12	1.00	396.8	-
13C-2,3,7,8-TCDF	7.38e+06	0.80 y	17:19	1.02	127.9	32.2
2,3,7,8-TCDF	2.75e+04	0.88 y	17:19	0.95	1.560	

Integrations by Analyst: DB
Date: 7/20/19

Reviewed by Analyst: MW
Date: 7/22/19

File:190719D1 #1-1683 Acq:19-JUL-2019 21:18:48 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-07RE1 FD-201905241300 9.18 Exp:TCDF_DB225
303.9016 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 21:18:48 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-07RE1 FD-201905241300 9.18 Exp:TCDF_DB225
303.9016 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 21:18:48 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-07RE1 FD-201905241300 9.18 Exp:TCDF_DB225
331.9368 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:9

Client ID: T4-PDI2019-SC30-190524 Filename: 190709D2 S:6 Acq:10-JUL-19 02:47:49 ConCal: ST190709D2-1
Lab ID: 1901247-08RE1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.867 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	8.70e+03	0.41 n	0.90	26:42	0.41480		*	2.5	*
	1,2,3,7,8-PeCDD	6.75e+03	0.66 y	0.87	31:00	0.52254		*	2.5	*
	1,2,3,4,7,8-HxCDD	1.48e+04	1.81 n	1.05	34:21	0.90679		*	2.5	*
	1,2,3,6,7,8-HxCDD	1.01e+05	1.25 y	0.93	34:28	6.3524		*	2.5	*
	1,2,3,7,8,9-HxCDD	4.64e+04	1.28 y	0.96	34:47	2.7589		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	2.95e+06	1.02 y	0.99	38:09	166.87		*	2.5	*
	OCDD	2.07e+07	0.92 y	0.99	41:31	1594.6		*	2.5	*
	2,3,7,8-TCDF	2.96e+04	0.88 y	0.94	26:00	1.1103		*	2.5	*
	1,2,3,7,8-PeCDF	5.78e+04	1.54 y	0.92	29:53	2.3167		*	2.5	*
	2,3,4,7,8-PeCDF	3.42e+04	1.66 y	0.96	30:44	1.4582		*	2.5	*
	1,2,3,4,7,8-HxCDF	1.51e+05	1.18 y	1.15	33:26	6.9451		*	2.5	*
	1,2,3,6,7,8-HxCDF	4.50e+04	1.13 y	1.04	33:34	2.0633		*	2.5	*
	2,3,4,6,7,8-HxCDF	3.74e+04	1.07 y	1.10	34:12	1.6786		*	2.5	*
	1,2,3,7,8,9-HxCDF	2.10e+04	1.20 y	1.03	35:12	1.0310		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	4.82e+05	0.99 y	1.06	37:01	24.701		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	5.77e+04	1.09 y	1.23	38:43	2.7208		*	2.5	*
	OCDF	1.05e+06	0.94 y	0.94	41:46	65.056		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	1.68	2.38		*	*
Total Penta-Dioxins	4.34	7.46		*	*
Total Hexa-Dioxins	47.5	50.1		*	*
Total Hepta-Dioxins	457	457		*	*
Total Tetra-Furans	4.86	4.86		*	*
Total Penta-Furans	21.013	21.534		*	*
Total Hexa-Furans	46.0	46.9		*	*
Total Hepta-Furans	89.8	89.8		*	*

								Rec	Qual
IS	13C-2,3,7,8-TCDD	7.94e+06	0.79 y	1.11	26:42	237.86		69.8	
IS	13C-1,2,3,7,8-PeCDD	5.05e+06	0.59 y	0.98	31:00	171.42		50.3	
IS	13C-1,2,3,4,7,8-HxCDD	5.31e+06	1.26 y	0.68	34:20	259.15		76.0	
IS	13C-1,2,3,6,7,8-HxCDD	5.83e+06	1.23 y	0.84	34:27	228.41		67.0	
IS	13C-1,2,3,7,8,9-HxCDD	5.96e+06	1.28 y	0.81	34:46	241.95		71.0	
IS	13C-1,2,3,4,6,7,8-HpCDD	6.11e+06	1.07 y	0.69	38:08	293.37		86.1	
IS	13C-OCDD	8.97e+06	0.93 y	0.62	41:30	473.09		69.4	
IS	13C-2,3,7,8-TCDF	9.63e+06	0.79 y	1.05	25:59	223.35		65.5	
IS	13C-1,2,3,7,8-PeCDF	9.23e+06	1.58 y	0.95	29:52	235.74		69.2	
IS	13C-2,3,4,7,8-PeCDF	8.36e+06	1.57 y	0.94	30:44	217.94		63.9	
IS	13C-1,2,3,4,7,8-HxCDF	6.44e+06	0.51 y	0.86	33:26	247.65		72.6	
IS	13C-1,2,3,6,7,8-HxCDF	7.15e+06	0.49 y	1.02	33:33	230.73		67.7	
IS	13C-2,3,4,6,7,8-HxCDF	6.93e+06	0.52 y	0.95	34:11	239.96		70.4	
IS	13C-1,2,3,7,8,9-HxCDF	6.73e+06	0.51 y	0.87	35:11	255.61		75.0	
IS	13C-1,2,3,4,6,7,8-HpCDF	6.25e+06	0.44 y	0.81	37:00	254.70		74.7	
IS	13C-1,2,3,4,7,8,9-HpCDF	5.90e+06	0.42 y	0.63	38:42	307.73		90.3	
IS	13C-OCDF	1.17e+07	0.90 y	0.78	41:45	493.22		72.3	
C/Up	37Cl-2,3,7,8-TCDD	4.28e+06		1.22	26:43	116.59		85.5	
RS/RT	13C-1,2,3,4-TCDD	1.03e+07	0.79 y	1.00	26:10	340.90			
RS	13C-1,2,3,4-TCDF	1.40e+07	0.80 y	1.00	24:51	340.90			
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.04e+07	0.51 y	1.00	33:52	340.90			

Integrations by Analyst: DB Date: 7/17/19

Reviewed by Analyst: JLL Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 11 File: 190709D2 S: 6 I: 1 F: 1
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 2.3815 Unnamed Concentration: 1.967

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
23:36	5.232e+03	6.890e+03	0.76	y	1.212e+04	0.57765	
24:58	2.575e+03	4.258e+03	0.60	n	5.918e+03	0.28202	
26:30	9.831e+03	1.340e+04	0.73	y	2.323e+04	1.1070	
26:42	3.787e+03	9.191e+03	0.41	n	8.705e+03	0.41480	2,3,7,8-TCDD

Totals class: PeCDD EMPC Entry #: 21

Run: 11 File: 190709D2 S: 6 I: 1 F: 2
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 7.4584 Unnamed Concentration: 6.936

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
29:01	1.061e+04	1.569e+04	0.68	y	2.631e+04	2.0361	
29:27	4.495e+03	6.124e+03	0.73	n	9.983e+03	0.77264	
29:52	1.043e+04	7.199e+03	1.45	n	1.173e+04	0.90815	
30:02	5.890e+03	7.136e+03	0.83	n	1.163e+04	0.90030	
30:08	3.359e+03	4.234e+03	0.79	n	6.902e+03	0.53420	
30:19	6.716e+03	1.097e+04	0.61	y	1.768e+04	1.3686	
31:00	2.694e+03	4.057e+03	0.66	y	6.751e+03	0.52254	1,2,3,7,8-PeCDD
31:02	2.235e+03	3.138e+03	0.71	y	5.373e+03	0.41585	

Totals class: HxCDD EMPC Entry #: 23

Run: 11 File: 190709D2 S: 6 I: 1 F: 3
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 50.085 Unnamed Concentration: 40.067

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:46	1.580e+05	1.295e+05	1.22	y	2.875e+05	17.614	
33:21	1.920e+04	1.206e+04	1.59	n	2.701e+04	1.6547	
33:37	1.605e+05	1.351e+05	1.19	y	2.955e+05	18.107	
33:45	1.458e+04	1.205e+04	1.21	y	2.663e+04	1.6317	
34:21	1.196e+04	6.621e+03	1.81	n	1.483e+04	0.90679	1,2,3,4,7,8-HxCDD
34:28	5.608e+04	4.498e+04	1.25	y	1.011e+05	6.3524	1,2,3,6,7,8-HxCDD
34:41	9.358e+03	7.939e+03	1.18	y	1.730e+04	1.0597	
34:47	2.609e+04	2.033e+04	1.28	y	4.642e+04	2.7589	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 11 File: 190709D2 S: 6 I: 1 F: 4
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 456.85 Unnamed Concentration: 289.974

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
37:20	2.623e+06	2.512e+06	1.04	y	5.135e+06	289.97	
38:09	1.494e+06	1.461e+06	1.02	y	2.955e+06	166.87	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 11 File: 190709D2 S: 6 I: 1 F: 1
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 4.8619 Unnamed Concentration: 3.752

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
22:47	1.751e+04	2.018e+04	0.87	y	3.769e+04	1.4150	
23:35	9.518e+03	1.329e+04	0.72	y	2.281e+04	0.85621	
23:56	5.885e+03	7.061e+03	0.83	y	1.295e+04	0.48603	
25:15	1.109e+04	1.540e+04	0.72	y	2.649e+04	0.99434	
26:00	1.388e+04	1.569e+04	0.88	y	2.957e+04	1.1103	2,3,7,8-TCDF

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 11 File: 190709D2 S: 6 I: 1 F: 1
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 7.2534 Unnamed Concentration: 7.253

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
27:36	1.058e+05	7.001e+04	1.51 y	1.758e+05	7.2534	

Totals class: PeCDF EMPC Entry #: 31

Run: 11 File: 190709D2 S: 6 I: 1 F: 2
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 14.281 Unnamed Concentration: 10.506

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:52	7.684e+03	6.132e+03	1.25	n	1.264e+04	0.52167	
28:59	8.192e+04	5.081e+04	1.61	y	1.327e+05	5.4778	
29:31	2.001e+04	1.136e+04	1.76	y	3.137e+04	1.2947	
29:43	8.922e+03	5.431e+03	1.64	y	1.435e+04	0.59232	
29:53	3.509e+04	2.272e+04	1.54	y	5.781e+04	2.3167	1,2,3,7,8-PeCDF
30:06	1.887e+04	1.316e+04	1.43	y	3.203e+04	1.3218	
30:44	2.135e+04	1.288e+04	1.66	y	3.423e+04	1.4582	2,3,4,7,8-PeCDF
30:47	1.956e+04	1.189e+04	1.65	y	3.145e+04	1.2977	

Totals class: HxCDF EMPC Entry #: 33

Run: 11 File: 190709D2 S: 6 I: 1 F: 3
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 46.852 Unnamed Concentration: 35.134

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:13	4.601e+04	4.118e+04	1.12	y	8.718e+04	4.0476	
32:23	1.327e+05	1.078e+05	1.23	y	2.405e+05	11.168	
32:57	2.222e+05	1.889e+05	1.18	y	4.111e+05	19.087	
33:20	6.378e+03	4.414e+03	1.44	n	9.888e+03	0.45905	
33:26	8.182e+04	6.948e+04	1.18	y	1.513e+05	6.9451	1,2,3,4,7,8-HxCDF
33:34	2.387e+04	2.109e+04	1.13	y	4.495e+04	2.0633	1,2,3,6,7,8-HxCDF
34:12	1.936e+04	1.807e+04	1.07	y	3.743e+04	1.6786	2,3,4,6,7,8-HxCDF
35:12	1.144e+04	9.519e+03	1.20	y	2.096e+04	1.0310	1,2,3,7,8,9-HxCDF
35:15	4.448e+03	5.574e+03	0.80	n	8.035e+03	0.37305	

Totals class: HpCDF EMPC Entry #: 35

Run: 11 File: 190709D2 S: 6 I: 1 F: 4
Acquired: 10-JUL-19 02:47:49 Processed: 10-JUL-19 10:06:20

Total Concentration: 89.757 Unnamed Concentration: 62.335

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
37:01	2.402e+05	2.417e+05	0.99	y	4.819e+05	24.701	1,2,3,4,6,7,8-HpCDF
37:20	6.435e+03	6.912e+03	0.93	y	1.335e+04	0.66012	
37:31	6.272e+05	6.198e+05	1.01	y	1.247e+06	61.675	
38:43	3.007e+04	2.765e+04	1.09	y	5.772e+04	2.7208	1,2,3,4,7,8,9-HpCDF

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:6 F:2

File:190709D2 #1-211 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
353.8576 S:6 F:2 BSUB(10000,15,-3.0)

355.8546 S:6 F:2 BSUB(10000,15,-3.0)

File:190709D2 #1-211 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
353.8576 S:6 F:2 BSUB(10000,15,-3.0)

355.8546 S:6 F:2 BSUB(10000,15,-3.0)

365.8978 S:6 F:2

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:6 F:3

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:6 F:4

File:190709D2 #1-356 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:6 F:5

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:6

File:190709D2 #1-515 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
339.8597 S:6 BSUB(10000,15,-3.0)

341.8568 S:6 BSUB(10000,15,-3.0)

File:190709D2 #1-211 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:6 F:2

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:6 F:3

File:190709D2 #1-354 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

File:190709D2 #1-356 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5
407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq:10-JUL-2019 02:47:49 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE1 T4-PDI2019-SC30-190524-01-03 10.66 Exp:OCDD_DB5

441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: T4-PDI2019-SC30-190524 Filename: 190719D1 S:10 Acq:19-JUL-19 21:50:38 ConCal: ST190719D1-1
Lab ID: 1901247-08RE2 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 5.867 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.20e+07	0.81 y	15:13	1.00	340.9	-
13C-2,3,7,8-TCDF	1.58e+07	0.81 y	17:20	1.02	240.1	70.4
2,3,7,8-TCDF	6.09e+04	0.88 y	17:21	0.95	1.385	

Integrations by Analyst: DB
Date: 7/20/19

Reviewed by Analyst: JUL
Date: 7/20/19

File:190719D1 #1-1683 Acq:19-JUL-2019 21:50:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE2 T4-PDI2019-SC30-190524-01-03 10.66 Exp:TCDF_DB2£

303.9016 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 21:50:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE2 T4-PDI2019-SC30-190524-01-03 10.66 Exp:TCDF_DB2£
303.9016 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 21:50:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-08RE2 T4-PDI2019-SC30-190524-01-03 10.66 Exp:TCDF_DB2£
331.9368 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:10

Client ID: T4-PDI2019-SC30-190524 Filename: 190709D2 S:7 Acq:10-JUL-19 03:35:26 ConCal: ST190709D2-1
Lab ID: 1901247-09RE1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 4.998 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.56e+04	0.52 n	0.90	26:42	0.72924		*	2.5	*
	1,2,3,7,8-PeCDD	3.86e+04	0.77 n	0.87	31:00	2.1471		*	2.5	*
	1,2,3,4,7,8-HxCDD	5.09e+04	1.31 y	1.05	34:20	2.9375		*	2.5	*
	1,2,3,6,7,8-HxCDD	3.54e+05	1.18 y	0.93	34:28	20.487		*	2.5	*
	1,2,3,7,8,9-HxCDD	1.48e+05	1.30 y	0.96	34:46	8.0927		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	7.61e+06	1.03 y	0.99	38:08	408.87		*	2.5	*
	OCDD	9.08e+07	0.91 y	0.99	41:30	5230.9		*	2.5	*
	2,3,7,8-TCDF	5.18e+04	0.66 y	0.94	25:59	1.8764	ok	*	2.5	*
	1,2,3,7,8-PeCDF	7.79e+04	1.42 y	0.92	29:52	2.8700		*	2.5	*
	2,3,4,7,8-PeCDF	4.53e+04	1.33 y	0.96	30:43	1.6441		*	2.5	*
	1,2,3,4,7,8-HxCDF	2.50e+05	1.21 y	1.15	33:26	10.757		*	2.5	*
	1,2,3,6,7,8-HxCDF	1.51e+05	1.27 y	1.04	33:33	6.4148		*	2.5	*
	2,3,4,6,7,8-HxCDF	1.28e+05	1.39 y	1.10	34:11	5.3288		*	2.5	*
	1,2,3,7,8,9-HxCDF	3.18e+04	1.19 y	1.03	35:11	1.4491		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	1.40e+06	1.05 y	1.06	37:00	69.631		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	1.27e+05	1.13 y	1.23	38:42	5.8833		*	2.5	*
	OCDF	3.94e+06	0.87 y	0.94	41:45	190.06		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	6.50	8.63		*	*
Total Penta-Dioxins	15.1	22.7		*	*
Total Hexa-Dioxins	159	159		*	*
Total Hepta-Dioxins	942	942		*	*
Total Tetra-Furans	19.8	21.4		*	*
Total Penta-Furans	59.116	59.496		*	*
Total Hexa-Furans	135	135		*	*
Total Hepta-Furans	237	237		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	9.48e+06	0.77 y	1.11	26:42	350.02	87.5	
IS	13C-1,2,3,7,8-PeCDD	8.24e+06	0.60 y	0.98	30:59	344.71	86.1	
IS	13C-1,2,3,4,7,8-HxCDD	6.61e+06	1.25 y	0.68	34:20	395.53	98.8	
IS	13C-1,2,3,6,7,8-HxCDD	7.43e+06	1.29 y	0.84	34:27	356.97	89.2	
IS	13C-1,2,3,7,8,9-HxCDD	7.61e+06	1.25 y	0.81	34:45	379.33	94.8	
IS	13C-1,2,3,4,6,7,8-HpCDD	7.53e+06	1.04 y	0.69	38:07	444.30	111	
IS	13C-OCDD	1.41e+07	0.92 y	0.62	41:30	911.82	114	
IS	13C-2,3,7,8-TCDF	1.17e+07	0.78 y	1.05	25:59	308.03	77.0	
IS	13C-1,2,3,7,8-PeCDF	1.18e+07	1.60 y	0.95	29:52	341.54	85.4	
IS	13C-2,3,4,7,8-PeCDF	1.15e+07	1.61 y	0.94	30:44	340.22	85.0	
IS	13C-1,2,3,4,7,8-HxCDF	8.07e+06	0.51 y	0.86	33:25	381.01	95.2	
IS	13C-1,2,3,6,7,8-HxCDF	9.07e+06	0.52 y	1.02	33:33	358.94	89.7	
IS	13C-2,3,4,6,7,8-HxCDF	8.77e+06	0.52 y	0.95	34:10	372.42	93.1	
IS	13C-1,2,3,7,8,9-HxCDF	8.51e+06	0.51 y	0.87	35:10	396.97	99.2	
IS	13C-1,2,3,4,6,7,8-HpCDF	7.57e+06	0.42 y	0.81	36:59	378.58	94.6	
IS	13C-1,2,3,4,7,8,9-HpCDF	7.07e+06	0.43 y	0.63	38:42	452.38	113	
IS	13C-OCDF	1.76e+07	0.87 y	0.78	41:44	911.74	114	
C/Up	37Cl-2,3,7,8-TCDD	3.75e+06		1.22	26:43	125.68	78.5	
RS/RT	13C-1,2,3,4-TCDD	9.81e+06	0.78 y	1.00	26:09	400.16		
RS	13C-1,2,3,4-TCDF	1.45e+07	0.82 y	1.00	24:50	400.16		
RS/RT	13C-1,2,3,4,6,9-HxCDF	9.90e+06	0.51 y	1.00	33:51	400.16		

Integrations by Analyst: DB Date: 7/18/19

Reviewed by Analyst: MN Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 12 File: 190709D2 S: 7 I: 1 F: 1
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 8.6252 Unnamed Concentration: 7.896

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
23:35	2.026e+04	2.778e+04	0.73	y	4.804e+04	2.2498	
23:54	8.478e+03	1.216e+04	0.70	y	2.064e+04	0.96654	
24:17	1.169e+04	1.601e+04	0.73	y	2.770e+04	1.2972	
24:58	5.764e+03	6.813e+03	0.85	y	1.258e+04	0.58902	
25:09	2.916e+03	3.450e+03	0.85	y	6.365e+03	0.29812	
25:19	4.854e+03	1.051e+04	0.46	n	1.116e+04	0.52256	
25:43	3.584e+03	4.348e+03	0.82	y	7.932e+03	0.37150	
25:51	2.666e+03	3.825e+03	0.70	y	6.491e+03	0.30400	
26:09	3.932e+03	5.069e+03	0.78	y	9.001e+03	0.42155	
26:29	7.758e+03	8.210e+03	0.94	n	1.453e+04	0.68059	
26:42	6.774e+03	1.301e+04	0.52	n	1.557e+04	0.72924	2,3,7,8-TCDD
27:31	3.131e+03	2.353e+03	1.33	n	4.165e+03	0.19506	

Totals class: PeCDD EMPC Entry #: 21

Run: 12 File: 190709D2 S: 7 I: 1 F: 2
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 22.745 Unnamed Concentration: 20.597

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
29:01	5.260e+04	7.994e+04	0.66	y	1.325e+05	7.3779	
29:27	2.064e+04	2.963e+04	0.70	y	5.027e+04	2.7983	
29:53	2.460e+04	2.919e+04	0.84	n	4.757e+04	2.6482	
30:02	1.544e+04	1.974e+04	0.78	n	3.217e+04	1.7910	
30:06	1.178e+04	1.669e+04	0.71	y	2.847e+04	1.5849	
30:19	2.267e+04	3.642e+04	0.62	y	5.909e+04	3.2892	
30:43	4.602e+03	2.906e+03	1.58	n	4.737e+03	0.26366	
31:00	1.828e+04	2.366e+04	0.77	n	3.857e+04	2.1471	1,2,3,7,8-PeCDD
31:04	2.721e+03	3.360e+03	0.81	n	5.476e+03	0.30483	
31:20	4.706e+03	5.945e+03	0.79	n	9.691e+03	0.53943	

Totals class: HxCDD EMPC Entry #: 23

Run: 12 File: 190709D2 S: 7 I: 1 F: 3
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 158.80 Unnamed Concentration: 127.286

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:45	6.018e+05	4.990e+05	1.21	y	1.101e+06	62.550	
33:21	5.664e+04	4.724e+04	1.20	y	1.039e+05	5.9026	
33:37	5.349e+05	4.332e+05	1.23	y	9.682e+05	55.016	
33:44	2.170e+04	1.940e+04	1.12	y	4.110e+04	2.3353	
34:20	2.887e+04	2.204e+04	1.31	y	5.091e+04	2.9375	1,2,3,4,7,8-HxCDD
34:28	1.914e+05	1.622e+05	1.18	y	3.536e+05	20.487	1,2,3,6,7,8-HxCDD
34:39	1.428e+04	1.179e+04	1.21	y	2.607e+04	1.4812	
34:46	8.384e+04	6.435e+04	1.30	y	1.482e+05	8.0927	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 12 File: 190709D2 S: 7 I: 1 F: 4
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 941.89 Unnamed Concentration: 533.018

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
37:19	4.985e+06	4.937e+06	1.01	y	9.922e+06	533.02	
38:08	3.869e+06	3.742e+06	1.03	y	7.611e+06	408.87	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 12 File: 190709D2 S: 7 I: 1 F: 1
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 21.357 Unnamed Concentration: 19.481

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
21:39	5.913e+03	6.964e+03	0.85	y	1.288e+04	0.46672	
22:12	1.415e+04	1.641e+04	0.86	y	3.056e+04	1.1075	
22:46	4.104e+04	5.186e+04	0.79	y	9.291e+04	3.3673	
23:13	1.741e+04	2.029e+04	0.86	y	3.770e+04	1.3663	
23:34	3.117e+04	3.943e+04	0.79	y	7.060e+04	2.5587	
23:56	2.662e+04	3.382e+04	0.79	y	6.044e+04	2.1904	
24:03	7.053e+03	1.185e+04	0.60	n	1.621e+04	0.58762	
24:12	8.178e+03	1.201e+04	0.68	y	2.019e+04	0.73167	
24:37	7.126e+03	8.937e+03	0.80	y	1.606e+04	0.58219	
24:46	1.107e+04	1.660e+04	0.67	y	2.767e+04	1.0031	
24:51	1.265e+04	1.445e+04	0.88	y	2.710e+04	0.98238	
25:15	2.771e+04	3.204e+04	0.86	y	5.975e+04	2.1655	
25:29	4.862e+03	5.977e+03	0.81	y	1.084e+04	0.39285	
25:55	5.343e+03	6.600e+03	0.81	y	1.194e+04	0.43288	
25:59	2.052e+04	3.125e+04	0.66	y	5.177e+04	1.8764	2,3,7,8-TCDF
26:18	1.303e+04	1.146e+04	1.14	n	2.029e+04	0.73535	
26:30	6.341e+03	3.961e+03	1.60	n	7.011e+03	0.25413	
27:38	6.937e+03	8.411e+03	0.82	y	1.535e+04	0.55630	

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 12 File: 190709D2 S: 7 I: 1 F: 1
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 29.784 Unnamed Concentration: 29.784

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
27:36	4.926e+05	3.216e+05	1.53	y	8.142e+05	29.784	

Totals class: PeCDF EMPC Entry #: 31

Run: 12 File: 190709D2 S: 7 I: 1 F: 2
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 29.712 Unnamed Concentration: 25.198

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:52	2.968e+04	2.126e+04	1.40	y	5.094e+04	1.8632	
28:58	1.979e+05	1.328e+05	1.49	y	3.307e+05	12.096	
29:21	5.873e+03	4.444e+03	1.32	y	1.032e+04	0.37740	
29:31	6.290e+04	4.365e+04	1.44	y	1.066e+05	3.8976	
29:41	1.491e+04	8.753e+03	1.70	y	2.366e+04	0.86556	
29:52	4.573e+04	3.219e+04	1.42	y	7.792e+04	2.8700	1,2,3,7,8-PeCDF
30:06	3.472e+04	2.482e+04	1.40	y	5.953e+04	2.1777	
30:38	6.312e+03	5.210e+03	1.21	n	1.038e+04	0.37986	
30:43	2.583e+04	1.942e+04	1.33	y	4.526e+04	1.6441	2,3,4,7,8-PeCDF
30:46	6.085e+04	3.596e+04	1.69	y	9.681e+04	3.5412	

Totals class: HxCDF EMPC Entry #: 33

Run: 12 File: 190709D2 S: 7 I: 1 F: 3
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 134.56 Unnamed Concentration: 110.611

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:13	1.682e+05	1.394e+05	1.21	y	3.076e+05	13.273	
32:22	4.517e+05	3.693e+05	1.22	y	8.210e+05	35.425	
32:44	1.368e+04	1.277e+04	1.07	y	2.645e+04	1.1414	
32:56	7.503e+05	6.103e+05	1.23	y	1.361e+06	58.707	
33:19	1.207e+04	9.308e+03	1.30	y	2.138e+04	0.92255	
33:26	1.372e+05	1.131e+05	1.21	y	2.503e+05	10.757	1,2,3,4,7,8-HxCDF
33:33	8.443e+04	6.650e+04	1.27	y	1.509e+05	6.4148	1,2,3,6,7,8-HxCDF
34:11	7.437e+04	5.365e+04	1.39	y	1.280e+05	5.3288	2,3,4,6,7,8-HxCDF
35:11	1.727e+04	1.449e+04	1.19	y	3.176e+04	1.4491	1,2,3,7,8,9-HxCDF
35:14	1.511e+04	1.135e+04	1.33	y	2.647e+04	1.1420	

Totals class: HpCDF EMPC Entry #: 35

Run: 12 File: 190709D2 S: 7 I: 1 F: 4
Acquired: 10-JUL-19 03:35:26 Processed: 10-JUL-19 10:06:21

Total Concentration: 237.17 Unnamed Concentration: 161.656

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
37:00	7.166e+05	6.850e+05	1.05 y	1.402e+06	69.631	1,2,3,4,6,7,8-HpCDF
37:20	1.568e+04	1.534e+04	1.02 y	3.102e+04	1.4950	
37:30	1.669e+06	1.655e+06	1.01 y	3.323e+06	160.16	
38:42	6.754e+04	5.983e+04	1.13 y	1.274e+05	5.8833	1,2,3,4,7,8,9-HpCDF

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
319.8965 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

353.8576 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:7 F:2

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
353.8576 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
353.8576 S:7 F:2 BSUB(10000,15,-3.0)

355.8546 S:7 F:2 BSUB(10000,15,-3.0)

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
353.8576 S:7 F:2 BSUB(10000,15,-3.0)

355.8546 S:7 F:2 BSUB(10000,15,-3.0)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
389.8156 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
401.8559 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

File:190709D2 #1-356 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
423.7767 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

457.7377 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:7 F:5

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

339.8597 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:7

File:190709D2 #1-515 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
339.8597 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:7 F:2

File:190709D2 #1-211 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
339.8597 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:7 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
373.8207 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:7 F:3

File:190709D2 #1-354 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
383.8639 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:7 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5
407.7818 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:7 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq:10-JUL-2019 03:35:26 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE1 T4-PDI2019-SC30-190524-03-05 9.29 Exp:OCDD_DB5

441.7428 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:7 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: T4-PDI2019-SC30-190524 Filename: 190719D1 S:11 Acq:19-JUL-19 22:22:27 ConCal: ST190719D1-1
Lab ID: 1901247-09RE2 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 4.998 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.33e+07	0.81 y	15:14	1.00	400.2	-
13C-2,3,7,8-TCDF	1.83e+07	0.80 y	17:21	1.02	307.6	76.9
2,3,7,8-TCDF	9.18e+04	0.70 y	17:22	0.95	2.123	

Integrations by Analyst: DB
Date: 7/23/19

Reviewed by Analyst: MW
Date: 7/30/19

File:190719D1 #1-1683 Acq:19-JUL-2019 22:22:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#11 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE2 T4-PDI2019-SC30-190524-03-05 9.29 Exp:TCDF_DB225
303.9016 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 22:22:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#11 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE2 T4-PDI2019-SC30-190524-03-05 9.29 Exp:TCDF_DB225
303.9016 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:11 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 22:22:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#11 File Text:Vista_Analytical_Laboratory_VG7 Text:1901247-09RE2 T4-PDI2019-SC30-190524-03-05 9.29 Exp:TCDF_DB225

Client ID: Duplicate Filename: 190709D2 S:9 Acq:10-JUL-19 05:10:39 ConCal: ST190709D2-1

Lab ID: B9F0255-DUP2 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 6.047 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	8.91e+03	0.39 n	0.90	26:41	0.38049		*	2.5	*
	1,2,3,7,8-PeCDD	1.84e+04	0.64 y	0.87	30:58	0.95174		*	2.5	*
	1,2,3,4,7,8-HxCDD	3.25e+04	1.18 y	1.05	34:20	1.7761		*	2.5	*
	1,2,3,6,7,8-HxCDD	1.77e+05	1.26 y	0.93	34:27	9.6881		*	2.5	*
	1,2,3,7,8,9-HxCDD	7.17e+04	1.07 y	0.96	34:45	3.5982		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	3.81e+06	1.01 y	0.99	38:08	191.49		*	2.5	*
	OCDD	4.56e+07	0.91 y	0.99	41:30	2477.7		*	2.5	*
	2,3,7,8-TCDF	2.97e+04	0.85 y	0.94	25:58	0.93707	ok	*	2.5	*
	1,2,3,7,8-PeCDF	4.34e+04	1.77 y	0.92	29:50	1.5557		*	2.5	*
	2,3,4,7,8-PeCDF	4.19e+04	1.22 n	0.96	30:44	1.4696		*	2.5	*
	1,2,3,4,7,8-HxCDF	1.29e+05	1.13 y	1.15	33:25	5.1764		*	2.5	*
	1,2,3,6,7,8-HxCDF	7.79e+04	1.23 y	1.04	33:33	3.1244		*	2.5	*
	2,3,4,6,7,8-HxCDF	6.57e+04	1.17 y	1.10	34:10	2.5967		*	2.5	*
	1,2,3,7,8,9-HxCDF	1.77e+04	1.14 y	1.03	35:11	0.77630		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	6.94e+05	0.99 y	1.06	37:00	33.461		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	6.61e+04	1.03 y	1.23	38:42	2.8594		*	2.5	*
	OCDF	1.95e+06	0.87 y	0.94	41:45	88.660		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	1.25	3.81		*	*
Total Penta-Dioxins	8.65	10.9		*	*
Total Hexa-Dioxins	74.4	76.0		*	*
Total Hepta-Dioxins	448	448		*	*
Total Tetra-Furans	7.05	7.80		*	*
Total Penta-Furans	25.204	27.954		*	*
Total Hexa-Furans	62.8	63.2		*	*
Total Hepta-Furans	119	119		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	8.60e+06	0.81 y	1.11	26:41	256.63	77.6	
IS	13C-1,2,3,7,8-PeCDD	7.32e+06	0.64 y	0.98	30:58	247.61	74.9	
IS	13C-1,2,3,4,7,8-HxCDD	5.77e+06	1.26 y	0.68	34:20	287.22	86.8	
IS	13C-1,2,3,6,7,8-HxCDD	6.51e+06	1.27 y	0.84	34:26	260.22	78.7	
IS	13C-1,2,3,7,8,9-HxCDD	6.85e+06	1.25 y	0.81	34:45	284.05	85.9	
IS	13C-1,2,3,4,6,7,8-HpCDD	6.65e+06	1.03 y	0.69	38:07	326.39	98.7	
IS	13C-OCDD	1.24e+07	0.91 y	0.62	41:30	665.25	101	
IS	13C-2,3,7,8-TCDF	1.11e+07	0.81 y	1.05	25:58	241.69	73.1	
IS	13C-1,2,3,7,8-PeCDF	1.00e+07	1.62 y	0.95	29:50	239.56	72.4	
IS	13C-2,3,4,7,8-PeCDF	9.85e+06	1.63 y	0.94	30:43	240.37	72.7	
IS	13C-1,2,3,4,7,8-HxCDF	7.16e+06	0.51 y	0.86	33:25	281.11	85.0	
IS	13C-1,2,3,6,7,8-HxCDF	7.94e+06	0.51 y	1.02	33:33	261.41	79.0	
IS	13C-2,3,4,6,7,8-HxCDF	7.63e+06	0.49 y	0.95	34:10	269.60	81.5	
IS	13C-1,2,3,7,8,9-HxCDF	7.34e+06	0.52 y	0.87	35:10	284.61	86.1	
IS	13C-1,2,3,4,6,7,8-HpCDF	6.44e+06	0.41 y	0.81	36:59	268.06	81.0	
IS	13C-1,2,3,4,7,8,9-HpCDF	6.24e+06	0.42 y	0.63	38:42	332.03	100	
IS	13C-OCDF	1.55e+07	0.90 y	0.78	41:45	667.31	101	
C/Up	37Cl-2,3,7,8-TCDD	4.04e+06		1.22	26:42	109.58	82.8	
RS/RT	13C-1,2,3,4-TCDD	1.00e+07	0.76 y	1.00	26:08	330.74		
RS	13C-1,2,3,4-TCDF	1.45e+07	0.80 y	1.00	24:49	330.74		
RS/RT	13C-1,2,3,4,6,9-HxCDF	9.84e+06	0.52 y	1.00	33:51	330.74		

Integrations by Analyst: DB Date: 7/18/19

Reviewed by Analyst: MN Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 14 File: 190709D2 S: 9 I: 1 F: 1
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 3.8086 Unnamed Concentration: 3.428

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
23:34	1.308e+04	1.307e+04	1.00	n	2.313e+04	0.98777	
23:52	7.432e+03	7.598e+03	0.98	n	1.345e+04	0.57425	
24:16	8.472e+03	8.105e+03	1.05	n	1.435e+04	0.61255	
24:57	3.481e+03	4.295e+03	0.81	y	7.777e+03	0.33206	
25:18	3.394e+03	4.543e+03	0.75	y	7.937e+03	0.33890	
25:41	2.874e+03	3.254e+03	0.88	y	6.128e+03	0.26165	
26:28	3.366e+03	4.151e+03	0.81	y	7.517e+03	0.32097	
26:41	3.877e+03	9.836e+03	0.39	n	8.911e+03	0.38049	2,3,7,8-TCDD

Totals class: PeCDD EMPC Entry #: 21

Run: 14 File: 190709D2 S: 9 I: 1 F: 2
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 10.888 Unnamed Concentration: 9.937

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:59	2.143e+04	3.812e+04	0.56	y	5.955e+04	3.0849	
29:26	8.966e+03	1.533e+04	0.58	y	2.429e+04	1.2584	
29:52	1.461e+04	1.553e+04	0.94	n	2.531e+04	1.3114	
30:01	9.008e+03	1.430e+04	0.63	y	2.331e+04	1.2076	
30:06	6.252e+03	7.376e+03	0.85	n	1.202e+04	0.62281	
30:18	1.341e+04	2.206e+04	0.61	y	3.548e+04	1.8378	
30:58	7.194e+03	1.118e+04	0.64	y	1.837e+04	0.95174	1,2,3,7,8-PeCDD
31:03	2.285e+03	3.748e+03	0.61	y	6.033e+03	0.31254	
31:20	3.322e+03	3.567e+03	0.93	n	5.814e+03	0.30119	

Totals class: HxCDD EMPC Entry #: 23

Run: 14 File: 190709D2 S: 9 I: 1 F: 3
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 76.031 Unnamed Concentration: 60.969

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:44	3.195e+05	2.582e+05	1.24	y	5.778e+05	30.714	
33:20	2.775e+04	2.406e+04	1.15	y	5.182e+04	2.7546	
33:36	2.696e+05	2.170e+05	1.24	y	4.866e+05	25.867	
33:43	1.289e+04	7.316e+03	1.76	n	1.639e+04	0.87112	
34:20	1.763e+04	1.488e+04	1.18	y	3.250e+04	1.7761	1,2,3,4,7,8-HxCDD
34:27	9.895e+04	7.830e+04	1.26	y	1.772e+05	9.6881	1,2,3,6,7,8-HxCDD
34:39	7.936e+03	8.905e+03	0.89	n	1.434e+04	0.76209	
34:45	3.704e+04	3.471e+04	1.07	y	7.175e+04	3.5982	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 14 File: 190709D2 S: 9 I: 1 F: 4
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 447.63 Unnamed Concentration: 256.145

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
37:19	2.555e+06	2.539e+06	1.01 y	5.094e+06	256.14	
38:08	1.911e+06	1.897e+06	1.01 y	3.808e+06	191.49	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 14 File: 190709D2 S: 9 I: 1 F: 1
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 7.8021 Unnamed Concentration: 6.865

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
22:12	9.631e+03	1.116e+04	0.86	y	2.079e+04	0.65492	
22:45	2.397e+04	2.799e+04	0.86	y	5.196e+04	1.6365	
23:09	4.048e+03	4.676e+03	0.87	y	8.724e+03	0.27479	
23:15	5.763e+03	7.026e+03	0.82	y	1.279e+04	0.40282	
23:34	1.660e+04	1.880e+04	0.88	y	3.540e+04	1.1151	
23:55	1.286e+04	1.498e+04	0.86	y	2.784e+04	0.87694	
24:11	5.981e+03	5.060e+03	1.18	n	8.956e+03	0.28209	
24:45	7.467e+03	4.718e+03	1.58	n	8.350e+03	0.26302	
24:52	4.939e+03	3.756e+03	1.31	n	6.649e+03	0.20943	
25:14	1.036e+04	1.413e+04	0.73	y	2.449e+04	0.77138	
25:58	1.370e+04	1.605e+04	0.85	y	2.975e+04	0.93707	2,3,7,8-TCDF
26:17	5.603e+03	6.400e+03	0.88	y	1.200e+04	0.37808	

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 14 File: 190709D2 S: 9 I: 1 F: 1
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 14.229 Unnamed Concentration: 14.229

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
27:35	2.333e+05	1.682e+05	1.39	y	4.016e+05	14.229	

Totals class: PeCDF EMPC Entry #: 31

Run: 14 File: 190709D2 S: 9 I: 1 F: 2
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 13.725 Unnamed Concentration: 10.700

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:50	1.078e+04	7.818e+03	1.38	y	1.860e+04	0.65888	
28:58	9.474e+04	6.008e+04	1.58	y	1.548e+05	5.4856	
29:30	3.323e+04	2.330e+04	1.43	y	5.653e+04	2.0030	
29:41	7.985e+03	2.466e+03	3.24	n	6.289e+03	0.22285	
29:50	2.775e+04	1.570e+04	1.77	y	4.345e+04	1.5557	1,2,3,7,8-PeCDF
30:05	1.939e+04	1.159e+04	1.67	y	3.098e+04	1.0977	
30:38	5.328e+03	4.103e+03	1.30	n	8.765e+03	0.31058	
30:44	2.548e+04	2.085e+04	1.22	n	4.191e+04	1.4696	2,3,4,7,8-PeCDF
30:46	1.281e+04	1.073e+04	1.19	n	2.108e+04	0.74686	
31:34	3.000e+03	1.911e+03	1.57	y	4.911e+03	0.17400	

Totals class: HxCDF EMPC Entry #: 33

Run: 14 File: 190709D2 S: 9 I: 1 F: 3
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 63.192 Unnamed Concentration: 51.518

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:12	8.248e+04	6.576e+04	1.25	y	1.482e+05	6.0538	
32:22	2.263e+05	1.868e+05	1.21	y	4.131e+05	16.871	
32:44	7.252e+03	6.778e+03	1.07	y	1.403e+04	0.57298	
32:56	3.635e+05	2.998e+05	1.21	y	6.633e+05	27.086	
33:19	5.253e+03	5.637e+03	0.93	n	9.490e+03	0.38753	
33:25	6.844e+04	6.078e+04	1.13	y	1.292e+05	5.1764	1,2,3,4,7,8-HxCDF
33:33	4.292e+04	3.494e+04	1.23	y	7.785e+04	3.1244	1,2,3,6,7,8-HxCDF
34:10	3.543e+04	3.025e+04	1.17	y	6.567e+04	2.5967	2,3,4,6,7,8-HxCDF
35:11	9.431e+03	8.307e+03	1.14	y	1.774e+04	0.77630	1,2,3,7,8,9-HxCDF
35:14	7.647e+03	5.753e+03	1.33	y	1.340e+04	0.54721	

Totals class: HpCDF EMPC Entry #: 35

Run: 14 File: 190709D2 S: 9 I: 1 F: 4
Acquired: 10-JUL-19 05:10:39 Processed: 10-JUL-19 10:06:25

Total Concentration: 118.76 Unnamed Concentration: 82.442

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
37:00	3.450e+05	3.485e+05	0.99	y	6.935e+05	33.461	1,2,3,4,6,7,8-HpCDF
37:20	7.271e+03	7.340e+03	0.99	y	1.461e+04	0.67197	
37:30	8.908e+05	8.872e+05	1.00	y	1.778e+06	81.770	
38:42	3.348e+04	3.259e+04	1.03	y	6.607e+04	2.8594	1,2,3,4,7,8,9-HpCDF

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
319.8965 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
319.8965 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
319.8965 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

353.8576 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:9 F:2

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
353.8576 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
353.8576 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

389.8156 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:9 F:3

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
389.8156 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
389.8156 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
389.8156 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
389.8156 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
401.8559 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

423.7767 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:9 F:4

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
423.7767 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-433 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

457.7377 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:9 F:5

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

303.9016 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
303.9016 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
303.9016 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
303.9016 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
303.9016 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

File:190709D2 #1-515 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
339.8597 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:9 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

339.8597 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
339.8597 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
339.8597 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
339.8597 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
339.8597 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:9 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:9 F:2

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

373.8207 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
373.8207 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
373.8207 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
373.8207 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
373.8207 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
373.8207 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:9 F:3

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
383.8639 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:9 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

407.7818 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
407.7818 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
407.7818 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5
407.7818 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:9 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-433 Acq:10-JUL-2019 05:10:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#9 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2 Duplicate 11.24 Exp:OCDD_DB5

441.7428 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:9 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Client ID: Duplicate
Lab ID: B9F0255-DUP2RE1

Filename: 190719D1 S:5 Acq:19-JUL-19 19:11:39
GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 6.047

ConCal: ST190719D1-1
EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.13e+07	0.82 y	15:11	1.00	330.7	-
13C-2,3,7,8-TCDF	1.72e+07	0.80 y	17:18	1.02	261.9	79.2
2,3,7,8-TCDF	5.24e+04	0.73 y	17:18	0.95	1.065	

Integrations by Analyst: DB
Date: 7/20/19

Reviewed by Analyst: ML
Date: 7/22/19

File:190719D1 #1-1683 Acq:19-JUL-2019 19:11:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2RE1 Duplicate 6.047 Exp:TCDF_DB225
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 19:11:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2RE1 Duplicate 6.047 Exp:TCDF_DB225
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 19:11:39 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:B9F0255-DUP2RE1 Duplicate 6.047 Exp:TCDF_DB225
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:5

Client ID: T4-PDI2019-SC30-190524 Filename: 190626D2 S:10 Acq:27-JUN-19 11:50:03 ConCal: ST190626D2-1
Lab ID: 1901247-10 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 5.293 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	6.64e+03	0.40 n	0.90	26:02	0.32430		*	2.5	*
	1,2,3,7,8-PeCDD	6.48e+03	0.86 n	0.87	30:30	0.32575		*	2.5	*
	1,2,3,4,7,8-HxCDD	*	* n	1.05	NotF	*		271	2.5	0.286
	1,2,3,6,7,8-HxCDD	4.17e+04	1.37 y	0.93	33:54	1.9519		*	2.5	*
	1,2,3,7,8,9-HxCDD	2.07e+04	1.38 y	0.96	34:12	0.96213		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	1.11e+06	1.00 y	0.99	37:39	53.278		*	2.5	*
	OCDD	1.29e+07	0.89 y	0.99	40:55	666.84		*	2.5	*
	2,3,7,8-TCDF	1.04e+04	0.80 y	0.94	25:16	0.38930		*	2.5	*
	1,2,3,7,8-PeCDF	3.12e+04	1.61 y	0.92	29:20	1.0098		*	2.5	*
	2,3,4,7,8-PeCDF	9.28e+03	1.64 y	0.96	30:13	0.30424		*	2.5	*
	1,2,3,4,7,8-HxCDF	6.65e+04	1.27 y	1.15	32:55	2.4444		*	2.5	*
	1,2,3,6,7,8-HxCDF	3.55e+04	1.27 y	1.04	33:02	1.1932		*	2.5	*
	2,3,4,6,7,8-HxCDF	2.23e+04	1.38 y	1.10	33:39	0.75637		*	2.5	*
	1,2,3,7,8,9-HxCDF	7.04e+03	1.08 y	1.03	34:36	0.29749		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	3.66e+05	1.09 y	1.06	36:25	14.918		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	2.75e+04	1.26 n	1.23	38:12	1.1547		*	2.5	*
	OCDF	1.00e+06	0.90 y	0.94	41:09	47.543		*	2.5	*
IS	13C-2,3,7,8-TCDD	8.58e+06	0.76 y	1.11	26:01	267.73				
IS	13C-1,2,3,7,8-PeCDD	8.62e+06	0.63 y	0.98	30:30	304.79				
IS	13C-1,2,3,4,7,8-HxCDD	7.26e+06	1.32 y	0.68	33:47	363.12				
IS	13C-1,2,3,6,7,8-HxCDD	8.67e+06	1.22 y	0.84	33:54	348.45				
IS	13C-1,2,3,7,8,9-HxCDD	8.45e+06	1.28 y	0.81	34:12	351.95				
IS	13C-1,2,3,4,6,7,8-HpCDD	7.95e+06	1.06 y	0.69	37:39	391.81				
IS	13C-OCDD	1.48e+07	0.89 y	0.62	40:54	800.65				
IS	13C-2,3,7,8-TCDF	1.07e+07	0.79 y	1.05	25:16	226.32				
IS	13C-1,2,3,7,8-PeCDF	1.27e+07	1.59 y	0.95	29:20	294.11				
IS	13C-2,3,4,7,8-PeCDF	1.20e+07	1.60 y	0.94	30:14	285.05				
IS	13C-1,2,3,4,7,8-HxCDF	8.91e+06	0.51 y	0.86	32:54	351.47				
IS	13C-1,2,3,6,7,8-HxCDF	1.08e+07	0.50 y	1.02	33:01	358.18				
IS	13C-2,3,4,6,7,8-HxCDF	1.02e+07	0.51 y	0.95	33:38	360.63				
IS	13C-1,2,3,7,8,9-HxCDF	8.68e+06	0.52 y	0.87	34:36	338.24				
IS	13C-1,2,3,4,6,7,8-HpCDF	8.71e+06	0.44 y	0.81	36:24	364.49				
IS	13C-1,2,3,4,7,8,9-HpCDF	7.35e+06	0.44 y	0.63	38:12	393.06				
IS	13C-OCDF	1.69e+07	0.90 y	0.78	41:08	730.80				
C/Up	37Cl-2,3,7,8-TCDD	3.63e+06		1.22	26:02	102.77				
RS/RT	13C-1,2,3,4-TCDD	1.10e+07	0.79 y	1.00	25:26	377.85				
RS	13C-1,2,3,4-TCDF	1.71e+07	0.80 y	1.00	24:01	377.85				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.12e+07	0.50 y	1.00	33:19	377.85				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	*	0.324		*	*
Total Penta-Dioxins	*	1.86		*	*
Total Hexa-Dioxins	18.6	18.6		*	*
Total Hepta-Dioxins	129	129		*	*
Total Tetra-Furans	1.77	2.34		*	*
Total Penta-Furans	7.1868	7.9266		*	*
Total Hexa-Furans	24.4	24.4		*	*
Total Hepta-Furans	55.1	56.3		*	*

	Rec	Qual
IS 13C-2,3,7,8-TCDD	70.9	
IS 13C-1,2,3,7,8-PeCDD	80.7	
IS 13C-1,2,3,4,7,8-HxCDD	96.1	
IS 13C-1,2,3,6,7,8-HxCDD	92.2	
IS 13C-1,2,3,7,8,9-HxCDD	93.1	
IS 13C-1,2,3,4,6,7,8-HpCDD	104	
IS 13C-OCDD	106	
IS 13C-2,3,7,8-TCDF	59.9	
IS 13C-1,2,3,7,8-PeCDF	77.8	
IS 13C-2,3,4,7,8-PeCDF	75.4	
IS 13C-1,2,3,4,7,8-HxCDF	93.0	
IS 13C-1,2,3,6,7,8-HxCDF	94.8	
IS 13C-2,3,4,6,7,8-HxCDF	95.4	
IS 13C-1,2,3,7,8,9-HxCDF	89.5	
IS 13C-1,2,3,4,6,7,8-HpCDF	96.5	
IS 13C-1,2,3,4,7,8,9-HpCDF	104	
IS 13C-OCDF	96.7	
C/Up 37Cl-2,3,7,8-TCDD	68.0	

Integrations by Analyst: DB Date: 7/16/19

Reviewed by Analyst: MLL Date: 7/22/19

Totals class: TCDD EMPC Entry #: 19

Run: 15 File: 190626D2 S: 10 I: 1 F: 1
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 0.32430 Unnamed Concentration: *

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
26:02	2.887e+03	7.207e+03	0.40	n	6.637e+03	0.32430	2,3,7,8-TCDD

Totals class: PeCDD EMPC Entry #: 21

Run: 15 File: 190626D2 S: 10 I: 1 F: 2
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 1.8567 Unnamed Concentration: 1.531

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:27	8.153e+03	1.105e+04	0.74	n	1.801e+04	0.90474	
29:20	9.082e+03	7.647e+03	1.19	n	1.247e+04	0.62626	
30:30	3.428e+03	3.978e+03	0.86	n	6.484e+03	0.32575	1,2,3,7,8-PeCDD

Totals class: HxCDD EMPC Entry #: 23

Run: 15 File: 190626D2 S: 10 I: 1 F: 3
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 18.613 Unnamed Concentration: 15.699

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
32:16	9.336e+04	7.825e+04	1.19	y	1.716e+05	8.1764	
32:49	8.643e+03	7.615e+03	1.14	y	1.626e+04	0.77458	
33:05	7.843e+04	6.319e+04	1.24	y	1.416e+05	6.7475	
33:54	2.409e+04	1.757e+04	1.37	y	4.166e+04	1.9519	1,2,3,6,7,8-HxCDD
34:12	1.202e+04	8.692e+03	1.38	y	2.071e+04	0.96213	1,2,3,7,8,9-HxCDD

Totals class: HpCDD EMPC Entry #: 25

Run: 15 File: 190626D2 S: 10 I: 1 F: 4
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 129.44 Unnamed Concentration: 76.159

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
36:48	7.966e+05	7.874e+05	1.01 y	1.584e+06	76.159	
37:39	5.532e+05	5.548e+05	1.00 y	1.108e+06	53.278	1,2,3,4,6,7,8-HpCDD

Totals class: TCDF EMPC Entry #: 27

Run: 15 File: 190626D2 S: 10 I: 1 F: 1
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 2.3391 Unnamed Concentration: 1.950

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
21:46	9.077e+03	1.262e+04	0.72	y	2.169e+04	0.80880	
23:03	6.811e+03	8.612e+03	0.79	y	1.542e+04	0.57503	
24:29	9.460e+03	8.576e+03	1.10	n	1.518e+04	0.56595	
25:16	4.656e+03	5.786e+03	0.80	y	1.044e+04	0.38930	2,3,7,8-TCDF

Totals class: 1st Func. PeCDF EMPC Entry #: 29

Run: 15 File: 190626D2 S: 10 I: 1 F: 1
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 3.4837 Unnamed Concentration: 3.484

RT	m1 Resp	m2 Resp	RA	Resp	Concentration	Name
27:00	6.776e+04	3.929e+04	1.72 y	1.071e+05	3.4837	

Totals class: PeCDF EMPC Entry #: 31

Run: 15 File: 190626D2 S: 10 I: 1 F: 2
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 4.4429 Unnamed Concentration: 3.129

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
28:26	3.514e+04	2.211e+04	1.59	y	5.725e+04	1.8629	
28:58	1.028e+04	5.893e+03	1.74	y	1.617e+04	0.52620	
29:20	1.927e+04	1.197e+04	1.61	y	3.124e+04	1.0098	1,2,3,7,8-PeCDF
29:34	6.635e+03	6.183e+03	1.07	n	1.092e+04	0.35519	
30:13	5.766e+03	3.518e+03	1.64	y	9.283e+03	0.30424	2,3,4,7,8-PeCDF
30:16	7.185e+03	5.849e+03	1.23	n	1.182e+04	0.38462	

Totals class: HxCDF EMPC Entry #: 33

Run: 15 File: 190626D2 S: 10 I: 1 F: 3
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 24.384 Unnamed Concentration: 19.692

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
31:44	2.831e+04	2.592e+04	1.09	y	5.423e+04	1.9721	
31:53	9.706e+04	7.764e+04	1.25	y	1.747e+05	6.3527	
32:26	1.692e+05	1.387e+05	1.22	y	3.078e+05	11.194	
32:55	3.712e+04	2.934e+04	1.27	y	6.647e+04	2.4444	1,2,3,4,7,8-HxCDF
33:02	1.983e+04	1.567e+04	1.27	y	3.549e+04	1.1932	1,2,3,6,7,8-HxCDF
33:39	1.293e+04	9.358e+03	1.38	y	2.229e+04	0.75637	2,3,4,6,7,8-HxCDF
34:36	3.654e+03	3.384e+03	1.08	y	7.038e+03	0.29749	1,2,3,7,8,9-HxCDF
34:40	2.467e+03	2.297e+03	1.07	y	4.764e+03	0.17323	

Totals class: HpCDF EMPC Entry #: 35

Run: 15 File: 190626D2 S: 10 I: 1 F: 4
Acquired: 27-JUN-19 11:50:03 Processed: 27-JUN-19 17:02:07

Total Concentration: 56.278 Unnamed Concentration: 40.205

RT	m1 Resp	m2 Resp	RA		Resp	Concentration	Name
36:25	1.913e+05	1.750e+05	1.09	y	3.663e+05	14.918	1,2,3,4,6,7,8-HpCDF
37:00	4.854e+05	4.843e+05	1.00	y	9.697e+05	40.205	
38:12	1.701e+04	1.349e+04	1.26	n	2.752e+04	1.1547	1,2,3,4,7,8,9-HpCDF

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

319.8965 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
319.8965 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
319.8965 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

353.8576 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:10 F:2

File:190626D2 #1-184 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
353.8576 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
353.8576 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
389.8156 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:10 F:3

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
389.8156 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
389.8156 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
401.8559 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

423.7767 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:10 F:4

File:190626D2 #1-355 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
423.7767 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

457.7377 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:10 F:5

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

303.9016 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
303.9016 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
303.9016 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

File:190626D2 #1-514 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
339.8597 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

339.8597 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
339.8597 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:10 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
339.8597 S:10 F:2 BSUB(10000,15,-3.0)

341.8568 S:10 F:2 BSUB(10000,15,-3.0)

File:190626D2 #1-184 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
339.8597 S:10 F:2 BSUB(10000,15,-3.0)

341.8568 S:10 F:2 BSUB(10000,15,-3.0)

351.9000 S:10 F:2

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

373.8207 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
373.8207 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
373.8207 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
373.8207 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:10 F:3

File:190626D2 #1-400 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
383.8639 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:10 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

407.7818 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
407.7818 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-355 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
407.7818 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:10 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5

441.7428 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-432 Acq:27-JUN-2019 11:50:03 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 Text:1901247-10 T4-PDI2019-SC30-190524-05-07 7.85 Exp:OCDD_DB5
441.7428 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:10 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

CONTINUING CALIBRATION

HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

Beg. Calbration ID: ST190625D1-1

Reviewed By: CT 06/26/19
Initials & Date

End Calibration ID: NA

	Beg.	End
Ion abundance within QC limits?	✓	NA
Concentrations within criteria?	✓	
TCDD/TCDF Valleys <25%	✓	
First and last eluters present?	✓	
Retention Times within criteria?	✓	
Verification Std. named correctly? (ST-Year-Month-Day-VG ID)	✓	
Forms signed and dated?	✓	
Correct ICAL referenced?	DB	

Run Log:

- Correct instrument listed?	✓	
- Samples within 12 hour clock?	Y	N
- Bottle position verfied?	DB	

	Beg.	End
Mass resolution ≥	✓	✓

☐ 5k ☐ 6-8K ☐ 8K ☑ 10K
1614 1699 429 1613/1668/8280

Intergrated peaks display correctly?	✓	NA

GC Break <20% NA

8280 CS1 End Standard:

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours NA

Comments:

Vista Analytical Laboratory - Injection Log Run file: 190625D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190625D1	1	ST190625D1-1	DB	25-JUN-19	15:05:35	ST190625D1-1	NA
190625D1	2	B9F0172-BS1	DB	25-JUN-19	15:53:21	ST190625D1-1	NA
190625D1	3	SOLVENT BLANK	DB	25-JUN-19	16:41:08	ST190625D1-1	NA
190625D1	4	B9F0172-BLK1	DB	25-JUN-19	17:28:52	ST190625D1-1	NA
190625D1	5	1901248-01	DB	25-JUN-19	18:16:35	ST190625D1-1	NA
190625D1	6	1901248-02	DB	25-JUN-19	19:04:24	ST190625D1-1	NA
190625D1	7	1901248-03	DB	25-JUN-19	19:52:12	ST190625D1-1	NA
190625D1	8	1901248-04	DB	25-JUN-19	20:39:50	ST190625D1-1	NA
190625D1	9	B9F0172-DUP3	DB	25-JUN-19	21:27:29	ST190625D1-1	NA
190625D1	10	1901249-02	DB	25-JUN-19	22:15:12	ST190625D1-1	NA
190625D1	11	1901305-02	DB	25-JUN-19	23:02:49	ST190625D1-1	NA
190625D1	12	1901305-06	DB	25-JUN-19	23:50:22	ST190625D1-1	NA
190625D1	13	1901305-07	DB	26-JUN-19	00:38:00	ST190625D1-1	NA
190625D1	14	1901384-04	DB	26-JUN-19	01:25:31	ST190625D1-1	NA
190625D1	15	B9F0172-DUP4	DB	26-JUN-19	02:13:08	ST190625D1-1	NA

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: ST190625D1-1

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190625D1 S#1 Analysis Date: 25-JUN-19 Time: 15:05:35

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	12.7	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.65	0.54-0.72	y	54.5	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	y	56.3	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	y	54.2	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.21	1.05-1.43	y	52.9	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	0.98	0.88-1.20	y	47.3	43.0 - 58.0
OCDD	M+2/M+4	0.90	0.76-1.02	y	94.3	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.83	0.65-0.89	y	9.43	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.65	1.32-1.78	y	49.8	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.64	1.32-1.78	y	51.7	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	51.3	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	y	52.5	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	53.2	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	y	53.3	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.97	0.88-1.20	y	49.8	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.96	0.88-1.20	y	49.1	43.0 - 58.0
OCDF	M+2/M+4	0.93	0.76-1.02	y	101	63.0 - 159.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 6/25/19

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190625D1 S#1 Analysis Date: 25-JUN-19 Time: 15:05:35

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.82	0.65-0.89	y	99.7	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	84.0	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.44	1.05-1.43	n	91.5	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	93.3	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	y	95.9	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	y	95.9	72.0 - 138.0
13C-OCDD	M/M+2	0.90	0.76-1.02	y	213	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.77	0.65-0.89	y	110	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	84.5	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	y	83.7	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.50	0.43-0.59	y	100	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	99.1	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	97.8	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	y	99.3	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	91.2	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.41	0.37-0.51	y	91.4	77.0 - 129.0
13C-OCDF	M+2/M+4	0.90	0.76-1.02	y	190	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.51	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified

(3) No ion abundance ratio; report concentration found.

Analyst: DB

Date: 6/25/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 5-10-19

RT Window Data Filename: 190625D1 S#1 Analysis Date: 25-JUN-19 Time: 15:05:35

ZB-5MS IS Data Filename: 190625D1 S#1 Analysis Date: 25-JUN-19 Time: 15:05:35

DB_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:43	1,3,6,8-TCDF (F)	20:36
1,2,8,9-TCDD (L)	26:57	1,2,8,9-TCDF (L)	27:06
1,2,4,7,9-PeCDD (F)	28:31	1,3,4,6,8-PeCDF (F)	27:01
1,2,3,8,9-PeCDD (L)	30:55	1,2,3,8,9-PeCDF (L)	31:10
1,2,4,6,7,9-HxCDD (F)	32:18	1,2,3,4,6,8-HxCDF (F)	31:47
1,2,3,7,8,9-HxCDD (L)	34:15	1,2,3,7,8,9-HxCDF (L)	34:40
1,2,3,4,6,7,9-HpCDD (F)	36:51	1,2,3,4,6,7,8-HpCDF (F)	36:28
1,2,3,4,6,7,8-HpCDD (L)	37:42	1,2,3,4,7,8,9-HpCDF (L)	38:16

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

==========

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT BETWEEN COMPARED PEAKS (1)

<25%

Analyst: DB

Date: 6/25/19

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190625D1 S#1 Analysis Date: 25-JUN-19 Time: 15:05:35

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.023	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.198	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.993	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.153	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.188	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.024	0.989-1.052

Analyst: DB

Date: 6/25/19

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190625D1 S#1 Analysis Date: 25-JUN-19 Time: 15:05:35

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.001	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.001	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.039	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.017	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.026	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.146	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.130	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.228	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.235	1.091-1.371

Analyst: DB

Date: 6/25/19

Vista Analytical Laboratory - Injection Log Run file: 190625D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190625D1	1	ST190625D1-1	DB	25-JUN-19	15:05:35	ST190625D1-1	NA
190625D1	2	B9F0172-BS1	DB	25-JUN-19	15:53:21	ST190625D1-1	NA
190625D1	3	SOLVENT BLANK	DB	25-JUN-19	16:41:08	ST190625D1-1	NA
190625D1	4	B9F0172-BLK1	DB	25-JUN-19	17:28:52	ST190625D1-1	NA
190625D1	5	1901248-01	DB	25-JUN-19	18:16:35	ST190625D1-1	NA
190625D1	6	1901248-02	DB	25-JUN-19	19:04:24	ST190625D1-1	NA
190625D1	7	1901248-03	DB	25-JUN-19	19:52:12	ST190625D1-1	NA
190625D1	8	1901248-04	DB	25-JUN-19	20:39:50	ST190625D1-1	NA
190625D1	9	B9F0172-DUP3	DB	25-JUN-19	21:27:29	ST190625D1-1	NA
190625D1	10	1901249-02	DB	25-JUN-19	22:15:12	ST190625D1-1	NA
190625D1	11	1901305-02	DB	25-JUN-19	23:02:49	ST190625D1-1	NA
190625D1	12	1901305-06	DB	25-JUN-19	23:50:22	ST190625D1-1	NA
190625D1	13	1901305-07	DB	26-JUN-19	00:38:00	ST190625D1-1	NA
190625D1	14	1901384-04	DB	26-JUN-19	01:25:31	ST190625D1-1	NA
190625D1	15	B9F0172-DUP4	DB	26-JUN-19	02:13:08	ST190625D1-1	NA

Peak Locate Examination:25-JUN-2019:15:02 File:190625D1

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:25-JUN-2019:15:02 File:190625D1

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:25-JUN-2019:15:03 File:190625D1

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:25-JUN-2019:15:04 File:190625D1

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:25-JUN-2019:15:04 File:190625D1

Experiment:OCDD_DB5 Function:5 Reference:PFK

File:190625D1 #1-514 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936

333.9339

Client ID: 1613 CS3 19C2204 Filename: 190625D1 S:1 Acq:25-JUN-19 15:05:35 ConCal: ST190625D1-1

Lab ID: ST190625D1-1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	9.59e+05	0.80 y	0.90	26:05	12.745		*	2.5	*
	1,2,3,7,8-PeCDD	2.95e+06	0.65 y	0.87	30:33	54.484		*	2.5	*
	1,2,3,4,7,8-HxCDD	3.03e+06	1.24 y	1.05	33:51	56.318		*	2.5	*
	1,2,3,6,7,8-HxCDD	3.28e+06	1.26 y	0.93	33:57	54.185		*	2.5	*
	1,2,3,7,8,9-HxCDD	3.28e+06	1.21 y	0.96	34:15	52.911		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	2.55e+06	0.98 y	0.99	37:42	47.325		*	2.5	*
	OCDD	5.13e+06	0.90 y	0.99	40:58	94.304		*	2.5	*
	2,3,7,8-TCDF	1.22e+06	0.83 y	0.94	25:20	9.4264		*	2.5	*
	1,2,3,7,8-PeCDF	4.42e+06	1.65 y	0.92	29:23	49.841		*	2.5	*
	2,3,4,7,8-PeCDF	4.62e+06	1.64 y	0.96	30:17	51.707		*	2.5	*
	1,2,3,4,7,8-HxCDF	4.21e+06	1.25 y	1.15	32:57	51.322		*	2.5	*
	1,2,3,6,7,8-HxCDF	4.58e+06	1.21 y	1.04	33:05	52.538		*	2.5	*
	2,3,4,6,7,8-HxCDF	4.50e+06	1.25 y	1.10	33:42	53.192		*	2.5	*
	1,2,3,7,8,9-HxCDF	3.92e+06	1.26 y	1.03	34:40	53.282		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	3.24e+06	0.97 y	1.06	36:28	49.791		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	2.88e+06	0.96 y	1.23	38:16	49.101		*	2.5	*
	OCDF	5.86e+06	0.93 y	0.94	41:13	101.48		*	2.5	*
IS	13C-2,3,7,8-TCDD	8.35e+06	0.82 y	1.11	26:04	99.651				
IS	13C-1,2,3,7,8-PeCDD	6.21e+06	0.63 y	0.98	30:32	83.980				
IS	13C-1,2,3,4,7,8-HxCDD	5.12e+06	1.44 n	0.68	33:50	91.507				
IS	13C-1,2,3,6,7,8-HxCDD	6.51e+06	1.29 y	0.84	33:57	93.337				
IS	13C-1,2,3,7,8,9-HxCDD	6.45e+06	1.30 y	0.81	34:15	95.858				
IS	13C-1,2,3,4,6,7,8-HpCDD	5.45e+06	1.03 y	0.69	37:41	95.920				
IS	13C-OCDD	1.10e+07	0.90 y	0.62	40:57	213.00				
IS	13C-2,3,7,8-TCDF	1.38e+07	0.77 y	1.05	25:19	109.84				
IS	13C-1,2,3,7,8-PeCDF	9.61e+06	1.61 y	0.95	29:23	84.466				
IS	13C-2,3,4,7,8-PeCDF	9.33e+06	1.58 y	0.94	30:17	83.669				
IS	13C-1,2,3,4,7,8-HxCDF	7.11e+06	0.50 y	0.86	32:57	100.07				
IS	13C-1,2,3,6,7,8-HxCDF	8.39e+06	0.52 y	1.02	33:04	99.099				
IS	13C-2,3,4,6,7,8-HxCDF	7.71e+06	0.51 y	0.95	33:40	97.762				
IS	13C-1,2,3,7,8,9-HxCDF	7.14e+06	0.51 y	0.87	34:39	99.316				
IS	13C-1,2,3,4,6,7,8-HpCDF	6.11e+06	0.43 y	0.81	36:27	91.247				
IS	13C-1,2,3,4,7,8,9-HpCDF	4.79e+06	0.41 y	0.63	38:15	91.393				
IS	13C-OCDF	1.23e+07	0.90 y	0.78	41:12	189.70				
C/Up	37Cl-2,3,7,8-TCDD	8.77e+05		1.22	26:05	9.5064				
RS/RT	13C-1,2,3,4-TCDD	7.58e+06	0.84 y	1.00	25:29	100.00				
RS	13C-1,2,3,4-TCDF	1.19e+07	0.79 y	1.00	24:05	100.00				
RS/RT	13C-1,2,3,4,6,9-HxCDF	8.29e+06	0.51 y	1.00	33:22	100.00				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	86.4	88.1		*	*
Total Penta-Dioxins	208	209		*	*
Total Hexa-Dioxins	243	245		*	*
Total Hepta-Dioxins	110	111		*	*
Total Tetra-Furans	32.8	34.9		*	*
Total Penta-Furans	223.52	224.26		*	*
Total Hexa-Furans	282	282		*	*
Total Hepta-Furans	99.4	101		*	*

Rec	Qual
99.7	
84.0	
91.5	
93.3	
95.9	
95.9	
107	
110	
84.5	
83.7	
100	
99.1	
97.8	
99.3	
91.2	
91.4	
94.8	
95.1	

Integrations by Analyst: DB

Date: 6/25/19

Reviewed by Analyst: CT

Date: 06/26/19

File:190625D1 #1-514 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-184 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 F:2

File:190625D1 #1-400 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 F:3

File:190625D1 #1-400 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-355 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:4

File:190625D1 #1-432 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:5

File:190625D1 #1-514 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-514 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824

File:190625D1 #1-184 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-400 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-400 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-355 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190625D1 #1-432 Acq:25-JUN-2019 15:05:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190625D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Peak Locate Examination:26-JUN-2019:03:10 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:26-JUN-2019:03:11 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:26-JUN-2019:03:12 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:26-JUN-2019:03:13 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:26-JUN-2019:03:14 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

Beg. Calbration ID: ST190626D1-1

End Calibration ID: ST190626D1-2

Reviewed By: CT 06/27/19
Initials & Date

	Beg.	End
Ion abundance within QC limits?	✓	✓
Concentrations within criteria?	✓	✓
TCDD/TCDF Valleys <25%	✓	✓
First and last eluters present?	✓	✓
Retention Times within criteria?	✓	✓
Verification Std. named correctly? (ST-Year-Month-Day-VG ID)	✓	✓
Forms signed and dated?	✓	✓
Correct ICAL referenced?	DB	DB

Run Log:

- Correct instrument listed?	✓	✓
- Samples within 12 hour clock?	(Y)	N
- Bottle position verfied?	DB	

	Beg.	End
Mass resolution ≥	✓	✓

☐ 5k ☐ 6-8K ☐ 8K ☑ 10K
1614 1699 429 1613/1668/8280

	Beg.	End
Intergrated peaks display correctly?	✓	✓

GC Break <20% NA

8280 CS1 End Standard:

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours NA

Comments:

Vista Analytical Laboratory - Injection Log Run file: 190626D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190626D1	1	ST190626D1-1	DB	26-JUN-19	15:43:41	ST190626D1-1	ST190626D1-2
190626D1	2	B9F0227-BS1	DB	26-JUN-19	16:31:26	ST190626D1-1	ST190626D1-2
190626D1	3	B9F0224-BS1	DB	26-JUN-19	17:19:14	ST190626D1-1	ST190626D1-2
190626D1	4	B9F0224-BS2	DB	26-JUN-19	18:07:01	ST190626D1-1	ST190626D1-2
190626D1	5	B9F0224-BS3	DB	26-JUN-19	18:54:38	ST190626D1-1	ST190626D1-2
190626D1	6	B9F0224-BS4	DB	26-JUN-19	19:42:14	ST190626D1-1	ST190626D1-2
190626D1	7	SOLVENT BLANK	DB	26-JUN-19	20:30:00	NA	NA
190626D1	8	B9F0227-BLK1	DB	26-JUN-19	21:17:35	ST190626D1-1	ST190626D1-2
190626D1	9	B9F0224-BLK1	DB	26-JUN-19	22:05:21	ST190626D1-1	ST190626D1-2
190626D1	10	1901663-01	DB	26-JUN-19	22:52:57	ST190626D1-1	ST190626D1-2
190626D1	11	1901614-07	DB	26-JUN-19	23:40:31	ST190626D1-1	NA
190626D1	12	1901614-08	DB	27-JUN-19	00:28:06	ST190626D1-1	NA
190626D1	13	1901247-02	DB	27-JUN-19	01:15:40	ST190626D1-1	NA
190626D1	14	B9F0172-DUP1	DB	27-JUN-19	02:03:10	ST190626D1-1	NA
190626D1	15	SOLVENT BLANK	DB	27-JUN-19	02:50:46	NA	NA
190626D1	16	ST190626D1-2	DB	27-JUN-19	03:38:22	ST190626D1-1	ST190626D1-2

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: ST190626D1-1

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D1 S#1 Analysis Date: 26-JUN-19 Time: 15:43:41

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	y	11.9	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	54.9	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	y	48.8	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	y	49.6	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.21	1.05-1.43	y	49.8	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	y	47.4	43.0 - 58.0
OCDD	M+2/M+4	0.90	0.76-1.02	y	95.6	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	y	9.25	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	y	53.4	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	y	53.1	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	y	50.5	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	52.7	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	y	53.0	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	y	52.2	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	y	53.6	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	y	51.6	43.0 - 58.0
OCDF	M+2/M+4	0.91	0.76-1.02	y	101	63.0 - 159.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 6/26/19

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D1 S#1 Analysis Date: 26-JUN-19 Time: 15:43:41

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	101	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	88.4	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.34	1.05-1.43	y	108	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.20	1.05-1.43	y	106	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	y	106	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	y	124	72.0 - 138.0
13C-OCDD	M/M+2	0.91	0.76-1.02	y	263	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.79	0.65-0.89	y	102	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	y	91.5	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	y	86.8	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.49	0.43-0.59	y	104	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.49	0.43-0.59	y	101	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	101	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	y	107	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	112	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.43	0.37-0.51	y	120	77.0 - 129.0
13C-OCDF	M+2/M+4	0.89	0.76-1.02	y	239	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.80	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified

(3) No ion abundance ratio; report concentration found.

Analyst: DB

Date: 6/26/19

FORM 5
PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 5-10-19

RT Window Data Filename: 190626D1 S#1 Analysis Date: 26-JUN-19 Time: 15:43:41

ZB-5MS IS Data Filename: 190626D1 S#1 Analysis Date: 26-JUN-19 Time: 15:43:41

DB_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:39	1,3,6,8-TCDF (F)	20:32
1,2,8,9-TCDD (L)	26:53	1,2,8,9-TCDF (L)	27:03
1,2,4,7,9-PeCDD (F)	28:28	1,3,4,6,8-PeCDF (F)	26:58
1,2,3,8,9-PeCDD (L)	30:52	1,2,3,8,9-PeCDF (L)	31:08
1,2,4,6,7,9-HxCDD (F)	32:16	1,2,3,4,6,8-HxCDF (F)	31:44
1,2,3,7,8,9-HxCDD (L)	34:12	1,2,3,7,8,9-HxCDF (L)	34:37
1,2,3,4,6,7,9-HpCDD (F)	36:48	1,2,3,4,6,7,8-HpCDF (F)	36:25
1,2,3,4,6,7,8-HpCDD (L)	37:40	1,2,3,4,7,8,9-HpCDF (L)	38:13

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

==========

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT
BETWEEN
COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 6/26/19

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D1 S#1 Analysis Date: 26-JUN-19 Time: 15:43:41

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.001	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.001	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.023	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.199	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.993	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.153	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.188	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.024	0.989-1.052

Analyst: DB

Date: 6/26/19

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D1 S#1 Analysis Date: 26-JUN-19 Time: 15:43:41

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.010	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.039	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.018	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.147	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.130	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.228	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.235	1.091-1.371

Analyst: DB

Date: 6/26/19

Client ID: 1613 CS3 19C2204 Filename: 190626D1 S:1 Acq:26-JUN-19 15:43:41 ConCal: ST190626D1-1

Lab ID: ST190626D1-1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: ST190626D1-2

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.25e+06	0.76 y	0.90	26:02	11.875		*	2.5	*
	1,2,3,7,8-PeCDD	4.35e+06	0.63 y	0.87	30:30	54.894		*	2.5	*
	1,2,3,4,7,8-HxCDD	3.59e+06	1.21 y	1.05	33:48	48.842		*	2.5	*
	1,2,3,6,7,8-HxCDD	3.95e+06	1.23 y	0.93	33:54	49.592		*	2.5	*
	1,2,3,7,8,9-HxCDD	3.95e+06	1.21 y	0.96	34:12	49.755		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	3.81e+06	1.04 y	0.99	37:40	47.438		*	2.5	*
	OCDD	7.42e+06	0.90 y	0.99	40:56	95.642		*	2.5	*
	2,3,7,8-TCDF	1.53e+06	0.78 y	0.94	25:17	9.2482		*	2.5	*
	1,2,3,7,8-PeCDF	6.98e+06	1.54 y	0.92	29:21	53.376		*	2.5	*
	2,3,4,7,8-PeCDF	6.71e+06	1.56 y	0.96	30:15	53.134		*	2.5	*
	1,2,3,4,7,8-HxCDF	4.96e+06	1.20 y	1.15	32:54	50.485		*	2.5	*
	1,2,3,6,7,8-HxCDF	5.41e+06	1.24 y	1.04	33:02	52.688		*	2.5	*
	2,3,4,6,7,8-HxCDF	5.37e+06	1.23 y	1.10	33:38	53.049		*	2.5	*
	1,2,3,7,8,9-HxCDF	4.76e+06	1.22 y	1.03	34:37	52.165		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	4.93e+06	1.03 y	1.06	36:25	53.560		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	4.60e+06	1.02 y	1.23	38:13	51.554		*	2.5	*
	OCDF	8.53e+06	0.91 y	0.94	41:10	101.43		*	2.5	*
IS	13C-2,3,7,8-TCDD	1.17e+07	0.80 y	1.11	26:01	100.73				
IS	13C-1,2,3,7,8-PeCDD	9.08e+06	0.63 y	0.98	30:29	88.437				
IS	13C-1,2,3,4,7,8-HxCDD	7.00e+06	1.34 y	0.68	33:47	108.22				
IS	13C-1,2,3,6,7,8-HxCDD	8.56e+06	1.20 y	0.84	33:54	106.36				
IS	13C-1,2,3,7,8,9-HxCDD	8.24e+06	1.24 y	0.81	34:12	106.09				
IS	13C-1,2,3,4,6,7,8-HpCDD	8.12e+06	1.02 y	0.69	37:39	123.79				
IS	13C-OCDD	1.57e+07	0.91 y	0.62	40:55	263.32				
IS	13C-2,3,7,8-TCDF	1.75e+07	0.79 y	1.05	25:15	102.45				
IS	13C-1,2,3,7,8-PeCDF	1.42e+07	1.60 y	0.95	29:20	91.548				
IS	13C-2,3,4,7,8-PeCDF	1.32e+07	1.57 y	0.94	30:13	86.776				
IS	13C-1,2,3,4,7,8-HxCDF	8.52e+06	0.49 y	0.86	32:54	103.88				
IS	13C-1,2,3,6,7,8-HxCDF	9.88e+06	0.49 y	1.02	33:02	101.05				
IS	13C-2,3,4,6,7,8-HxCDF	9.23e+06	0.51 y	0.95	33:38	101.24				
IS	13C-1,2,3,7,8,9-HxCDF	8.85e+06	0.50 y	0.87	34:36	106.61				
IS	13C-1,2,3,4,6,7,8-HpCDF	8.65e+06	0.43 y	0.81	36:24	111.88				
IS	13C-1,2,3,4,7,8,9-HpCDF	7.29e+06	0.43 y	0.63	38:13	120.43				
IS	13C-OCDF	1.79e+07	0.89 y	0.78	41:09	238.90				
C/Up	37Cl-2,3,7,8-TCDD	1.25e+06		1.22	26:02	9.7956				
RS/RT	13C-1,2,3,4-TCDD	1.05e+07	0.82 y	1.00	25:26	100.00				
RS	13C-1,2,3,4-TCDF	1.62e+07	0.79 y	1.00	24:01	100.00				
RS/RT	13C-1,2,3,4,6,9-HxCDF	9.58e+06	0.50 y	1.00	33:19	100.00				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	82.4	83.1		*	*
Total Penta-Dioxins	205	206		*	*
Total Hexa-Dioxins	220	221		*	*
Total Hepta-Dioxins	109	110		*	*
Total Tetra-Furans	34.6	35.6		*	*
Total Penta-Furans	235.29	236.04		*	*
Total Hexa-Furans	280	282		*	*
Total Hepta-Furans	105	107		*	*

	Rec	Qual
IS	101	
IS	88.4	
IS	108	
IS	106	
IS	106	
IS	124	
IS	132	
IS	102	
IS	91.5	
IS	86.8	
IS	104	
IS	101	
IS	101	
IS	107	
IS	112	
IS	120	
IS	119	
C/Up	98.0	

Integrations by Analyst: DB

Date: 6/26/19

Reviewed by Analyst: CT

Date: 06/27/19

Vista Analytical Laboratory - Injection Log Run file: 190626D1 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190626D1	1	ST190626D1-1	DB	26-JUN-19	15:43:41	ST190626D1-1	ST190626D1-2
190626D1	2	B9F0227-BS1	DB	26-JUN-19	16:31:26	ST190626D1-1	ST190626D1-2
190626D1	3	B9F0224-BS1	DB	26-JUN-19	17:19:14	ST190626D1-1	ST190626D1-2
190626D1	4	B9F0224-BS2	DB	26-JUN-19	18:07:01	ST190626D1-1	ST190626D1-2
190626D1	5	B9F0224-BS3	DB	26-JUN-19	18:54:38	ST190626D1-1	ST190626D1-2
190626D1	6	B9F0224-BS4	DB	26-JUN-19	19:42:14	ST190626D1-1	ST190626D1-2
190626D1	7	SOLVENT BLANK	DB	26-JUN-19	20:30:00	NA	NA
190626D1	8	B9F0227-BLK1	DB	26-JUN-19	21:17:35	ST190626D1-1	ST190626D1-2
190626D1	9	B9F0224-BLK1	DB	26-JUN-19	22:05:21	ST190626D1-1	ST190626D1-2
190626D1	10	1901663-01	DB	26-JUN-19	22:52:57	ST190626D1-1	ST190626D1-2
190626D1	11	1901614-07	DB	26-JUN-19	23:40:31	ST190626D1-1	NA
190626D1	12	1901614-08	DB	27-JUN-19	00:28:06	ST190626D1-1	NA
190626D1	13	1901247-02	DB	27-JUN-19	01:15:40	ST190626D1-1	NA
190626D1	14	B9F0172-DUP1	DB	27-JUN-19	02:03:10	ST190626D1-1	NA
190626D1	15	SOLVENT BLANK	DB	27-JUN-19	02:50:46	NA	NA
190626D1	16	ST190626D1-2	DB	27-JUN-19	03:38:22	ST190626D1-1	ST190626D1-2

Peak Locate Examination:26-JUN-2019:15:37 File:190626D1

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:26-JUN-2019:15:38 File:190626D1

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:26-JUN-2019:15:39 File:190626D1

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:26-JUN-2019:15:40 File:190626D1

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:26-JUN-2019:15:41 File:190626D1

Experiment:OCDD_DB5 Function:5 Reference:PFK

File:190626D1 #1-514 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936

333.9339

File:190626D1 #1-514 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-184 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 F:2

File:190626D1 #1-399 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 F:3

File:190626D1 #1-399 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-356 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:4

File:190626D1 #1-431 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:5

File:190626D1 #1-514 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-514 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824

File:190626D1 #1-184 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-399 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-356 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D1 #1-431 Acq:26-JUN-2019 15:43:41 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190626D1-1 1613 CS3 19C2204 Exp:OCDD_DB5

441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Peak Locate Examination:27-JUN-2019:04:35 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:36 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:37 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:38 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:39 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

Beg. Calbration ID: ST190626D21

End Calibration ID: NA

Reviewed By: CT 06/28/19
Initials & Date

	Beg.	End
Ion abundance within QC limits?	✓	NA
Concentrations within criteria?	✓	
TCDD/TCDF Valleys <25%	✓	
First and last eluters present?	✓	
Retention Times within criteria?	✓	
Verification Std. named correctly? (ST-Year-Month-Day-VG ID)	✓	
Forms signed and dated?	✓	
Correct ICAL referenced?	DB	

Run Log:

	Beg.	End
- Correct instrument listed?	✓	✓
- Samples within 12 hour clock?	(Y)	N
- Bottle position verfied?	DB	

	Beg.	End
Mass resolution ≥	✓	✓

☐ 5k ☐ 6-8K ☐ 8K ☑ 10K
1614 1699 429 1613/1668/8280

	Beg.	End
Intergrated peaks display correctly?	✓	NA

GC Break <20% NA

8280 CS1 End Standard:

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours NA

Comments:

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: ST190626D2-1

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D2 S#1 Analysis Date: 27-JUN-19 Time: 04:40:31

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	11.3	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.62	0.54-0.72	y	55.0	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	53.4	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.18	1.05-1.43	y	53.1	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.21	1.05-1.43	y	52.9	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	y	47.9	43.0 - 58.0
OCDD	M+2/M+4	0.88	0.76-1.02	y	98.9	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	y	9.65	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	55.2	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	y	57.4	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	y	51.4	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	52.1	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	51.3	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	y	51.8	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	y	52.9	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	y	51.8	43.0 - 58.0
OCDF	M+2/M+4	0.91	0.76-1.02	y	100	63.0 - 159.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 6/27/19

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D2 S#1 Analysis Date: 27-JUN-19 Time: 04:40:31

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	y	101	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.64	0.54-0.72	y	88.0	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	100	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	y	100	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.23	1.05-1.43	y	102	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	y	111	72.0 - 138.0
13C-OCDD	M/M+2	0.91	0.76-1.02	y	203	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.80	0.65-0.89	y	108	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	y	92.4	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.65	1.32-1.78	y	87.3	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.50	0.43-0.59	y	99.0	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	101	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	102	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	y	104	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.44	0.37-0.51	y	104	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	104	77.0 - 129.0
13C-OCDF	M+2/M+4	0.87	0.76-1.02	y	190	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.37	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified

(3) No ion abundance ratio; report concentration found.

Analyst: DB

Date: 6/27/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 5-10-19

RT Window Data Filename: 190626D2 S#1 Analysis Date: 27-JUN-19 Time: 04:40:31

ZB-5MS IS Data Filename: 190626D2 S#1 Analysis Date: 27-JUN-19 Time: 04:40:31

DB_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:41	1,3,6,8-TCDF (F)	20:34
1,2,8,9-TCDD (L)	26:54	1,2,8,9-TCDF (L)	27:04
1,2,4,7,9-PeCDD (F)	28:29	1,3,4,6,8-PeCDF (F)	26:59
1,2,3,8,9-PeCDD (L)	30:53	1,2,3,8,9-PeCDF (L)	31:08
1,2,4,6,7,9-HxCDD (F)	32:16	1,2,3,4,6,8-HxCDF (F)	31:44
1,2,3,7,8,9-HxCDD (L)	34:13	1,2,3,7,8,9-HxCDF (L)	34:37
1,2,3,4,6,7,9-HpCDD (F)	36:49	1,2,3,4,6,7,8-HpCDF (F)	36:26
1,2,3,4,6,7,8-HpCDD (L)	37:40	1,2,3,4,7,8,9-HpCDF (L)	38:14

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

==========

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT BETWEEN COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 6/27/19

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D2 S#1 Analysis Date: 27-JUN-19 Time: 04:40:31

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.023	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.199	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.994	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.153	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.189	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.024	0.989-1.052

Analyst: DB

Date: 6/27/19

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190626D2 S#1 Analysis Date: 27-JUN-19 Time: 04:40:31

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.001	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.001	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.039	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.017	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.147	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.130	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.228	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.235	1.091-1.371

Analyst: DB

Date: 6/27/19

Client ID: 1613 CS3 19C2204 Filename: 190626D2 S:1 Acq:27-JUN-19 04:40:31 ConCal: ST190626D2-1

Lab ID: ST190626D2-1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.33e+06	0.80 y	0.90	26:03	11.280		*	2.5	*
	1,2,3,7,8-PeCDD	4.80e+06	0.62 y	0.87	30:31	54.973		*	2.5	*
	1,2,3,4,7,8-HxCDD	4.93e+06	1.27 y	1.05	33:48	53.381		*	2.5	*
	1,2,3,6,7,8-HxCDD	5.40e+06	1.18 y	0.93	33:55	53.089		*	2.5	*
	1,2,3,7,8,9-HxCDD	5.48e+06	1.21 y	0.96	34:13	52.928		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	4.68e+06	1.03 y	0.99	37:40	47.925		*	2.5	*
	OCDD	8.03e+06	0.88 y	0.99	40:56	98.893		*	2.5	*
	2,3,7,8-TCDF	1.79e+06	0.76 y	0.94	25:18	9.6515		*	2.5	*
	1,2,3,7,8-PeCDF	7.77e+06	1.62 y	0.92	29:21	55.214		*	2.5	*
	2,3,4,7,8-PeCDF	7.77e+06	1.56 y	0.96	30:15	57.375		*	2.5	*
	1,2,3,4,7,8-HxCDF	6.52e+06	1.25 y	1.15	32:55	51.369		*	2.5	*
	1,2,3,6,7,8-HxCDF	7.21e+06	1.22 y	1.04	33:03	52.073		*	2.5	*
	2,3,4,6,7,8-HxCDF	7.08e+06	1.24 y	1.10	33:39	51.346		*	2.5	*
	1,2,3,7,8,9-HxCDF	6.24e+06	1.22 y	1.03	34:37	51.826		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	6.12e+06	1.02 y	1.06	36:26	52.879		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	5.42e+06	1.03 y	1.23	38:14	51.843		*	2.5	*
	OCDF	9.08e+06	0.91 y	0.94	41:10	100.23		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	79.0	79.4		*	*
Total Penta-Dioxins	205	205		*	*
Total Hexa-Dioxins	231	232		*	*
Total Hepta-Dioxins	110	111		*	*
Total Tetra-Furans	34.0	34.7		*	*
Total Penta-Furans	247.76	247.80		*	*
Total Hexa-Furans	275	275		*	*
Total Hepta-Furans	106	107		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	1.30e+07	0.79 y	1.11	26:02	101.07	101	
IS	13C-1,2,3,7,8-PeCDD	1.00e+07	0.64 y	0.98	30:30	88.009	88.0	
IS	13C-1,2,3,4,7,8-HxCDD	8.80e+06	1.28 y	0.68	33:47	100.49	100	
IS	13C-1,2,3,6,7,8-HxCDD	1.09e+07	1.26 y	0.84	33:54	100.29	100	
IS	13C-1,2,3,7,8,9-HxCDD	1.08e+07	1.23 y	0.81	34:12	102.16	102	
IS	13C-1,2,3,4,6,7,8-HpCDD	9.87e+06	1.05 y	0.69	37:39	110.99	111	
IS	13C-OCDD	1.65e+07	0.91 y	0.62	40:55	203.34	102	
IS	13C-2,3,7,8-TCDF	1.97e+07	0.80 y	1.05	25:17	107.95	108	
IS	13C-1,2,3,7,8-PeCDF	1.53e+07	1.60 y	0.95	29:21	92.357	92.4	
IS	13C-2,3,4,7,8-PeCDF	1.41e+07	1.65 y	0.94	30:14	87.306	87.3	
IS	13C-1,2,3,4,7,8-HxCDF	1.10e+07	0.50 y	0.86	32:54	98.973	99.0	
IS	13C-1,2,3,6,7,8-HxCDF	1.33e+07	0.51 y	1.02	33:02	100.64	101	
IS	13C-2,3,4,6,7,8-HxCDF	1.26e+07	0.51 y	0.95	33:38	101.90	102	
IS	13C-1,2,3,7,8,9-HxCDF	1.17e+07	0.51 y	0.87	34:37	103.84	104	
IS	13C-1,2,3,4,6,7,8-HpCDF	1.09e+07	0.44 y	0.81	36:25	103.70	104	
IS	13C-1,2,3,4,7,8,9-HpCDF	8.53e+06	0.44 y	0.63	38:13	104.07	104	
IS	13C-OCDF	1.93e+07	0.87 y	0.78	41:09	189.95	95.0	
C/Up	37Cl-2,3,7,8-TCDD	1.33e+06		1.22	26:03	9.3718	93.7	
RS/RT	13C-1,2,3,4-TCDD	1.17e+07	0.79 y	1.00	25:27	100.00		
RS	13C-1,2,3,4-TCDF	1.73e+07	0.82 y	1.00	24:02	100.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.30e+07	0.51 y	1.00	33:19	100.00		

Integrations by Analyst: DB

Date: 6/27/19

Reviewed by Analyst: CT

Date: 06/28/19

Vista Analytical Laboratory - Injection Log Run file: 190626D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190626D2	1	ST190626D2-1	DB	27-JUN-19	04:40:31	ST190626D2-1	NA
190626D2	2	B9F0201-BS1	DB	27-JUN-19	05:28:03	ST190626D2-1	NA
190626D2	3	SOLVENT BLANK	DB	27-JUN-19	06:15:39	ST190626D2-1	NA
190626D2	4	B9F0201-BLK1	DB	27-JUN-19	07:03:26	ST190626D2-1	NA
190626D2	5	1901247-03	DB	27-JUN-19	07:51:09	ST190626D2-1	NA
190626D2	6	1901247-04	DB	27-JUN-19	08:38:57	ST190626D2-1	NA
190626D2	7	1901247-06	DB	27-JUN-19	09:26:40	ST190626D2-1	NA
190626D2	8	1901247-07	DB	27-JUN-19	10:14:26	ST190626D2-1	NA
190626D2	9	1901247-09	DB	27-JUN-19	11:02:15	ST190626D2-1	NA
190626D2	10	1901247-10	DB	27-JUN-19	11:50:03	ST190626D2-1	NA
190626D2	11	1901246-01	DB	27-JUN-19	12:37:50	ST190626D2-1	NA
190626D2	12	1901246-02	DB	27-JUN-19	13:25:33	ST190626D2-1	NA
190626D2	13	1901246-03	DB	27-JUN-19	14:13:13	ST190626D2-1	NA
190626D2	14	1901246-04	DB	27-JUN-19	15:01:00	ST190626D2-1	NA
190626D2	15	1901246-05	DB	27-JUN-19	15:48:43	ST190626D2-1	NA

Peak Locate Examination:27-JUN-2019:04:35 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:36 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:37 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:38 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:27-JUN-2019:04:39 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

File:190626D2 #1-514 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936

333.9339

File:190626D2 #1-514 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-184 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 F:2

File:190626D2 #1-399 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 F:3

File:190626D2 #1-399 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:4

File:190626D2 #1-431 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:5

File:190626D2 #1-514 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-514 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824

File:190626D2 #1-184 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-399 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-356 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190626D2 #1-431 Acq:27-JUN-2019 04:40:31 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:ST190626D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Peak Locate Examination:27-JUN-2019:16:44 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:27-JUN-2019:16:44 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:27-JUN-2019:16:45 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:27-JUN-2019:16:45 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:27-JUN-2019:16:46 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

Beg. Calbration ID: ST190708D2-1

Reviewed By: CT 07/09/19
Initials & Date

End Calibration ID: NA

	Beg.	End
Ion abundance within QC limits?	✓	NA
Concentrations within criteria?	✓	
TCDD/TCDF Valleys <25%	✓	
First and last eluters present?	✓	
Retention Times within criteria?	✓	
Verification Std. named correctly? (ST-Year-Month-Day-VG ID)	✓	
Forms signed and dated?	✓	
Correct ICAL referenced?	DB	

Run Log:

	Beg.	End
- Correct instrument listed?	✓	✓
- Samples within 12 hour clock?	Y	N
- Bottle position verfied?	DB	

	Beg.	End
Mass resolution ≥	✓	✓

☐ 5k ☐ 6-8K ☐ 8K ☑ 10K
1614 1699 429 1613/1668/8280

	Beg.	End
Intergrated peaks display correctly?	✓	NA

GC Break <20% NA

8280 CS1 End Standard:

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours NA

Comments:

Vista Analytical Laboratory - Injection Log Run file: 190708D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190708D2	1	ST190708D2-1	DB	8-JUL-19	15:39:27	ST190708D2-1	NA
190708D2	2	B9G0036-BS1	DB	8-JUL-19	16:27:16	ST190708D2-1	NA
190708D2	3	B9F0255-BS1	DB	8-JUL-19	17:15:01	ST190708D2-1	NA
190708D2	4	SOLVENT BLANK	DB	8-JUL-19	18:02:44	ST190708D2-1	NA
190708D2	5	B9G0027-BLK1	DB	8-JUL-19	18:50:25	ST190708D2-1	NA
190708D2	6	B9G0028-BLK1	DB	8-JUL-19	19:37:57	ST190708D2-1	NA
190708D2	7	B9G0036-BLK1	DB	8-JUL-19	20:25:44	ST190708D2-1	NA
190708D2	8	B9F0255-BLK1	DB	8-JUL-19	21:13:25	ST190708D2-1	NA
190708D2	9	1901780-01	DB	8-JUL-19	22:01:02	ST190708D2-1	NA
190708D2	10	1901611-01	DB	8-JUL-19	22:48:37	ST190708D2-1	NA
190708D2	11	1901750-01	DB	8-JUL-19	23:36:07	ST190708D2-1	NA
190708D2	12	1901750-02	DB	9-JUL-19	00:23:43	ST190708D2-1	NA
190708D2	13	1901750-03	DB	9-JUL-19	01:11:18	ST190708D2-1	NA
190708D2	14	1901750-04	DB	9-JUL-19	01:58:53	ST190708D2-1	NA
190708D2	15	1901247-01RE1	DB	9-JUL-19	02:46:28	ST190708D2-1	NA

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: ST190708D2-1

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190708D2 S#1 Analysis Date: 8-JUL-19 Time: 15:39:27

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	y	10.5	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.62	0.54-0.72	y	54.4	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	y	51.7	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	y	50.1	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	y	50.8	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	y	47.3	43.0 - 58.0
OCDD	M+2/M+4	0.88	0.76-1.02	y	96.8	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	y	8.71	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	52.6	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	y	52.4	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	y	47.9	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.28	1.05-1.43	y	49.3	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	y	49.8	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	y	50.0	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	y	51.5	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	y	50.4	43.0 - 58.0
OCDF	M+2/M+4	0.88	0.76-1.02	y	94.1	63.0 - 159.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 7/8/19

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190708D2 S#1 Analysis Date: 8-JUL-19 Time: 15:39:27

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	y	108	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.64	0.54-0.72	y	101	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	y	105	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	98.7	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	101	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	y	119	72.0 - 138.0
13C-OCDD	M/M+2	0.92	0.76-1.02	y	273	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.79	0.65-0.89	y	95.9	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	y	94.3	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	93.6	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	106	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	102	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	103	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	y	101	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.44	0.37-0.51	y	102	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.45	0.37-0.51	y	116	77.0 - 129.0
13C-OCDF	M+2/M+4	0.88	0.76-1.02	y	254	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.67	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified

(3) No ion abundance ratio; report concentration found.

Analyst: DB

Date: 7/8/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 5-10-19

RT Window Data Filename: 190708D2 S#1 Analysis Date: 8-JUL-19 Time: 15:39:27

ZB-5MS IS Data Filename: 190708D2 S#1 Analysis Date: 8-JUL-19 Time: 15:39:27

DB_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	23:36	1,3,6,8-TCDF (F)	21:40
1,2,8,9-TCDD (L)	27:32	1,2,8,9-TCDF (L)	27:41
1,2,4,7,9-PeCDD (F)	29:02	1,3,4,6,8-PeCDF (F)	27:36
1,2,3,8,9-PeCDD (L)	31:22	1,2,3,8,9-PeCDF (L)	31:37
1,2,4,6,7,9-HxCDD (F)	32:46	1,2,3,4,6,8-HxCDF (F)	32:14
1,2,3,7,8,9-HxCDD (L)	34:47	1,2,3,7,8,9-HxCDF (L)	35:12
1,2,3,4,6,7,9-HpCDD (F)	37:21	1,2,3,4,6,7,8-HpCDF (F)	37:01
1,2,3,4,6,7,8-HpCDD (L)	38:09	1,2,3,4,7,8,9-HpCDF (L)	38:44

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

==========

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT BETWEEN COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 7/8/19

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190708D2 S#1 Analysis Date: 8-JUL-19 Time: 15:39:27

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.000	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.001	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.021	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.185	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.993	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.142	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.175	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.021	0.989-1.052

Analyst: DB

Date: 7/8/19

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190708D2 S#1 Analysis Date: 8-JUL-19 Time: 15:39:27

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.001	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.001	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.987	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.010	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.039	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.018	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.143	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.126	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.226	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.233	1.091-1.371

Analyst: DB

Date: 7/8/19

Client ID: 1613 CS3 19C2204 Filename: 190708D2 S:1 Acq: 8-JUL-19 15:39:27 ConCal: ST190708D2-1

Lab ID: ST190708D2-1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.19e+06	0.78 y	0.90	26:43	10.512		*	2.5	*
	1,2,3,7,8-PeCDD	4.96e+06	0.62 y	0.87	31:01	54.413		*	2.5	*
	1,2,3,4,7,8-HxCDD	4.75e+06	1.23 y	1.05	34:22	51.727		*	2.5	*
	1,2,3,6,7,8-HxCDD	4.78e+06	1.25 y	0.93	34:29	50.075		*	2.5	*
	1,2,3,7,8,9-HxCDD	4.97e+06	1.25 y	0.96	34:47	50.823		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	4.71e+06	1.02 y	0.99	38:09	47.322		*	2.5	*
	OCDD	1.01e+07	0.88 y	0.99	41:32	96.782		*	2.5	*
	2,3,7,8-TCDF	1.46e+06	0.76 y	0.94	26:00	8.7076		*	2.5	*
	1,2,3,7,8-PeCDF	7.69e+06	1.61 y	0.92	29:53	52.579		*	2.5	*
	2,3,4,7,8-PeCDF	7.75e+06	1.56 y	0.96	30:45	52.414		*	2.5	*
	1,2,3,4,7,8-HxCDF	6.18e+06	1.26 y	1.15	33:27	47.921		*	2.5	*
	1,2,3,6,7,8-HxCDF	6.58e+06	1.28 y	1.04	33:35	49.343		*	2.5	*
	2,3,4,6,7,8-HxCDF	6.59e+06	1.24 y	1.10	34:12	49.817		*	2.5	*
	1,2,3,7,8,9-HxCDF	5.57e+06	1.25 y	1.03	35:12	49.983		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	5.57e+06	1.02 y	1.06	37:01	51.507		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	5.59e+06	1.03 y	1.23	38:44	50.354		*	2.5	*
	OCDF	1.08e+07	0.88 y	0.94	41:46	94.101		*	2.5	*
IS	13C-2,3,7,8-TCDD	1.26e+07	0.77 y	1.11	26:42	107.79				
IS	13C-1,2,3,7,8-PeCDD	1.04e+07	0.64 y	0.98	31:00	101.46				
IS	13C-1,2,3,4,7,8-HxCDD	8.75e+06	1.29 y	0.68	34:21	104.83				
IS	13C-1,2,3,6,7,8-HxCDD	1.03e+07	1.28 y	0.84	34:28	98.686				
IS	13C-1,2,3,7,8,9-HxCDD	1.02e+07	1.26 y	0.81	34:46	101.37				
IS	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	1.07 y	0.69	38:08	118.84				
IS	13C-OCDD	2.11e+07	0.92 y	0.62	41:31	273.10				
IS	13C-2,3,7,8-TCDF	1.78e+07	0.79 y	1.05	25:60	95.867				
IS	13C-1,2,3,7,8-PeCDF	1.59e+07	1.63 y	0.95	29:52	94.256				
IS	13C-2,3,4,7,8-PeCDF	1.54e+07	1.61 y	0.94	30:45	93.577				
IS	13C-1,2,3,4,7,8-HxCDF	1.12e+07	0.51 y	0.86	33:26	105.59				
IS	13C-1,2,3,6,7,8-HxCDF	1.29e+07	0.52 y	1.02	33:34	101.85				
IS	13C-2,3,4,6,7,8-HxCDF	1.21e+07	0.51 y	0.95	34:11	102.62				
IS	13C-1,2,3,7,8,9-HxCDF	1.08e+07	0.51 y	0.87	35:11	101.02				
IS	13C-1,2,3,4,6,7,8-HpCDF	1.02e+07	0.44 y	0.81	37:01	101.69				
IS	13C-1,2,3,4,7,8,9-HpCDF	9.06e+06	0.45 y	0.63	38:43	116.02				
IS	13C-OCDF	2.45e+07	0.88 y	0.78	41:46	253.68				
C/Up	37Cl-2,3,7,8-TCDD	1.24e+06		1.22	26:43	9.6714				
RS/RT	13C-1,2,3,4-TCDD	1.06e+07	0.82 y	1.00	26:10	100.00				
RS	13C-1,2,3,4-TCDF	1.76e+07	0.78 y	1.00	24:51	100.00				
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.24e+07	0.51 y	1.00	33:52	100.00				

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	75.7	76.3		*	*
Total Penta-Dioxins	204	204		*	*
Total Hexa-Dioxins	226	227		*	*
Total Hepta-Dioxins	110	110		*	*
Total Tetra-Furans	33.5	34.5		*	*
Total Penta-Furans	238.59	239.49		*	*
Total Hexa-Furans	262	263		*	*
Total Hepta-Furans	103	103		*	*

	Rec	Qual
IS	108	
IS	101	
IS	105	
IS	98.7	
IS	101	
IS	119	
IS	137	
IS	95.9	
IS	94.3	
IS	93.6	
IS	106	
IS	102	
IS	103	
IS	101	
IS	102	
IS	116	
IS	127	
C/Up	96.7	

Integrations by Analyst: DB Date: 7/8/19

Reviewed by Analyst: CT Date: 07/09/19

Vista Analytical Laboratory - Injection Log Run file: 190708D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190708D2	1	ST190708D2-1	DB	8-JUL-19	15:39:27	ST190708D2-1	NA
190708D2	2	B9G0036-BS1	DB	8-JUL-19	16:27:16	ST190708D2-1	NA
190708D2	3	B9F0255-BS1	DB	8-JUL-19	17:15:01	ST190708D2-1	NA
190708D2	4	SOLVENT BLANK	DB	8-JUL-19	18:02:44	ST190708D2-1	NA
190708D2	5	B9G0027-BLK1	DB	8-JUL-19	18:50:25	ST190708D2-1	NA
190708D2	6	B9G0028-BLK1	DB	8-JUL-19	19:37:57	ST190708D2-1	NA
190708D2	7	B9G0036-BLK1	DB	8-JUL-19	20:25:44	ST190708D2-1	NA
190708D2	8	B9F0255-BLK1	DB	8-JUL-19	21:13:25	ST190708D2-1	NA
190708D2	9	1901780-01	DB	8-JUL-19	22:01:02	ST190708D2-1	NA
190708D2	10	1901611-01	DB	8-JUL-19	22:48:37	ST190708D2-1	NA
190708D2	11	1901750-01	DB	8-JUL-19	23:36:07	ST190708D2-1	NA
190708D2	12	1901750-02	DB	9-JUL-19	00:23:43	ST190708D2-1	NA
190708D2	13	1901750-03	DB	9-JUL-19	01:11:18	ST190708D2-1	NA
190708D2	14	1901750-04	DB	9-JUL-19	01:58:53	ST190708D2-1	NA
190708D2	15	1901247-01RE1	DB	9-JUL-19	02:46:28	ST190708D2-1	NA

Peak Locate Examination: 8-JUL-2019:15:35 File:190708D2

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination: 8-JUL-2019:15:36 File:190708D2

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination: 8-JUL-2019:15:37 File:190708D2

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination: 8-JUL-2019:15:37 File:190708D2

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination: 8-JUL-2019:15:38 File:190708D2

Experiment:OCDD_DB5 Function:5 Reference:PFK

File:190708D2 #1-513 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936

333.9339

File:190708D2 #1-513 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-211 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 F:2

File:190708D2 #1-355 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

File:190708D2 #1-355 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:4

File:190708D2 #1-431 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:5

File:190708D2 #1-513 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-513 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824

File:190708D2 #1-211 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

File:190708D2 #1-355 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-355 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190708D2 #1-431 Acq: 8-JUL-2019 15:39:27 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190708D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Peak Locate Examination: 9-JUL-2019:03:44 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination: 9-JUL-2019:03:45 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination: 9-JUL-2019:03:45 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination: 9-JUL-2019:03:46 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination: 9-JUL-2019:03:47 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

Beg. Calbration ID: ST190709D2-1

Reviewed By: CT 07/10/19
Initials & Date

End Calibration ID: NA

	Beg.	End
Ion abundance within QC limits?	✓	NA
Concentrations within criteria?	✓	
TCDD/TCDF Valleys <25%	✓	
First and last eluters present?	✓	
Retention Times within criteria?	✓	
Verification Std. named correctly? (ST-Year-Month-Day-VG ID)	✓	
Forms signed and dated?	✓	
Correct ICAL referenced?	DB	

Run Log:

- Correct instrument listed?	✓	✓
- Samples within 12 hour clock?	Y	N
- Bottle position verfied?	DB	

	Beg.	End
Mass resolution ≥	✓	✓

☐ 5k ☐ 6-8K ☐ 8K ☑ 10K
1614 1699 429 1613/1668/8280

Intergrated peaks display correctly?	✓	NA
GC Break <20%	NA	

8280 CS1 End Standard:

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours	NA

Comments:

Vista Analytical Laboratory - Injection Log Run file: 190709D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190709D2	1	ST190709D2-1	DB	9-JUL-19	22:49:29	ST190709D2-1	NA
190709D2	2	SOLVENT BLANK	DB	9-JUL-19	23:37:09	ST190709D2-1	NA
190709D2	3	QC190708D3-1	DB	10-JUL-19	00:24:48	ST190709D2-1	NA
190709D2	4	QC190708D3-2	DB	10-JUL-19	01:12:30	ST190709D2-1	NA
190709D2	5	1901247-05RE1	DB	10-JUL-19	02:00:11	ST190709D2-1	NA
190709D2	6	1901247-08RE1	DB	10-JUL-19	02:47:49	ST190709D2-1	NA
190709D2	7	1901247-09RE1	DB	10-JUL-19	03:35:26	ST190709D2-1	NA
190709D2	8	1901249-02RE1	DB	10-JUL-19	04:23:02	ST190709D2-1	NA
190709D2	9	B9F0255-DUP2	DB	10-JUL-19	05:10:39	ST190709D2-1	NA
190709D2	10	1901305-02RE1	DB	10-JUL-19	05:58:17	ST190709D2-1	NA
190709D2	11	1901305-06RE1	DB	10-JUL-19	06:45:54	ST190709D2-1	NA
190709D2	12	1901384-04RE1	DB	10-JUL-19	07:33:30	ST190709D2-1	NA
190709D2	13	B9F0255-DUP1	DB	10-JUL-19	08:21:06	ST190709D2-1	NA
190709D2	14	1901682-01	DB	10-JUL-19	09:08:51	ST190709D2-1	NA
190709D2	15	1901610-01RE1	DB	10-JUL-19	09:56:37	ST190709D2-1	NA
190709D2	16	SOLVENT BLANK	DB	10-JUL-19	10:44:25	ST190709D2-1	NA

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: ST190709D2-1

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190709D2 S#1 Analysis Date: 9-JUL-19 Time: 22:49:29

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	10.0	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.62	0.54-0.72	y	53.4	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	y	51.9	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	y	51.4	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	y	50.4	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.03	0.88-1.20	y	49.5	43.0 - 58.0
OCDD	M+2/M+4	0.91	0.76-1.02	y	103	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.83	0.65-0.89	y	8.86	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	y	52.1	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	53.5	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	y	46.8	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	48.9	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	y	49.2	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	y	48.8	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	y	51.5	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.01	0.88-1.20	y	49.8	43.0 - 58.0
OCDF	M+2/M+4	0.90	0.76-1.02	y	97.0	63.0 - 159.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 7/10/19

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190709D2 S#1 Analysis Date: 9-JUL-19 Time: 22:49:29

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	y	104	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	94.6	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	y	108	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	96.5	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	y	104	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	y	129	72.0 - 138.0
13C-OCDD	M/M+2	0.92	0.76-1.02	y	246	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.79	0.65-0.89	y	98.6	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	y	98.6	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	93.3	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	106	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	96.5	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	101	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	y	108	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	111	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.42	0.37-0.51	y	129	77.0 - 129.0
13C-OCDF	M+2/M+4	0.88	0.76-1.02	y	245	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.45	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified

(3) No ion abundance ratio; report concentration found.

Analyst: DB

Date: 7/10/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 5-10-19

RT Window Data Filename: 190709D2 S#1 Analysis Date: 9-JUL-19 Time: 22:49:29

ZB-5MS IS Data Filename: 190709D2 S#1 Analysis Date: 9-JUL-19 Time: 22:49:29

DB_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	23:33	1,3,6,8-TCDF (F)	21:36
1,2,8,9-TCDD (L)	27:30	1,2,8,9-TCDF (L)	27:39
1,2,4,7,9-PeCDD (F)	28:60	1,3,4,6,8-PeCDF (F)	27:34
1,2,3,8,9-PeCDD (L)	31:20	1,2,3,8,9-PeCDF (L)	31:35
1,2,4,6,7,9-HxCDD (F)	32:44	1,2,3,4,6,8-HxCDF (F)	32:12
1,2,3,7,8,9-HxCDD (L)	34:45	1,2,3,7,8,9-HxCDF (L)	35:10
1,2,3,4,6,7,9-HpCDD (F)	37:19	1,2,3,4,6,7,8-HpCDF (F)	36:60
1,2,3,4,6,7,8-HpCDD (L)	38:08	1,2,3,4,7,8,9-HpCDF (L)	38:42

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

==========

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT BETWEEN COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 7/10/19

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190709D2 S#1 Analysis Date: 9-JUL-19 Time: 22:49:29

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.021	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.185	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.993	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.142	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.175	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.021	0.989-1.052

Analyst: DB

Date: 7/10/19

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190709D2 S#1 Analysis Date: 9-JUL-19 Time: 22:49:29

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.001	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.001	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.001	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.001	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.001	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.001	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.987	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.039	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.018	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.143	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.127	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.226	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.234	1.091-1.371

Analyst: JB

Date: 7/10/19

Client ID: 1613 CS3 19C2204 Filename: 190709D2 S:1 Acq: 9-JUL-19 22:49:29 ConCal: ST190709D2-1

Lab ID: ST190709D2-1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	1.03e+06	0.80 y	0.90	26:42	10.028		*	2.5	*
	1,2,3,7,8-PeCDD	4.26e+06	0.62 y	0.87	30:59	53.448		*	2.5	*
	1,2,3,4,7,8-HxCDD	4.14e+06	1.22 y	1.05	34:20	51.919		*	2.5	*
	1,2,3,6,7,8-HxCDD	4.04e+06	1.22 y	0.93	34:27	51.409		*	2.5	*
	1,2,3,7,8,9-HxCDD	4.27e+06	1.22 y	0.96	34:45	50.387		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	4.53e+06	1.03 y	0.99	38:08	49.544		*	2.5	*
	OCDD	8.13e+06	0.91 y	0.99	41:30	102.83		*	2.5	*
	2,3,7,8-TCDF	1.23e+06	0.83 y	0.94	25:59	8.8579		*	2.5	*
	1,2,3,7,8-PeCDF	6.43e+06	1.56 y	0.92	29:51	52.100		*	2.5	*
	2,3,4,7,8-PeCDF	6.36e+06	1.55 y	0.96	30:43	53.468		*	2.5	*
	1,2,3,4,7,8-HxCDF	5.12e+06	1.21 y	1.15	33:25	46.803		*	2.5	*
	1,2,3,6,7,8-HxCDF	5.21e+06	1.22 y	1.04	33:33	48.904		*	2.5	*
	2,3,4,6,7,8-HxCDF	5.39e+06	1.21 y	1.10	34:10	49.160		*	2.5	*
	1,2,3,7,8,9-HxCDF	4.89e+06	1.24 y	1.03	35:10	48.817		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	5.13e+06	1.02 y	1.06	36:60	51.464		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	5.17e+06	1.01 y	1.23	38:42	49.816		*	2.5	*
	OCDF	9.11e+06	0.90 y	0.94	41:45	96.997		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	72.0	72.3		*	*
Total Penta-Dioxins	198	198		*	*
Total Hexa-Dioxins	222	224		*	*
Total Hepta-Dioxins	112	113		*	*
Total Tetra-Furans	34.6	35.4		*	*
Total Penta-Furans	245.34	245.59		*	*
Total Hexa-Furans	256	256		*	*
Total Hepta-Furans	102	102		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	1.14e+07	0.78 y	1.11	26:40	103.79	104	
IS	13C-1,2,3,7,8-PeCDD	9.14e+06	0.63 y	0.98	30:58	94.639	94.6	
IS	13C-1,2,3,4,7,8-HxCDD	7.60e+06	1.28 y	0.68	34:19	108.08	108	
IS	13C-1,2,3,6,7,8-HxCDD	8.46e+06	1.27 y	0.84	34:26	96.539	96.5	
IS	13C-1,2,3,7,8,9-HxCDD	8.80e+06	1.24 y	0.81	34:45	104.18	104	
IS	13C-1,2,3,4,6,7,8-HpCDD	9.24e+06	1.06 y	0.69	38:07	129.48	129	
IS	13C-OCDD	1.60e+07	0.92 y	0.62	41:30	246.41	123	
IS	13C-2,3,7,8-TCDF	1.48e+07	0.79 y	1.05	25:58	98.603	98.6	
IS	13C-1,2,3,7,8-PeCDF	1.34e+07	1.54 y	0.95	29:51	98.565	98.6	
IS	13C-2,3,4,7,8-PeCDF	1.24e+07	1.59 y	0.94	30:43	93.254	93.3	
IS	13C-1,2,3,4,7,8-HxCDF	9.48e+06	0.51 y	0.86	33:24	106.29	106	
IS	13C-1,2,3,6,7,8-HxCDF	1.03e+07	0.52 y	1.02	33:32	96.512	96.5	
IS	13C-2,3,4,6,7,8-HxCDF	1.00e+07	0.52 y	0.95	34:09	100.96	101	
IS	13C-1,2,3,7,8,9-HxCDF	9.73e+06	0.51 y	0.87	35:09	107.76	108	
IS	13C-1,2,3,4,6,7,8-HpCDF	9.37e+06	0.43 y	0.81	36:59	111.36	111	
IS	13C-1,2,3,4,7,8,9-HpCDF	8.47e+06	0.42 y	0.63	38:41	128.78	129	
IS	13C-OCDF	2.00e+07	0.88 y	0.78	41:44	245.49	123	
C/Up	37Cl-2,3,7,8-TCDD	1.14e+06		1.22	26:42	9.4542	94.5	
RS/RT	13C-1,2,3,4-TCDD	9.91e+06	0.79 y	1.00	26:08	100.00		
RS	13C-1,2,3,4-TCDF	1.42e+07	0.81 y	1.00	24:49	100.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	1.04e+07	0.51 y	1.00	33:50	100.00		

Integrations by Analyst: DB Date: 7/10/19

Reviewed by Analyst: CT Date: 07/10/19

Vista Analytical Laboratory - Injection Log Run file: 190709D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190709D2	1	ST190709D2-1	DB	9-JUL-19	22:49:29	ST190709D2-1	NA
190709D2	2	SOLVENT BLANK	DB	9-JUL-19	23:37:09	ST190709D2-1	NA
190709D2	3	QC190708D3-1	DB	10-JUL-19	00:24:48	ST190709D2-1	NA
190709D2	4	QC190708D3-2	DB	10-JUL-19	01:12:30	ST190709D2-1	NA
190709D2	5	1901247-05RE1	DB	10-JUL-19	02:00:11	ST190709D2-1	NA
190709D2	6	1901247-08RE1	DB	10-JUL-19	02:47:49	ST190709D2-1	NA
190709D2	7	1901247-09RE1	DB	10-JUL-19	03:35:26	ST190709D2-1	NA
190709D2	8	1901249-02RE1	DB	10-JUL-19	04:23:02	ST190709D2-1	NA
190709D2	9	B9F0255-DUP2	DB	10-JUL-19	05:10:39	ST190709D2-1	NA
190709D2	10	1901305-02RE1	DB	10-JUL-19	05:58:17	ST190709D2-1	NA
190709D2	11	1901305-06RE1	DB	10-JUL-19	06:45:54	ST190709D2-1	NA
190709D2	12	1901384-04RE1	DB	10-JUL-19	07:33:30	ST190709D2-1	NA
190709D2	13	B9F0255-DUP1	DB	10-JUL-19	08:21:06	ST190709D2-1	NA
190709D2	14	1901682-01	DB	10-JUL-19	09:08:51	ST190709D2-1	NA
190709D2	15	1901610-01RE1	DB	10-JUL-19	09:56:37	ST190709D2-1	NA
190709D2	16	SOLVENT BLANK	DB	10-JUL-19	10:44:25	ST190709D2-1	NA

Peak Locate Examination: 9-JUL-2019:22:44 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination: 9-JUL-2019:22:45 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination: 9-JUL-2019:22:46 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination: 9-JUL-2019:22:47 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination: 9-JUL-2019:22:48 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

File:190709D2 #1-514 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936

333.9339

File:190709D2 #1-514 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-211 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 F:2

File:190709D2 #1-355 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

File:190709D2 #1-355 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:4

File:190709D2 #1-432 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:5

File:190709D2 #1-514 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-514 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824

File:190709D2 #1-211 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-355 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-356 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

File:190709D2 #1-356 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5
417.8253 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190709D2 #1-432 Acq: 9-JUL-2019 22:49:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190709D2-1 1613 CS3 19C2204 Exp:OCDD_DB5

441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Peak Locate Examination:10-JUL-2019:11:42 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:10-JUL-2019:11:43 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:10-JUL-2019:11:44 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:10-JUL-2019:11:45 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:10-JUL-2019:11:45 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

HRMS CALIBRATION STANDARDS REVIEW CHECKLIST

Beg. Calbration ID: ST190719D1-1

Reviewed By: CT 07/22/19
Initials & Date

End Calibration ID: NA

	Beg.	End
Ion abundance within QC limits?	✓	NA
Concentrations within criteria?	✓	
TCDD/TCDF Valleys <25%	✓	
First and last eluters present?	✓	
Retention Times within criteria?	✓	
Verification Std. named correctly? (ST-Year-Month-Day-VG ID)	✓	
Forms signed and dated?	✓	
Correct ICAL referenced?	DB	

Run Log:

	Beg.	End
- Correct instrument listed?	✓	✓
- Samples within 12 hour clock?	Y	N
- Bottle position verfied?	DB	

	Beg.	End
Mass resolution ≥	✓	✓

☐ 5k ☐ 6-8K ☐ 8K ☑ 10K
1614 1699 429 1613/1668/8280

	Beg.	End
Intergrated peaks display correctly?	✓	NA

GC Break <20% NA

8280 CS1 End Standard:

- Ratios within limits, S/N <2.5:1, CS1 within 12 hours NA

Comments:

FORM 4A/4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory

CCAL ID: ST190719D1-1

Initial Calibration Date: 5-30-19

Instrument ID: VG-7

GC Column ID: DB-225

VER Data Filename: 190719D1 S#2 Analysis Date: 19-JUL-19 Time: 17:36:18

ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE 1613 (ng/mL)	CONC. RANGE 8290 (ng/mL)
2,3,7,8-TCDF	M/M+2	0.83	0.65-0.89	10.0	8.4 - 12.0 (3) 8.6 - 11.6 (4)	8.0 - 12.0
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	106.8	71.0 - 140.0 (3) 76.0 - 131.0 (4)	70.0 - 130.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6a, Method 1613, under VER.

(4) Contract required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 7/19/19

Client ID: 1613 CS3 19C2204 Filename: 190719D1 S:2 Acq:19-JUL-19 17:36:18 ConCal: ST190719D1-1
Lab ID: ST190719D1-1 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 1.000 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	2.15e+07	0.80 y	15:12	1.00	100.0	-
13C-2,3,7,8-TCDF	2.35e+07	0.79 y	17:19	1.02	106.8	106.8
2,3,7,8-TCDF	2.23e+06	0.83 y	17:21	0.95	10.02	

Integrations by Analyst: DB
Date: 7/19/19

Reviewed by Analyst: CT
Date: 07/22/19

Vista Analytical Laboratory - Injection Log Run file: 190719D1 Instrument ID: VG-7 GC Column ID: DB-225

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190719D1	1	CP190719D1-1	DB	19-JUL-19	17:04:28	ST190719D1-1	NA
190719D1	2	ST190719D1-1	DB	19-JUL-19	17:36:18	ST190719D1-1	NA
190719D1	3	SOLVENT BLANK	DB	19-JUL-19	18:08:05	ST190719D1-1	NA
190719D1	4	B9F0172-DUP1RE1	DB	19-JUL-19	18:39:52	ST190719D1-1	NA
190719D1	5	B9F0255-DUP2RE1	DB	19-JUL-19	19:11:39	ST190719D1-1	NA
190719D1	6	1901212-01RE2	DB	19-JUL-19	19:43:26	ST190719D1-1	NA
190719D1	7	1901247-03RE1	DB	19-JUL-19	20:15:12	ST190719D1-1	NA
190719D1	8	1901247-06RE1	DB	19-JUL-19	20:46:59	ST190719D1-1	NA
190719D1	9	1901247-07RE1	DB	19-JUL-19	21:18:48	ST190719D1-1	NA
190719D1	10	1901247-08RE2	DB	19-JUL-19	21:50:38	ST190719D1-1	NA
190719D1	11	1901247-09RE2	DB	19-JUL-19	22:22:27	ST190719D1-1	NA
190719D1	12	1901246-01RE1	DB	19-JUL-19	22:54:17	ST190719D1-1	NA
190719D1	13	1901246-02RE1	DB	19-JUL-19	23:26:07	ST190719D1-1	NA
190719D1	14	1901246-03RE1	DB	19-JUL-19	23:57:57	ST190719D1-1	NA
190719D1	15	1901246-07RE1	DB	20-JUL-19	00:29:46	ST190719D1-1	NA
190719D1	16	1901247-01RE2	DB	20-JUL-19	01:01:38	ST190719D1-1	NA
190719D1	17	1901247-04RE1	DB	20-JUL-19	01:33:30	ST190719D1-1	NA
190719D1	18	1901212-08RE2	DB	20-JUL-19	02:05:22	ST190719D1-1	NA
190719D1	19	1902058-01RE1	DB	20-JUL-19	02:37:13	ST190719D1-1	NA
190719D1	20	1901751-01RE1	DB	20-JUL-19	03:09:05	ST190719D1-1	NA

Peak Locate Examination:19-JUL-2019:17:03 File:190719D1

Experiment:TCDF_DB225 Function:1 Reference:PFK

File:190719D1 #1-973 Acq:19-JUL-2019 17:04:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:CP190719D1-1 DB225 CPSM Exp:TCDF_DB225
303.9016

305.8987

File:190719D1 #1-1682 Acq:19-JUL-2019 17:04:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:CP190719D1-1 DB225 CPSM Exp:TCDF_DB225
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1682 Acq:19-JUL-2019 17:04:28 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:CP190719D1-1 DB225 CPSM Exp:TCDF_DB225
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792

File:190719D1 #1-1683 Acq:19-JUL-2019 17:36:18 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190719D1-1 1613 CS3 19C2204 Exp:TCDF_DB225
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190719D1 #1-1683 Acq:19-JUL-2019 17:36:18 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190719D1-1 1613 CS3 19C2204 Exp:TCDF_DB225
331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:2

Peak Locate Examination:20-JUL-2019:03:50 File:RES_CHECK

Experiment:TCDF_DB225 Function:1 Reference:PFK

INITIAL CALIBRATION

Initial Calibration RRF Summary (ICAL) Vista Analytical Laboratory

Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Inst. ID. VG-7

Data filename: 190510D2

			Samp# 1	Samp# 2	Samp# 3	Samp# 4	Samp# 5	Samp# 6
			0.25	0.50	2.0	10	40	300
Name	Mean RRF	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6
2,3,7,8-TCDD	0.90	6.57 %	0.90	0.80	0.95	0.86	0.94	0.95
1,2,3,7,8-PeCDD	0.87	6.42 %	0.89	0.94	0.90	0.78	0.85	0.87
1,2,3,4,7,8-HxCDD	1.05	9.29 %	0.96	0.97	0.98	1.04	1.17	1.17
1,2,3,6,7,8-HxCDD	0.93	8.35 %	0.88	0.88	0.91	0.86	0.99	1.05
1,2,3,7,8,9-HxCDD	0.96	8.79 %	0.98	0.89	0.89	0.89	1.05	1.07
1,2,3,4,6,7,8-HpCDD	0.99	10.09 %	0.94	0.89	0.90	0.99	1.10	1.12
OCDD	0.99	7.57 %	0.93	0.91	0.94	0.98	1.08	1.08
2,3,7,8-TCDF	0.94	5.57 %	0.97	0.91	0.92	0.87	1.00	0.99
1,2,3,7,8-PeCDF	0.92	4.71 %	0.86	0.94	0.94	0.88	0.96	0.96
2,3,4,7,8-PeCDF	0.96	4.77 %	0.95	0.93	0.97	0.88	0.99	1.01
1,2,3,4,7,8-HxCDF	1.15	9.95 %	1.10	1.08	1.02	1.13	1.28	1.31
1,2,3,6,7,8-HxCDF	1.04	13.16 %	0.94	0.91	0.92	1.06	1.18	1.21
2,3,4,6,7,8-HxCDF	1.10	11.28 %	1.03	0.97	0.97	1.14	1.23	1.24
1,2,3,7,8,9-HxCDF	1.03	10.60 %	0.93	0.95	0.92	1.10	1.13	1.16
1,2,3,4,6,7,8-HpCDF	1.06	8.75 %	0.98	0.94	1.03	1.12	1.15	1.16
1,2,3,4,7,8,9-HpCDF	1.23	10.34 %	1.16	1.12	1.07	1.26	1.38	1.35
OCDF	0.94	12.29 %	0.85	0.83	0.85	0.97	1.05	1.10
13C-2,3,7,8-TCDD	1.11	2.01 %	1.12	1.09	1.10	1.14	1.08	1.11
13C-1,2,3,7,8-PeCDD	0.98	9.80 %	0.91	0.90	0.87	1.11	1.05	1.01
13C-1,2,3,4,7,8-HxCDD	0.68	4.26 %	0.67	0.65	0.72	0.70	0.64	0.67
13C-1,2,3,6,7,8-HxCDD	0.84	5.78 %	0.86	0.82	0.86	0.92	0.80	0.78
13C-1,2,3,7,8,9-HxCDD	0.81	4.72 %	0.82	0.78	0.85	0.85	0.77	0.79
13C-1,2,3,4,6,7,8-HpCDD	0.69	8.78 %	0.68	0.63	0.71	0.79	0.67	0.63
13C-OCDD	0.62	9.24 %	0.62	0.58	0.65	0.73	0.59	0.57
13C-2,3,7,8-TCDF	1.05	2.81 %	1.03	1.04	1.06	1.06	1.02	1.10
13C-1,2,3,7,8-PeCDF	0.95	4.06 %	0.92	0.95	0.95	1.03	0.95	0.93
13C-2,3,4,7,8-PeCDF	0.94	6.37 %	0.93	0.94	0.93	1.05	0.90	0.87
13C-1,2,3,4,7,8-HxCDF	0.86	4.27 %	0.87	0.83	0.90	0.89	0.83	0.82
13C-1,2,3,6,7,8-HxCDF	1.02	5.53 %	1.07	0.99	1.09	1.04	0.98	0.95
13C-2,3,4,6,7,8-HxCDF	0.95	2.98 %	0.94	0.90	0.96	0.96	0.98	0.97
13C-1,2,3,7,8,9-HxCDF	0.87	5.08 %	0.83	0.81	0.85	0.88	0.91	0.92
13C-1,2,3,4,6,7,8-HpCDF	0.81	12.94 %	0.70	0.71	0.74	0.90	0.94	0.86
13C-1,2,3,4,7,8,9-HpCDF	0.63	11.56 %	0.57	0.56	0.59	0.75	0.66	0.65
13C-OCDF	0.78	9.30 %	0.76	0.71	0.75	0.92	0.80	0.76
37Cl-2,3,7,8-TCDD	1.22	8.68 %	1.36	1.32	1.16	1.08	1.17	1.22
13C-1,2,3,4-TCDD	1.00	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00
13C-1,2,3,4-TCDF	1.00	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00
13C-1,2,3,4,6,9-HxCDF	1.00	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00

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Filename: 190510D2 S: 1 Acquired: 10-MAY-19 14:24:45
Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Results: 190510D2
Sample text: ST190510D2-1 1613 CS0 19C2201

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	0.25	1.72e+04	0.74 y	26:10	-	0.90
2	Unk	1,2,3,7,8-PeCDD	1.25	6.93e+04	0.69 y	30:37	-	0.89
3	Unk	1,2,3,4,7,8-HxCDD	1.25	6.06e+04	1.22 y	33:54	-	0.96
4	Unk	1,2,3,6,7,8-HxCDD	1.25	7.11e+04	1.08 y	34:01	-	0.88
5	Unk	1,2,3,7,8,9-HxCDD	1.25	7.57e+04	1.08 y	34:19	-	0.98
6	Unk	1,2,3,4,6,7,8-HpCDD	1.25	5.98e+04	0.98 y	37:46	-	0.94
7	Unk	OCDD	2.50	1.09e+05	0.79 y	41:03	-	0.93
8	Unk	2,3,7,8-TCDF	0.25	2.42e+04	0.84 y	25:25	-	0.97
9	Unk	1,2,3,7,8-PeCDF	1.25	9.56e+04	1.75 y	29:26	-	0.86
10	Unk	2,3,4,7,8-PeCDF	1.25	1.07e+05	1.35 y	30:20	-	0.95
11	Unk	1,2,3,4,7,8-HxCDF	1.25	9.07e+04	1.11 y	33:01	-	1.10
12	Unk	1,2,3,6,7,8-HxCDF	1.25	9.46e+04	1.15 y	33:08	-	0.94
13	Unk	2,3,4,6,7,8-HxCDF	1.25	9.04e+04	1.26 y	33:44	-	1.03
14	Unk	1,2,3,7,8,9-HxCDF	1.25	7.29e+04	1.32 y	34:44	-	0.93
15	Unk	1,2,3,4,6,7,8-HpCDF	1.25	6.46e+04	0.93 y	36:33	-	0.98
16	Unk	1,2,3,4,7,8,9-HpCDF	1.25	6.19e+04	0.96 y	38:19	-	1.16
17	Unk	OCDF	2.50	1.21e+05	0.84 y	41:17	-	0.85
36	IS	13C-2,3,7,8-TCDD	100.00	7.65e+06	0.78 y	26:10	-	1.12
37	IS	13C-1,2,3,7,8-PeCDD	100.00	6.21e+06	0.61 y	30:36	-	0.91
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	5.03e+06	1.22 y	33:54	-	0.67
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	6.47e+06	1.23 y	34:01	-	0.86
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	6.21e+06	1.22 y	34:19	-	0.82
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	5.11e+06	1.07 y	37:45	-	0.68
42	IS	13C-OCDD	200.00	9.40e+06	0.90 y	41:02	-	0.62
43	IS	13C-2,3,7,8-TCDF	100.00	1.00e+07	0.80 y	25:25	-	1.03
44	IS	13C-1,2,3,7,8-PeCDF	100.00	8.93e+06	1.58 y	29:26	-	0.92
45	IS	13C-2,3,4,7,8-PeCDF	100.00	9.01e+06	1.65 y	30:20	-	0.93
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	6.58e+06	0.51 y	33:00	-	0.87
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	8.07e+06	0.52 y	33:08	-	1.07
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	7.05e+06	0.52 y	33:44	-	0.94
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	6.28e+06	0.52 y	34:44	-	0.83
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	5.25e+06	0.42 y	36:32	-	0.70
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	4.27e+06	0.39 y	38:19	-	0.57
52	IS	13C-OCDF	200.00	1.14e+07	0.89 y	41:17	-	0.76
53	C/Up	37Cl-2,3,7,8-TCDD	0.25	2.32e+04		26:10	-	1.36
54	RS/RT	13C-1,2,3,4-TCDD	100.00	6.82e+06	0.78 y	25:35	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	9.73e+06	0.81 y	24:11	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	7.52e+06	0.52 y	33:26	-	1.00

DB
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Filename: 190510D2 S: 2 Acquired: 10-MAY-19 15:12:30
Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Results: 190510D2
Sample text: ST190510D2-2 1613 CS1 19C2202

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	0.50	2.78e+04	0.80 y	26:10	-	0.80
2	Unk	1,2,3,7,8-PeCDD	2.50	1.35e+05	0.63 y	30:36	-	0.94
3	Unk	1,2,3,4,7,8-HxCDD	2.50	1.13e+05	1.21 y	33:54	-	0.97
4	Unk	1,2,3,6,7,8-HxCDD	2.50	1.29e+05	1.12 y	34:00	-	0.88
5	Unk	1,2,3,7,8,9-HxCDD	2.50	1.24e+05	1.23 y	34:19	-	0.89
6	Unk	1,2,3,4,6,7,8-HpCDD	2.50	9.95e+04	1.02 y	37:45	-	0.89
7	Unk	OCDD	5.00	1.90e+05	0.90 y	41:02	-	0.91
8	Unk	2,3,7,8-TCDF	0.50	4.28e+04	0.81 y	25:25	-	0.91
9	Unk	1,2,3,7,8-PeCDF	2.50	2.02e+05	1.60 y	29:27	-	0.94
10	Unk	2,3,4,7,8-PeCDF	2.50	1.98e+05	1.64 y	30:20	-	0.93
11	Unk	1,2,3,4,7,8-HxCDF	2.50	1.59e+05	1.26 y	33:01	-	1.08
12	Unk	1,2,3,6,7,8-HxCDF	2.50	1.61e+05	1.10 y	33:08	-	0.91
13	Unk	2,3,4,6,7,8-HxCDF	2.50	1.56e+05	1.24 y	33:44	-	0.97
14	Unk	1,2,3,7,8,9-HxCDF	2.50	1.36e+05	1.18 y	34:44	-	0.95
15	Unk	1,2,3,4,6,7,8-HpCDF	2.50	1.19e+05	0.99 y	36:32	-	0.94
16	Unk	1,2,3,4,7,8,9-HpCDF	2.50	1.13e+05	1.00 y	38:19	-	1.12
17	Unk	OCDF	5.00	2.10e+05	0.93 y	41:16	-	0.83
36	IS	13C-2,3,7,8-TCDD	100.00	6.94e+06	0.78 y	26:09	-	1.09
37	IS	13C-1,2,3,7,8-PeCDD	100.00	5.74e+06	0.63 y	30:36	-	0.90
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	4.64e+06	1.23 y	33:53	-	0.65
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	5.87e+06	1.26 y	34:00	-	0.82
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	5.55e+06	1.23 y	34:19	-	0.78
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	4.49e+06	1.03 y	37:45	-	0.63
42	IS	13C-OCDD	200.00	8.35e+06	0.91 y	41:02	-	0.58
43	IS	13C-2,3,7,8-TCDF	100.00	9.42e+06	0.82 y	25:25	-	1.04
44	IS	13C-1,2,3,7,8-PeCDF	100.00	8.60e+06	1.60 y	29:27	-	0.95
45	IS	13C-2,3,4,7,8-PeCDF	100.00	8.49e+06	1.58 y	30:20	-	0.94
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	5.90e+06	0.52 y	32:60	-	0.83
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	7.06e+06	0.50 y	33:08	-	0.99
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	6.44e+06	0.51 y	33:44	-	0.90
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	5.76e+06	0.51 y	34:43	-	0.81
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	5.08e+06	0.43 y	36:32	-	0.71
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	4.01e+06	0.41 y	38:18	-	0.56
52	IS	13C-OCDF	200.00	1.01e+07	0.89 y	41:16	-	0.71
53	C/Up	37Cl-2,3,7,8-TCDD	0.50	4.20e+04		26:10	-	1.32
54	RS/RT	13C-1,2,3,4-TCDD	100.00	6.37e+06	0.81 y	25:35	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	9.03e+06	0.81 y	24:12	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	7.15e+06	0.50 y	33:25	-	1.00

DB
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Filename: 190510D2 S: 3 Acquired: 10-MAY-19 16:00:06
Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Results: 190510D2
Sample text: ST190510D2-3 1613 CS2 19C2203

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	2.00	1.38e+05	0.86 y	26:11	-	0.95
2	Unk	1,2,3,7,8-PeCDD	10.00	5.22e+05	0.63 y	30:36	-	0.90
3	Unk	1,2,3,4,7,8-HxCDD	10.00	4.65e+05	1.19 y	33:54	-	0.98
4	Unk	1,2,3,6,7,8-HxCDD	10.00	5.21e+05	1.27 y	34:01	-	0.91
5	Unk	1,2,3,7,8,9-HxCDD	10.00	4.98e+05	1.14 y	34:19	-	0.89
6	Unk	1,2,3,4,6,7,8-HpCDD	10.00	4.24e+05	0.99 y	37:45	-	0.90
7	Unk	OCDD	20.00	8.06e+05	0.93 y	41:02	-	0.94
8	Unk	2,3,7,8-TCDF	2.00	1.80e+05	0.77 y	25:26	-	0.92
9	Unk	1,2,3,7,8-PeCDF	10.00	8.13e+05	1.63 y	29:27	-	0.94
10	Unk	2,3,4,7,8-PeCDF	10.00	8.19e+05	1.61 y	30:21	-	0.97
11	Unk	1,2,3,4,7,8-HxCDF	10.00	6.06e+05	1.12 y	33:01	-	1.02
12	Unk	1,2,3,6,7,8-HxCDF	10.00	6.63e+05	1.20 y	33:08	-	0.92
13	Unk	2,3,4,6,7,8-HxCDF	10.00	6.18e+05	1.17 y	33:45	-	0.97
14	Unk	1,2,3,7,8,9-HxCDF	10.00	5.17e+05	1.14 y	34:44	-	0.92
15	Unk	1,2,3,4,6,7,8-HpCDF	10.00	5.02e+05	0.99 y	36:32	-	1.03
16	Unk	1,2,3,4,7,8,9-HpCDF	10.00	4.21e+05	0.92 y	38:18	-	1.07
17	Unk	OCDF	20.00	8.37e+05	0.91 y	41:16	-	0.85
36	IS	13C-2,3,7,8-TCDD	100.00	7.28e+06	0.80 y	26:10	-	1.10
37	IS	13C-1,2,3,7,8-PeCDD	100.00	5.80e+06	0.63 y	30:36	-	0.87
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	4.74e+06	1.22 y	33:53	-	0.72
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	5.70e+06	1.25 y	33:60	-	0.86
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	5.63e+06	1.20 y	34:18	-	0.85
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	4.70e+06	1.04 y	37:44	-	0.71
42	IS	13C-OCDD	200.00	8.55e+06	0.90 y	41:01	-	0.65
43	IS	13C-2,3,7,8-TCDF	100.00	9.73e+06	0.80 y	25:25	-	1.06
44	IS	13C-1,2,3,7,8-PeCDF	100.00	8.68e+06	1.58 y	29:27	-	0.95
45	IS	13C-2,3,4,7,8-PeCDF	100.00	8.48e+06	1.56 y	30:20	-	0.93
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	5.93e+06	0.51 y	32:60	-	0.90
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	7.20e+06	0.50 y	33:07	-	1.09
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	6.35e+06	0.50 y	33:44	-	0.96
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	5.60e+06	0.50 y	34:42	-	0.85
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	4.87e+06	0.42 y	36:32	-	0.74
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	3.92e+06	0.42 y	38:18	-	0.59
52	IS	13C-OCDF	200.00	9.89e+06	0.89 y	41:16	-	0.75
53	C/Up	37Cl-2,3,7,8-TCDD	2.00	1.54e+05		26:11	-	1.16
54	RS/RT	13C-1,2,3,4-TCDD	100.00	6.64e+06	0.79 y	25:35	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	9.16e+06	0.80 y	24:12	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	6.60e+06	0.51 y	33:25	-	1.00

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Filename: 190510D2 S: 4 Acquired: 10-MAY-19 16:47:52
Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Results: 190510D2
Sample text: ST190510D2-4 1613 CS3 19C2204

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	10.00	3.27e+05	0.78 y	26:10	-	0.86
2	Unk	1,2,3,7,8-PeCDD	50.00	1.43e+06	0.62 y	30:36	-	0.78
3	Unk	1,2,3,4,7,8-HxCDD	50.00	1.14e+06	1.20 y	33:54	-	1.04
4	Unk	1,2,3,6,7,8-HxCDD	50.00	1.23e+06	1.23 y	34:01	-	0.86
5	Unk	1,2,3,7,8,9-HxCDD	50.00	1.20e+06	1.18 y	34:19	-	0.89
6	Unk	1,2,3,4,6,7,8-HpCDD	50.00	1.22e+06	1.03 y	37:45	-	0.99
7	Unk	OCDD	100.00	2.22e+06	0.92 y	41:02	-	0.98
8	Unk	2,3,7,8-TCDF	10.00	3.81e+05	0.78 y	25:26	-	0.87
9	Unk	1,2,3,7,8-PeCDF	50.00	1.89e+06	1.51 y	29:27	-	0.88
10	Unk	2,3,4,7,8-PeCDF	50.00	1.93e+06	1.57 y	30:20	-	0.88
11	Unk	1,2,3,4,7,8-HxCDF	50.00	1.58e+06	1.20 y	33:01	-	1.13
12	Unk	1,2,3,6,7,8-HxCDF	50.00	1.74e+06	1.24 y	33:08	-	1.06
13	Unk	2,3,4,6,7,8-HxCDF	50.00	1.71e+06	1.19 y	33:44	-	1.14
14	Unk	1,2,3,7,8,9-HxCDF	50.00	1.51e+06	1.26 y	34:44	-	1.10
15	Unk	1,2,3,4,6,7,8-HpCDF	50.00	1.58e+06	1.01 y	36:32	-	1.12
16	Unk	1,2,3,4,7,8,9-HpCDF	50.00	1.49e+06	1.05 y	38:19	-	1.26
17	Unk	OCDF	100.00	2.79e+06	0.91 y	41:16	-	0.97
36	IS	13C-2,3,7,8-TCDD	100.00	3.78e+06	0.75 y	26:09	-	1.14
37	IS	13C-1,2,3,7,8-PeCDD	100.00	3.68e+06	0.61 y	30:35	-	1.11
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	2.19e+06	1.25 y	33:53	-	0.70
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	2.87e+06	1.18 y	33:60	-	0.92
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	2.67e+06	1.23 y	34:18	-	0.85
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	2.48e+06	1.05 y	37:44	-	0.79
42	IS	13C-OCDD	200.00	4.55e+06	0.90 y	41:01	-	0.73
43	IS	13C-2,3,7,8-TCDF	100.00	4.40e+06	0.81 y	25:25	-	1.06
44	IS	13C-1,2,3,7,8-PeCDF	100.00	4.28e+06	1.54 y	29:26	-	1.03
45	IS	13C-2,3,4,7,8-PeCDF	100.00	4.36e+06	1.61 y	30:19	-	1.05
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	2.80e+06	0.51 y	32:60	-	0.89
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	3.27e+06	0.51 y	33:07	-	1.04
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	3.01e+06	0.51 y	33:44	-	0.96
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	2.76e+06	0.53 y	34:42	-	0.88
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	2.81e+06	0.43 y	36:31	-	0.90
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	2.36e+06	0.44 y	38:18	-	0.75
52	IS	13C-OCDF	200.00	5.75e+06	0.93 y	41:15	-	0.92
53	C/Up	37Cl-2,3,7,8-TCDD	10.00	3.57e+05		26:10	-	1.08
54	RS/RT	13C-1,2,3,4-TCDD	100.00	3.32e+06	0.80 y	25:35	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	4.16e+06	0.82 y	24:11	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	3.13e+06	0.53 y	33:25	-	1.00

DB
5/14/19

Filename: 190510D2 S: 5 Acquired: 10-MAY-19 17:35:29
Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Results: 190510D2
Sample text: ST190510D2-5 1613 CS4 19C2205

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	40.00	1.65e+06	0.80 y	26:10	-	0.94
2	Unk	1,2,3,7,8-PeCDD	200.00	7.26e+06	0.62 y	30:36	-	0.85
3	Unk	1,2,3,4,7,8-HxCDD	200.00	6.64e+06	1.22 y	33:54	-	1.17
4	Unk	1,2,3,6,7,8-HxCDD	200.00	7.06e+06	1.22 y	34:01	-	0.99
5	Unk	1,2,3,7,8,9-HxCDD	200.00	7.15e+06	1.23 y	34:19	-	1.05
6	Unk	1,2,3,4,6,7,8-HpCDD	200.00	6.52e+06	1.06 y	37:44	-	1.10
7	Unk	OCDD	400.00	1.12e+07	0.93 y	41:01	-	1.08
8	Unk	2,3,7,8-TCDF	40.00	2.32e+06	0.78 y	25:26	-	1.00
9	Unk	1,2,3,7,8-PeCDF	200.00	1.03e+07	1.57 y	29:27	-	0.96
10	Unk	2,3,4,7,8-PeCDF	200.00	1.02e+07	1.59 y	30:20	-	0.99
11	Unk	1,2,3,4,7,8-HxCDF	200.00	9.33e+06	1.19 y	33:00	-	1.28
12	Unk	1,2,3,6,7,8-HxCDF	200.00	1.02e+07	1.22 y	33:08	-	1.18
13	Unk	2,3,4,6,7,8-HxCDF	200.00	1.07e+07	1.21 y	33:44	-	1.23
14	Unk	1,2,3,7,8,9-HxCDF	200.00	9.08e+06	1.21 y	34:43	-	1.13
15	Unk	1,2,3,4,6,7,8-HpCDF	200.00	9.58e+06	0.99 y	36:32	-	1.15
16	Unk	1,2,3,4,7,8,9-HpCDF	200.00	8.06e+06	1.03 y	38:18	-	1.38
17	Unk	OCDF	400.00	1.48e+07	0.91 y	41:16	-	1.05
36	IS	13C-2,3,7,8-TCDD	100.00	4.37e+06	0.77 y	26:09	-	1.08
37	IS	13C-1,2,3,7,8-PeCDD	100.00	4.27e+06	0.62 y	30:35	-	1.05
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	2.85e+06	1.22 y	33:53	-	0.64
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	3.55e+06	1.25 y	33:59	-	0.80
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	3.39e+06	1.25 y	34:17	-	0.77
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	2.96e+06	1.01 y	37:44	-	0.67
42	IS	13C-OCDD	200.00	5.20e+06	0.92 y	41:01	-	0.59
43	IS	13C-2,3,7,8-TCDF	100.00	5.78e+06	0.80 y	25:25	-	1.02
44	IS	13C-1,2,3,7,8-PeCDF	100.00	5.38e+06	1.59 y	29:26	-	0.95
45	IS	13C-2,3,4,7,8-PeCDF	100.00	5.12e+06	1.55 y	30:19	-	0.90
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	3.66e+06	0.49 y	32:59	-	0.83
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	4.32e+06	0.51 y	33:07	-	0.98
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	4.33e+06	0.51 y	33:44	-	0.98
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	4.02e+06	0.52 y	34:42	-	0.91
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	4.15e+06	0.43 y	36:31	-	0.94
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	2.91e+06	0.46 y	38:17	-	0.66
52	IS	13C-OCDF	200.00	7.04e+06	0.91 y	41:15	-	0.80
53	C/Up	37Cl-2,3,7,8-TCDD	40.00	1.89e+06		26:10	-	1.17
54	RS/RT	13C-1,2,3,4-TCDD	100.00	4.05e+06	0.77 y	25:35	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	5.68e+06	0.82 y	24:12	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	4.42e+06	0.52 y	33:25	-	1.00

DB
5/14/19

Filename: 190510D2 S: 6 Acquired: 10-MAY-19 18:23:05
Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Results: 190510D2
Sample text: ST190510D2-6 1613 CS5 19C2206

	Typ	Name	Amount	Resp	RA	RT	RF	RRF
1	Unk	2,3,7,8-TCDD	300.00	1.49e+07	0.80 y	26:10	-	0.95
2	Unk	1,2,3,7,8-PeCDD	1500.00	6.20e+07	0.63 y	30:36	-	0.87
3	Unk	1,2,3,4,7,8-HxCDD	1500.00	6.57e+07	1.25 y	33:54	-	1.17
4	Unk	1,2,3,6,7,8-HxCDD	1500.00	6.86e+07	1.23 y	33:60	-	1.05
5	Unk	1,2,3,7,8,9-HxCDD	1500.00	7.06e+07	1.23 y	34:18	-	1.07
6	Unk	1,2,3,4,6,7,8-HpCDD	1500.00	5.88e+07	1.05 y	37:44	-	1.12
7	Unk	OCDD	3000.00	1.03e+08	0.92 y	41:01	-	1.08
8	Unk	2,3,7,8-TCDF	300.00	2.15e+07	0.81 y	25:26	-	0.99
9	Unk	1,2,3,7,8-PeCDF	1500.00	8.84e+07	1.57 y	29:27	-	0.96
10	Unk	2,3,4,7,8-PeCDF	1500.00	8.73e+07	1.58 y	30:20	-	1.01
11	Unk	1,2,3,4,7,8-HxCDF	1500.00	8.94e+07	1.21 y	33:00	-	1.31
12	Unk	1,2,3,6,7,8-HxCDF	1500.00	9.62e+07	1.21 y	33:08	-	1.21
13	Unk	2,3,4,6,7,8-HxCDF	1500.00	9.98e+07	1.20 y	33:44	-	1.24
14	Unk	1,2,3,7,8,9-HxCDF	1500.00	8.85e+07	1.20 y	34:42	-	1.16
15	Unk	1,2,3,4,6,7,8-HpCDF	1500.00	8.29e+07	1.00 y	36:32	-	1.16
16	Unk	1,2,3,4,7,8,9-HpCDF	1500.00	7.36e+07	1.03 y	38:18	-	1.35
17	Unk	OCDF	3000.00	1.39e+08	0.91 y	41:15	-	1.10
36	IS	13C-2,3,7,8-TCDD	100.00	5.24e+06	0.77 y	26:09	-	1.11
37	IS	13C-1,2,3,7,8-PeCDD	100.00	4.77e+06	0.60 y	30:35	-	1.01
38	IS	13C-1,2,3,4,7,8-HxCDD	100.00	3.73e+06	1.27 y	33:53	-	0.67
39	IS	13C-1,2,3,6,7,8-HxCDD	100.00	4.34e+06	1.27 y	33:59	-	0.78
40	IS	13C-1,2,3,7,8,9-HxCDD	100.00	4.39e+06	1.28 y	34:17	-	0.79
41	IS	13C-1,2,3,4,6,7,8-HpCDD	100.00	3.51e+06	1.06 y	37:43	-	0.63
42	IS	13C-OCDD	200.00	6.38e+06	0.94 y	41:01	-	0.57
43	IS	13C-2,3,7,8-TCDF	100.00	7.23e+06	0.83 y	25:25	-	1.10
44	IS	13C-1,2,3,7,8-PeCDF	100.00	6.13e+06	1.59 y	29:26	-	0.93
45	IS	13C-2,3,4,7,8-PeCDF	100.00	5.74e+06	1.61 y	30:19	-	0.87
46	IS	13C-1,2,3,4,7,8-HxCDF	100.00	4.54e+06	0.53 y	32:59	-	0.82
47	IS	13C-1,2,3,6,7,8-HxCDF	100.00	5.28e+06	0.53 y	33:07	-	0.95
48	IS	13C-2,3,4,6,7,8-HxCDF	100.00	5.37e+06	0.52 y	33:43	-	0.97
49	IS	13C-1,2,3,7,8,9-HxCDF	100.00	5.09e+06	0.52 y	34:41	-	0.92
50	IS	13C-1,2,3,4,6,7,8-HpCDF	100.00	4.78e+06	0.44 y	36:30	-	0.86
51	IS	13C-1,2,3,4,7,8,9-HpCDF	100.00	3.63e+06	0.43 y	38:17	-	0.65
52	IS	13C-OCDF	200.00	8.43e+06	0.90 y	41:15	-	0.76
53	C/Up	37Cl-2,3,7,8-TCDD	199.80	1.16e+07		26:10	-	1.22
54	RS/RT	13C-1,2,3,4-TCDD	100.00	4.74e+06	0.82 y	25:35	-	1.00
55	RS	13C-1,2,3,4-TCDF	100.00	6.56e+06	0.84 y	24:12	-	1.00
56	RS/RT	13C-1,2,3,4,6,9-HxCDF	100.00	5.55e+06	0.52 y	33:25	-	1.00

DB
5/14/19

Initial Calibration RRF Summary (ICAL) Vista Analytical Laboratory

Run: 190510D2 Analyte: Cal: 1613VG7-5-10-19 Inst. ID. VG-7

Data filename: 190510D2

Name	RRT Limits Lower	RRT Limits Upper	Samp# 1 0.25 RRT#1	Samp# 2 0.50 RRT#2	Samp# 3 2.0 RRT#3	Samp# 4 10 RRT#4	Samp# 5 40 RRT#5	Samp# 6 300 RRT#6
2,3,7,8-TCDD	0.999	-1.002	1.000	1.000	1.001	1.001	1.001	1.001
1,2,3,7,8-PeCDD	0.999	-1.002	1.000	1.000	1.000	1.001	1.001	1.001
1,2,3,4,7,8-HxCDD	0.999	-1.001	1.000	1.000	1.000	1.000	1.001	1.001
1,2,3,6,7,8-HxCDD	0.998	-1.004	1.000	1.000	1.000	1.000	1.001	1.000
1,2,3,7,8,9-HxCDD	0.998	-1.004	1.000	1.000	1.001	1.000	1.001	1.000
1,2,3,4,6,7,8-HpCDD	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
OCDD	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
2,3,7,8-TCDF	0.999	-1.003	1.000	1.000	1.001	1.001	1.001	1.001
1,2,3,7,8-PeCDF	0.999	-1.002	1.000	1.000	1.000	1.001	1.000	1.000
2,3,4,7,8-PeCDF	0.999	-1.002	1.000	1.000	1.000	1.001	1.000	1.001
1,2,3,4,7,8-HxCDF	0.999	-1.001	1.000	1.001	1.000	1.000	1.000	1.000
1,2,3,6,7,8-HxCDF	0.997	-1.005	1.000	1.000	1.000	1.000	1.000	1.001
2,3,4,6,7,8-HxCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.001
1,2,3,7,8,9-HxCDF	0.999	-1.001	1.000	1.001	1.001	1.001	1.000	1.001
1,2,3,4,6,7,8-HpCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.001	1.001
1,2,3,4,7,8,9-HpCDF	0.999	-1.001	1.000	1.000	1.000	1.001	1.000	1.000
OCDF	0.999	-1.001	1.000	1.000	1.000	1.000	1.000	1.000
13C-2,3,7,8-TCDD	0.976	-1.043	1.023	1.023	1.022	1.022	1.022	1.022
13C-1,2,3,7,8-PeCDD	1.000	-1.567	1.196	1.196	1.196	1.196	1.196	1.196
13C-1,2,3,4,7,8-HxCDD	1.002	-1.026	1.014	1.014	1.014	1.014	1.014	1.014
13C-1,2,3,6,7,8-HxCDD	1.007	-1.029	1.017	1.017	1.017	1.017	1.017	1.017
13C-1,2,3,7,8,9-HxCDD	1.014	-1.038	1.027	1.027	1.027	1.027	1.026	1.026
13C-1,2,3,4,6,7,8-HpCDD	1.117	-1.141	1.130	1.129	1.129	1.129	1.129	1.129
13C-OCDD	1.085	-1.365	1.228	1.228	1.228	1.228	1.228	1.227
13C-2,3,7,8-TCDF	0.923	-1.103	0.993	0.993	0.993	0.993	0.993	0.993
13C-1,2,3,7,8-PeCDF	1.000	-1.425	1.151	1.151	1.151	1.151	1.151	1.150
13C-2,3,4,7,8-PeCDF	1.011	-1.526	1.186	1.186	1.186	1.185	1.185	1.185
13C-1,2,3,4,7,8-HxCDF	0.975	-1.001	0.987	0.987	0.988	0.987	0.987	0.987
13C-1,2,3,6,7,8-HxCDF	0.979	-1.005	0.991	0.991	0.991	0.991	0.991	0.991
13C-2,3,4,6,7,8-HxCDF	1.001	-1.020	1.009	1.009	1.010	1.009	1.010	1.009
13C-1,2,3,7,8,9-HxCDF	1.002	-1.072	1.039	1.039	1.039	1.039	1.039	1.038
13C-1,2,3,4,6,7,8-HpCDF	1.069	-1.111	1.093	1.093	1.093	1.093	1.093	1.093
13C-1,2,3,4,7,8,9-HpCDF	1.098	-1.192	1.146	1.146	1.146	1.146	1.146	1.146
13C-OCDF	1.091	-1.371	1.235	1.235	1.235	1.235	1.235	1.234
37Cl-2,3,7,8-TCDD	0.989	-1.052	1.023	1.023	1.023	1.023	1.023	1.023
13C-1,2,3,4-TCDD	0.000	-0.000	*	*	*	*	*	*
13C-1,2,3,4-TCDF	0.000	-0.000	*	*	*	*	*	*
13C-1,2,3,4,6,9-HxCDF	0.000	-0.000	*	*	*	*	*	*

DB
5/14/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 5-10-19

RT Window Data Filename: 190510D2 S#4 Analysis Date: 10-MAY-19 Time: 16:47:52

ZB-5MS IS Data Filename: 190510D2 S#4 Analysis Date: 10-MAY-19 Time: 16:47:52

DB_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:50	1,3,6,8-TCDF (F)	20:45
1,2,8,9-TCDD (L)	27:01	1,2,8,9-TCDF (L)	27:11
1,2,4,7,9-PeCDD (F)	28:35	1,3,4,6,8-PeCDF (F)	27:05
1,2,3,8,9-PeCDD (L)	30:58	1,2,3,8,9-PeCDF (L)	31:13
1,2,4,6,7,9-HxCDD (F)	32:21	1,2,3,4,6,8-HxCDF (F)	31:49
1,2,3,7,8,9-HxCDD (L)	34:19	1,2,3,7,8,9-HxCDF (L)	34:44
1,2,3,4,6,7,9-HpCDD (F)	36:54	1,2,3,4,6,7,8-HpCDF (F)	36:32
1,2,3,4,6,7,8-HpCDD (L)	37:45	1,2,3,4,7,8,9-HpCDF (L)	38:19

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

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ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT BETWEEN COMPARED PEAKS (1)

<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 5/13/19

Vista Analytical Laboratory - Injection Log Run file: 190510D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190510D2	1	ST190510D2-1	DB	10-MAY-19	14:24:45	ST190510D2-4	NA
190510D2	2	ST190510D2-2	DB	10-MAY-19	15:12:30	ST190510D2-4	NA
190510D2	3	ST190510D2-3	DB	10-MAY-19	16:00:06	ST190510D2-4	NA
190510D2	4	ST190510D2-4	DB	10-MAY-19	16:47:52	ST190510D2-4	ST190510D2-7
190510D2	5	ST190510D2-5	DB	10-MAY-19	17:35:29	ST190510D2-4	NA
190510D2	6	ST190510D2-6	DB	10-MAY-19	18:23:05	ST190510D2-4	NA
190510D2	7	SOLVENT BLANK	DB	10-MAY-19	19:10:42	NA	NA
190510D2	8	SS190510D2-1	DB	10-MAY-19	19:58:17	ST190510D2-4	NA
190510D2	9	B9E0067-BS1	DB	10-MAY-19	20:45:54	ST190510D2-4	ST190510D2-7
190510D2	10	SOLVENT BLANK	DB	10-MAY-19	21:33:30	NA	NA
190510D2	11	B9E0067-BLK1	DB	10-MAY-19	22:21:10	ST190510D2-4	ST190510D2-7
190510D2	12	1900874-01	DB	10-MAY-19	23:08:45	ST190510D2-4	ST190510D2-7
190510D2	13	1900832-01	DB	10-MAY-19	23:56:25	ST190510D2-4	NA
190510D2	14	1901011-01	DB	11-MAY-19	00:44:00	ST190510D2-4	NA
190510D2	15	1901009-01	DB	11-MAY-19	01:31:38	ST190510D2-4	NA
190510D2	16	1901010-01	DB	11-MAY-19	02:19:20	ST190510D2-4	NA
190510D2	17	SOLVENT BLANK	DB	11-MAY-19	03:06:55	NA	NA
190510D2	18	ST190510D2-7	DB	11-MAY-19	03:54:32	ST190510D2-4	ST190510D2-7

Peak Locate Examination:10-MAY-2019:14:15 File:190510D2

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:10-MAY-2019:14:18 File:190510D2

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:10-MAY-2019:14:19 File:190510D2

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:10-MAY-2019:14:21 File:190510D2

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:10-MAY-2019:14:22 File:190510D2

Experiment:OCDD_DB5 Function:5 Reference:PFK

File:190510D2 #1-530 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936 S:4

333.9339 S:4

File:190510D2 #1-529 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5

319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-529 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
319.8965 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-529 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
327.8847 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 F:2

File:190510D2 #1-180 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
353.8576 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 F:3

File:190510D2 #1-385 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
389.8156 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
401.8559 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5

423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:4

File:190510D2 #1-355 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
423.7767 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5

457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 F:5

File:190510D2 #1-432 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
457.7377 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-529 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5

303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-529 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
303.9016 BSUB(10000,15,-3.0)

305.8987 BSUB(10000,15,-3.0)

File:190510D2 #1-529 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
339.8597 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824

File:190510D2 #1-180 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5

File:190510D2 #1-180 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
339.8597 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5

373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
373.8207 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
383.8639 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5

File:190510D2 #1-355 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
407.7818 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 14:24:45 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-1 1613 CS0 19C2201 Exp:OCDD_DB5
441.7428 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
319.8965 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5

File:190510D2 #1-180 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
353.8576 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5

389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:2 F:3

File:190510D2 #1-384 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
389.8156 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
401.8559 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-356 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:2 F:4

File:190510D2 #1-356 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
423.7767 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-431 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5

457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:2 F:5

File:190510D2 #1-431 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
457.7377 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
303.9016 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
339.8597 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:2

File:190510D2 #1-180 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5

339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
339.8597 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:2 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5

373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
373.8207 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
383.8639 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:2 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-356 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5

407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-356 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
407.7818 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:2 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-431 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5

File:190510D2 #1-431 Acq:10-MAY-2019 15:12:30 GC EI+ Voltage SIR Autospec-UltimaE
Sample#2 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-2 1613 CS1 19C2202 Exp:OCDD_DB5
441.7428 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:2 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

319.8965 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

353.8576 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:3 F:2

File:190510D2 #1-384 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

389.8156 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:3 F:3

File:190510D2 #1-384 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5
401.8559 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

423.7767 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:3 F:4

File:190510D2 #1-432 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

457.7377 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:3 F:5

File:190510D2 #1-530 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

File:190510D2 #1-530 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5
339.8597 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:3

File:190510D2 #1-180 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

339.8597 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:3 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

373.8207 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5
383.8639 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:3 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

407.7818 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:3 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 16:00:06 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-3 1613 CS2 19C2203 Exp:OCDD_DB5

441.7428 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:3 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5

319.8965 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5

353.8576 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:4 F:2

File:190510D2 #1-384 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
389.8156 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:4 F:3

File:190510D2 #1-384 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5

423.7767 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:4 F:4

File:190510D2 #1-432 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
457.7377 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:4 F:5

File:190510D2 #1-530 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5

303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:4

File:190510D2 #1-180 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:4 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
373.8207 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:4 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5

407.7818 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:4 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 16:47:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-4 1613 CS3 19C2204 Exp:OCDD_DB5
441.7428 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:4 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

319.8965 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

353.8576 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:5 F:2

File:190510D2 #1-384 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

389.8156 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:5 F:3

File:190510D2 #1-384 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5
401.8559 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

423.7767 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:5 F:4

File:190510D2 #1-432 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

457.7377 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:5 F:5

File:190510D2 #1-530 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5
339.8597 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:5

File:190510D2 #1-180 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

339.8597 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:5 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

373.8207 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5
383.8639 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:5 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5

407.7818 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:5 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 17:35:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-5 1613 CS4 19C2205 Exp:OCDD_DB5
441.7428 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:5 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

319.8965 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

353.8576 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:6 F:2

File:190510D2 #1-384 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

389.8156 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:6 F:3

File:190510D2 #1-384 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5
401.8559 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

423.7767 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:6 F:4

File:190510D2 #1-432 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

457.7377 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:6 F:5

File:190510D2 #1-530 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

File:190510D2 #1-530 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5
339.8597 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:6

File:190510D2 #1-180 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5
339.8597 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:6 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

373.8207 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5
383.8639 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:6 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

407.7818 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:6 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 18:23:05 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-6 1613 CS5 19C2206 Exp:OCDD_DB5

441.7428 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:6 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Peak Locate Examination:11-MAY-2019:04:52 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:53 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:54 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:54 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:55 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: SS190510D2-1

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#8 Analysis Date: 10-MAY-19 Time: 19:58:17

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.82	0.65-0.89	y	9.99	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.59	0.54-0.72	y	50.9	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	y	52.6	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	y	55.2	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.26	1.05-1.43	y	52.4	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.01	0.88-1.20	y	52.0	43.0 - 58.0
OCDD	M+2/M+4	0.92	0.76-1.02	y	104	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	y	10.7	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	52.3	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	y	58.4	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	54.5	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	y	56.2	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	y	52.3	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	y	55.6	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.00	0.88-1.20	y	52.1	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	y	50.0	43.0 - 58.0
OCDF	M+2/M+4	0.90	0.76-1.02	y	109	63.0 - 159.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: JB

Date: 5/13/19

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#8 Analysis Date: 10-MAY-19 Time: 19:58:17

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	y	101	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	98.7	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.34	1.05-1.43	y	95.3	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.19	1.05-1.43	y	93.1	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	y	97.2	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	y	115	72.0 - 138.0
13C-OCDD	M/M+2	0.91	0.76-1.02	y	199	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.77	0.65-0.89	y	103	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.53	1.32-1.78	y	98.2	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	y	99.0	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.50	0.43-0.59	y	96.4	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	y	96.5	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	y	98.2	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	y	102	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.43	0.37-0.51	y	116	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.41	0.37-0.51	y	119	77.0 - 129.0
13C-OCDF	M+2/M+4	0.92	0.76-1.02	y	202	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.30	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified

(3) No ion abundance ratio; report concentration found.

Analyst: DB

Date: 5/13/19

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#8 Analysis Date: 10-MAY-19 Time: 19:58:17

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.000	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.001	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.000	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.196	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.993	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.151	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.185	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.023	0.989-1.052

Analyst: DB

Date: 5/13/19

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#8 Analysis Date: 10-MAY-19 Time: 19:58:17

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.000	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.000	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.000	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.000	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.987	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.039	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.017	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.146	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.129	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.228	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.235	1.091-1.371

Analyst: DB

Date: 5/13/19

Client ID: 1613 SSS 19C2207 Filename: 190510D2 S:8 Acq:10-MAY-19 19:58:17 ConCal: ST190510D2-4

Lab ID: SS190510D2-1 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: NA

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	4.81e+05	0.82 y	0.90	26:12	9.9887		*	2.5	*
	1,2,3,7,8-PeCDD	2.04e+06	0.59 y	0.87	30:37	50.933		*	2.5	*
	1,2,3,4,7,8-HxCDD	1.83e+06	1.21 y	1.05	33:55	52.576		*	2.5	*
	1,2,3,6,7,8-HxCDD	2.08e+06	1.22 y	0.93	34:01	55.219		*	2.5	*
	1,2,3,7,8,9-HxCDD	2.05e+06	1.26 y	0.96	34:20	52.379		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	2.09e+06	1.01 y	0.99	37:46	52.015		*	2.5	*
	OCDD	3.30e+06	0.92 y	0.99	41:03	104.03		*	2.5	*
	2,3,7,8-TCDF	7.27e+05	0.78 y	0.94	25:27	10.721		*	2.5	*
	1,2,3,7,8-PeCDF	2.99e+06	1.61 y	0.92	29:28	52.327		*	2.5	*
	2,3,4,7,8-PeCDF	3.42e+06	1.59 y	0.96	30:22	58.360		*	2.5	*
	1,2,3,4,7,8-HxCDF	2.68e+06	1.22 y	1.15	33:01	54.544		*	2.5	*
	1,2,3,6,7,8-HxCDF	2.97e+06	1.18 y	1.04	33:09	56.235		*	2.5	*
	2,3,4,6,7,8-HxCDF	2.76e+06	1.20 y	1.10	33:45	52.297		*	2.5	*
	1,2,3,7,8,9-HxCDF	2.60e+06	1.22 y	1.03	34:44	55.557		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	2.69e+06	1.00 y	1.06	36:33	52.088		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	2.39e+06	1.02 y	1.23	38:19	50.039		*	2.5	*
	OCDF	4.19e+06	0.90 y	0.94	41:17	109.14		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	10.1	12.4		*	*
Total Penta-Dioxins	51.0	51.6		*	*
Total Hexa-Dioxins	161	163		*	*
Total Hepta-Dioxins	52.4	54.4		*	*
Total Tetra-Furans	12.0	14.7		*	*
Total Penta-Furans	111.82	118.05		*	*
Total Hexa-Furans	219	219		*	*
Total Hepta-Furans	103	105		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	5.35e+06	0.76 y	1.11	26:10	101.43	101	
IS	13C-1,2,3,7,8-PeCDD	4.59e+06	0.63 y	0.98	30:37	98.658	98.7	
IS	13C-1,2,3,4,7,8-HxCDD	3.32e+06	1.34 y	0.68	33:54	95.294	95.3	
IS	13C-1,2,3,6,7,8-HxCDD	4.04e+06	1.19 y	0.84	34:01	93.135	93.1	
IS	13C-1,2,3,7,8,9-HxCDD	4.07e+06	1.24 y	0.81	34:19	97.155	97.2	
IS	13C-1,2,3,4,6,7,8-HpCDD	4.07e+06	1.06 y	0.69	37:45	114.95	115	
IS	13C-OCDD	6.43e+06	0.91 y	0.62	41:02	199.49	99.7	
IS	13C-2,3,7,8-TCDF	7.19e+06	0.77 y	1.05	25:26	103.44	103	
IS	13C-1,2,3,7,8-PeCDF	6.20e+06	1.53 y	0.95	29:27	98.238	98.2	
IS	13C-2,3,4,7,8-PeCDF	6.12e+06	1.58 y	0.94	30:21	98.956	99.0	
IS	13C-1,2,3,4,7,8-HxCDF	4.26e+06	0.50 y	0.86	33:01	96.378	96.4	
IS	13C-1,2,3,6,7,8-HxCDF	5.09e+06	0.53 y	1.02	33:08	96.528	96.5	
IS	13C-2,3,4,6,7,8-HxCDF	4.82e+06	0.52 y	0.95	33:45	98.157	98.2	
IS	13C-1,2,3,7,8,9-HxCDF	4.55e+06	0.53 y	0.87	34:43	101.63	102	
IS	13C-1,2,3,4,6,7,8-HpCDF	4.85e+06	0.43 y	0.81	36:32	116.37	116	
IS	13C-1,2,3,4,7,8,9-HpCDF	3.89e+06	0.41 y	0.63	38:19	119.40	119	
IS	13C-OCDF	8.17e+06	0.92 y	0.78	41:16	202.50	101	
C/Up	37Cl-2,3,7,8-TCDD	5.40e+05		1.22	26:12	9.3041	93.0	
RS/RT	13C-1,2,3,4-TCDD	4.77e+06	0.78 y	1.00	25:36	100.00		
RS	13C-1,2,3,4-TCDF	6.61e+06	0.84 y	1.00	24:13	100.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	5.16e+06	0.52 y	1.00	33:26	100.00		

Integrations by Analyst: DB Date: 5/14/19

Reviewed by Analyst: MS Date: 5/14/19

File:190510D2 #1-529 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

319.8965 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

353.8576 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:8 F:2

File:190510D2 #1-385 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

389.8156 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:8 F:3

File:190510D2 #1-385 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5
401.8559 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

423.7767 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:8 F:4

File:190510D2 #1-432 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

457.7377 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:8 F:5

File:190510D2 #1-529 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-529 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5
339.8597 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:8

File:190510D2 #1-180 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

339.8597 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

351.9000 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

353.8970 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:8 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5
373.8207 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-385 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5
383.8639 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:8 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

407.7818 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:8 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:10-MAY-2019 19:58:17 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190510D2-1 1613 SSS 19C2207 Exp:OCDD_DB5

441.7428 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:8 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.: CCAL ID: ST190510D2-7

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#18 Analysis Date: 11-MAY-19 Time: 03:54:32

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (3) (ng/mL)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.73	0.65-0.89	y	10.7	7.8 - 12.9 8.2 - 12.3 (4)
1,2,3,7,8-PeCDD	M/M+2	0.63	0.54-0.72	y	50.7	39.0 - 65.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.19	1.05-1.43	y	48.1	39.0 - 64.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	y	48.8	39.0 - 64.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.18	1.05-1.43	y	47.9	41.0 - 61.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	y	50.7	43.0 - 58.0
OCDD	M+2/M+4	0.91	0.76-1.02	y	97.6	79.0 - 126.0
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	y	8.80	8.4 - 12.0 8.6 - 11.6 (4)
1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	y	49.4	41.0 - 60.0
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	49.7	41.0 - 61.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.14	1.05-1.43	y	46.6	45.0 - 56.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	y	49.7	44.0 - 57.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.18	1.05-1.43	y	49.1	44.0 - 57.0
1,2,3,7,8,9-HxCDF	M+2/M+4	1.18	1.05-1.43	y	48.3	45.0 - 56.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.97	0.88-1.20	y	48.8	45.0 - 55.0
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.00	0.88-1.20	y	48.7	43.0 - 58.0
OCDF	M+2/M+4	0.91	0.76-1.02	y	103	63.0 - 159.0

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613.

(4) Contract-required concentration range as specified in Table 6a, Method 1613, for tetras only.

Analyst: DB

Date: 5/13/19

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#18 Analysis Date: 11-MAY-19 Time: 03:54:32

LABELED COMPOUNDS	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	Pass	CONC. FOUND	CONC. RANGE (ng/mL)
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	y	101	82.0 - 121.0
13C-1,2,3,7,8-PeCDD	M/M+2	0.61	0.54-0.72	y	89.6	62.0 - 160.0
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	y	105	85.0 - 117.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	y	104	85.0 - 118.0
13C-1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	y	105	85.0 - 118.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.02	0.88-1.20	y	98.9	72.0 - 138.0
13C-OCDD	M/M+2	0.91	0.76-1.02	y	209	96.0 - 415.0
13C-2,3,7,8-TCDF	M+2/M+4	0.79	0.65-0.89	y	106	71.0 - 140.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	y	96.0	76.0 - 130.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	y	93.6	77.0 - 130.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	99.8	76.0 - 131.0
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	102	70.0 - 143.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	y	102	73.0 - 137.0
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	y	101	74.0 - 135.0
13C-1,2,3,4,6,7,8-HpCDF	M+2/M+4	0.42	0.37-0.51	y	98.8	78.0 - 129.0
13C-1,2,3,4,7,8,9-HpCDF	M+2/M+4	0.44	0.37-0.51	y	101	77.0 - 129.0
13C-OCDF	M+2/M+4	0.92	0.76-1.02	y	196	96.0 - 415.0
CLEANUP STANDARD (3)						
37Cl-2,3,7,8-TCDD					9.02	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified

(3) No ion abundance ratio; report concentration found.

Analyst: DB

Date: 5/13/19

FORM 5

PCDD/PCDF RT WINDOW AND ISOMER SPECIFICITY STANDARDS

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Instrument ID: VG-7 Initial Calibration Date: 5-10-19

RT Window Data Filename: 190510D2 S#18 Analysis Date: 11-MAY-19 Time: 03:54:32

ZB-5MS IS Data Filename: 190510D2 S#18 Analysis Date: 11-MAY-19 Time: 03:54:32

DB_225 IS Data Filename: Analysis Date: Time:

ZB-5MS RT WINDOW DEFINING STANDARDS RESULTS

ISOMERS	ABSOLUTE RT	ISOMERS	ABSOLUTE RT
1,3,6,8-TCDD (F)	22:50	1,3,6,8-TCDF (F)	20:44
1,2,8,9-TCDD (L)	27:01	1,2,8,9-TCDF (L)	27:11
1,2,4,7,9-PeCDD (F)	28:34	1,3,4,6,8-PeCDF (F)	27:05
1,2,3,8,9-PeCDD (L)	30:58	1,2,3,8,9-PeCDF (L)	31:13
1,2,4,6,7,9-HxCDD (F)	32:21	1,2,3,4,6,8-HxCDF (F)	31:49
1,2,3,7,8,9-HxCDD (L)	34:19	1,2,3,7,8,9-HxCDF (L)	34:43
1,2,3,4,6,7,9-HpCDD (F)	36:54	1,2,3,4,6,7,8-HpCDF (F)	36:32
1,2,3,4,6,7,8-HpCDD (L)	37:45	1,2,3,4,7,8,9-HpCDF (L)	38:18

(F) = First eluting isomer (ZB-5MS); (L) = Last eluting isomer (ZB-5MS).

==========

ISOMER SPECIFICITY (IS) TEST STANDARD RESULTS

% VALLEY HEIGHT BETWEEN COMPARED PEAKS (1)
<25%

(1) To meet contract requirements, %Valley Height Between Compared Peaks shall not exceed 25% (section 15.4.2.2, Method 1613).

Analyst: DB

Date: 5/13/19

FORM 6A
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#18 Analysis Date: 11-MAY-19 Time: 03:54:32

Compounds Using 13C-1234-TCDD as RT Internal Standard

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
2,3,7,8-TCDD	13C-2,3,7,8-TCDD	1.001	0.999-1.002
1,2,3,7,8-PeCDD	13C-1,2,3,7,8-PeCDD	1.001	0.999-1.002
2,3,7,8-TCDF	13C-2,3,7,8-TCDF	1.000	0.999-1.003
1,2,3,7,8-PeCDF	13C-1,2,3,7,8-PeCDF	1.000	0.999-1.002
2,3,4,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	1.001	0.999-1.002
LABELED COMPOUNDS			
13C-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.022	0.976-1.043
13C-1,2,3,7,8-PeCDD	13C-1,2,3,4-TCDD	1.196	1.000-1.567
13C-2,3,7,8-TCDF	13C-1,2,3,4-TCDD	0.993	0.923-1.103
13C-1,2,3,7,8-PeCDF	13C-1,2,3,4-TCDD	1.151	1.000-1.425
13C-2,3,4,7,8-PeCDF	13C-1,2,3,4-TCDD	1.186	1.011-1.526
37Cl-2,3,7,8-TCDD	13C-1,2,3,4-TCDD	1.023	0.989-1.052

Analyst: DB

Date: 5/13/19

FORM 6B
PCDD/PCDF RELATIVE RETENTION TIMES

Lab Name: Vista Analytical Laboratory Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 5-10-19

Instrument ID: VG-7 GC Column ID: ZB-5MS

VER Data Filename: 190510D2 S#18 Analysis Date: 11-MAY-19 Time: 03:54:32

NATIVE ANALYTES	RETENTION TIME REFERENCE	RRT	RRT QC LIMITS (1)
1,2,3,4,7,8-HxCDF	13C-1,2,3,4,7,8-HxCDF	1.000	0.999-1.001
1,2,3,6,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	1.000	0.997-1.005
2,3,4,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	1.001	0.999-1.001
1,2,3,7,8,9-HxCDF	13C-1,2,3,7,8,9-HxCDF	1.000	0.999-1.001
1,2,3,4,7,8-HxCDD	13C-1,2,3,4,7,8-HxCDD	1.001	0.999-1.001
1,2,3,6,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	1.001	0.998-1.004
1,2,3,7,8,9-HxCDD	13C-1,2,3,7,8,9-HxCDD	1.001	0.998-1.004
1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,7,8-HpCDF	1.000	0.999-1.001
1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,7,8-HpCDD	1.000	0.999-1.001
1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	1.000	0.999-1.001
OCDD	13C-OCDD	1.000	0.999-1.001
OCDF	13C-OCDF	1.000	0.999-1.001
LABELED COMPOUNDS			
13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.988	0.975-1.001
13C-1,2,3,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	0.991	0.979-1.005
13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.009	1.001-1.020
13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,9-HxCDF	1.039	1.002-1.072
13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.014	1.002-1.026
13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.017	1.007-1.029
13C-1,2,3,7,8,9-HxCDD	13C-1,2,3,4,6,9-HxCDF	1.027	1.014-1.038
13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.093	1.069-1.111
13C-1,2,3,4,7,8,9-HpCDF	13C-1,2,3,4,6,9-HxCDF	1.146	1.098-1.192
13C-1,2,3,4,6,7,8-HpCDD	13C-1,2,3,4,6,9-HxCDF	1.129	1.117-1.141
13C-OCDD	13C-1,2,3,4,6,9-HxCDF	1.228	1.085-1.365
13C-OCDF	13C-1,2,3,4,6,9-HxCDF	1.235	1.091-1.371

Analyst: DB

Date: 5/13/19

Client ID: 1613 CS3 19C2204 Filename: 190510D2 S:18 Acq:11-MAY-19 03:54:32 ConCal: ST190510D2-4
Lab ID: ST190510D2-7 GC Column ID: ZB-5MS ICal: 1613VG7-5-10-19 wt/vol: 1.000 EndCAL: ST190510D2-7

	Name	Resp	RA	RRF	RT	Conc	Qual	noise	Fac	DL
	2,3,7,8-TCDD	7.10e+05	0.73 y	0.90	26:10	10.716		*	2.5	*
	1,2,3,7,8-PeCDD	2.54e+06	0.63 y	0.87	30:36	50.710		*	2.5	*
	1,2,3,4,7,8-HxCDD	2.51e+06	1.19 y	1.05	33:54	48.059		*	2.5	*
	1,2,3,6,7,8-HxCDD	2.79e+06	1.21 y	0.93	34:00	48.777		*	2.5	*
	1,2,3,7,8,9-HxCDD	2.78e+06	1.18 y	0.96	34:19	47.912		*	2.5	*
	1,2,3,4,6,7,8-HpCDD	2.39e+06	1.05 y	0.99	37:45	50.718		*	2.5	*
	OCDD	4.42e+06	0.91 y	0.99	41:02	97.583		*	2.5	*
	2,3,7,8-TCDF	8.30e+05	0.78 y	0.94	25:25	8.7982		*	2.5	*
	1,2,3,7,8-PeCDF	3.75e+06	1.62 y	0.92	29:27	49.387		*	2.5	*
	2,3,4,7,8-PeCDF	3.74e+06	1.61 y	0.96	30:20	49.704		*	2.5	*
	1,2,3,4,7,8-HxCDF	3.24e+06	1.14 y	1.15	33:00	46.598		*	2.5	*
	1,2,3,6,7,8-HxCDF	3.78e+06	1.22 y	1.04	33:08	49.707		*	2.5	*
	2,3,4,6,7,8-HxCDF	3.66e+06	1.18 y	1.10	33:44	49.056		*	2.5	*
	1,2,3,7,8,9-HxCDF	3.07e+06	1.18 y	1.03	34:43	48.289		*	2.5	*
	1,2,3,4,6,7,8-HpCDF	2.92e+06	0.97 y	1.06	36:32	48.759		*	2.5	*
	1,2,3,4,7,8,9-HpCDF	2.68e+06	1.00 y	1.23	38:18	48.717		*	2.5	*
	OCDF	5.19e+06	0.91 y	0.94	41:16	102.58		*	2.5	*

Name	Conc	EMPC	Qual	noise	DL
Total Tetra-Dioxins	73.0	74.4		*	*
Total Penta-Dioxins	189	189		*	*
Total Hexa-Dioxins	211	211		*	*
Total Hepta-Dioxins	115	117		*	*
Total Tetra-Furans	34.7	36.4		*	*
Total Penta-Furans	236.06	237.33		*	*
Total Hexa-Furans	258	259		*	*
Total Hepta-Furans	99.2	101		*	*

							Rec	Qual
IS	13C-2,3,7,8-TCDD	7.36e+06	0.80 y	1.11	26:09	101.34	101	
IS	13C-1,2,3,7,8-PeCDD	5.74e+06	0.61 y	0.98	30:35	89.585	89.6	
IS	13C-1,2,3,4,7,8-HxCDD	4.97e+06	1.27 y	0.68	33:53	104.58	105	
IS	13C-1,2,3,6,7,8-HxCDD	6.16e+06	1.22 y	0.84	33:59	103.99	104	
IS	13C-1,2,3,7,8,9-HxCDD	6.02e+06	1.25 y	0.81	34:17	105.34	105	
IS	13C-1,2,3,4,6,7,8-HpCDD	4.77e+06	1.02 y	0.69	37:44	98.871	98.9	
IS	13C-OCDD	9.18e+06	0.91 y	0.62	41:01	208.71	104	
IS	13C-2,3,7,8-TCDF	1.00e+07	0.79 y	1.05	25:25	105.95	106	
IS	13C-1,2,3,7,8-PeCDF	8.23e+06	1.55 y	0.95	29:26	96.004	96.0	
IS	13C-2,3,4,7,8-PeCDF	7.87e+06	1.61 y	0.94	30:19	93.631	93.6	
IS	13C-1,2,3,4,7,8-HxCDF	6.02e+06	0.51 y	0.86	32:59	99.806	99.8	
IS	13C-1,2,3,6,7,8-HxCDF	7.33e+06	0.51 y	1.02	33:07	101.97	102	
IS	13C-2,3,4,6,7,8-HxCDF	6.81e+06	0.51 y	0.95	33:43	101.53	102	
IS	13C-1,2,3,7,8,9-HxCDF	6.16e+06	0.52 y	0.87	34:42	100.95	101	
IS	13C-1,2,3,4,6,7,8-HpCDF	5.62e+06	0.42 y	0.81	36:31	98.759	98.8	
IS	13C-1,2,3,4,7,8,9-HpCDF	4.48e+06	0.44 y	0.63	38:18	100.75	101	
IS	13C-OCDF	1.08e+07	0.92 y	0.78	41:15	195.62	97.8	
C/Up	37Cl-2,3,7,8-TCDD	7.21e+05		1.22	26:10	9.0209	90.2	
RS/RT	13C-1,2,3,4-TCDD	6.57e+06	0.79 y	1.00	25:35	100.00		
RS	13C-1,2,3,4-TCDF	8.98e+06	0.81 y	1.00	24:11	100.00		
RS/RT	13C-1,2,3,4,6,9-HxCDF	7.04e+06	0.51 y	1.00	33:24	100.00		

Integrations by Analyst: DB
Date: 5/14/19

Reviewed by Analyst: MM
Date: 5/14/19

Vista Analytical Laboratory - Injection Log Run file: 190510D2 Instrument ID: VG-7 GC Column ID: ZB-5MS

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190510D2	1	ST190510D2-1	DB	10-MAY-19	14:24:45	ST190510D2-4	NA
190510D2	2	ST190510D2-2	DB	10-MAY-19	15:12:30	ST190510D2-4	NA
190510D2	3	ST190510D2-3	DB	10-MAY-19	16:00:06	ST190510D2-4	NA
190510D2	4	ST190510D2-4	DB	10-MAY-19	16:47:52	ST190510D2-4	ST190510D2-7
190510D2	5	ST190510D2-5	DB	10-MAY-19	17:35:29	ST190510D2-4	NA
190510D2	6	ST190510D2-6	DB	10-MAY-19	18:23:05	ST190510D2-4	NA
190510D2	7	SOLVENT BLANK	DB	10-MAY-19	19:10:42	NA	NA
190510D2	8	SS190510D2-1	DB	10-MAY-19	19:58:17	ST190510D2-4	NA
190510D2	9	B9E0067-BS1	DB	10-MAY-19	20:45:54	ST190510D2-4	ST190510D2-7
190510D2	10	SOLVENT BLANK	DB	10-MAY-19	21:33:30	NA	NA
190510D2	11	B9E0067-BLK1	DB	10-MAY-19	22:21:10	ST190510D2-4	ST190510D2-7
190510D2	12	1900874-01	DB	10-MAY-19	23:08:45	ST190510D2-4	ST190510D2-7
190510D2	13	1900832-01	DB	10-MAY-19	23:56:25	ST190510D2-4	NA
190510D2	14	1901011-01	DB	11-MAY-19	00:44:00	ST190510D2-4	NA
190510D2	15	1901009-01	DB	11-MAY-19	01:31:38	ST190510D2-4	NA
190510D2	16	1901010-01	DB	11-MAY-19	02:19:20	ST190510D2-4	NA
190510D2	17	SOLVENT BLANK	DB	11-MAY-19	03:06:55	NA	NA
190510D2	18	ST190510D2-7	DB	11-MAY-19	03:54:32	ST190510D2-4	ST190510D2-7

File:190510D2 #1-530 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5
321.8936 S:18

333.9339 S:18

File:190510D2 #1-530 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5
319.8965 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

321.8936 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

327.8847 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

331.9368 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-180 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5
353.8576 S:18 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

355.8546 S:18 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

365.8978 S:18 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

367.8949 S:18 F:2 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

366.9792 S:18 F:2

File:190510D2 #1-384 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5

389.8156 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

391.8127 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

401.8559 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

392.9760 S:18 F:3

File:190510D2 #1-384 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5
401.8559 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

403.8530 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5
423.7767 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

425.7737 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

435.8169 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

437.8140 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:18 F:4

File:190510D2 #1-432 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5

457.7377 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

459.7348 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

469.7780 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

471.7750 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

454.9728 S:18 F:5

File:190510D2 #1-530 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5

303.9016 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-530 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5
339.8597 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

341.8568 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7974 S:18 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

316.9824 S:18

File:190510D2 #1-180 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5

File:190510D2 #1-384 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5

373.8207 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8178 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

383.8639 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

445.7555 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-384 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5
383.8639 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

385.8610 S:18 F:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-355 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5

407.7818 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

409.7788 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

417.8253 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

419.8220 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

479.7165 S:18 F:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190510D2 #1-432 Acq:11-MAY-2019 03:54:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#18 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190510D2-7 1613 CS3 19C2204 Exp:OCDD_DB5

441.7428 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

443.7398 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

453.7831 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

455.7801 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

513.6775 S:18 F:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

Peak Locate Examination:11-MAY-2019:04:52 File:RES_CHECK

Experiment:OCDD_DB5 Function:1 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:53 File:RES_CHECK

Experiment:OCDD_DB5 Function:2 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:54 File:RES_CHECK

Experiment:OCDD_DB5 Function:3 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:54 File:RES_CHECK

Experiment:OCDD_DB5 Function:4 Reference:PFK

Peak Locate Examination:11-MAY-2019:04:55 File:RES_CHECK

Experiment:OCDD_DB5 Function:5 Reference:PFK

Initial Calibration RRF Summary (ICAL) Vista Analytical Laboratory

Run: Analyte: TCDF Cal: 1613TCDFVG7-5-30-19 Inst. ID. VG-7

Data filename: 190530D1

			Samp# 3	Samp# 4	Samp# 5	Samp# 6	Samp# 7	Samp# 8
			100	100	100	100	100	100
Name	Mean RRF	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6
13C-1,2,3,4-TCDF	1.0000	0.00 %	1.00	1.00	1.00	1.00	1.00	1.00
13C-2,3,7,8-TCDF	1.0212	4.27 %	1.07	1.04	1.03	1.05	0.98	0.96
2,3,7,8-TCDF	0.9476	9.58 %	1.12	0.93	0.88	0.87	0.97	0.92

DB 5/30/19

QT 05/31/19

Filename: 190530D1 S: 3 Acquired: 30-MAY-19 12:05:38
Run: Analyte: TCDF Cal: 1613TCDFVG7-5-30-19Results:
Sample text: ST190530D1-1 1613 CS0 19C2201

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.38e+07	0.80 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.47e+07	0.81 y	18:05	-	1.07
2,3,7,8-TCDF	0.250	4.11e+04	0.87 y	18:06	-	1.12

DB
5/30/19

Filename: 190530D1 S: 4 Acquired: 30-MAY-19 12:37:29
Run: Analyte: TCDF Cal: 1613TCDFVG7-5-30-19Results:
Sample text: ST190530D1-2 1613 CS1 19C2202

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.24e+07	0.82 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.30e+07	0.78 y	18:05	-	1.04
2,3,7,8-TCDF	0.500	6.06e+04	0.67 y	18:05	-	0.93

DB
5/30/19

Filename: 190530D1 S: 5 Acquired: 30-MAY-19 13:09:20
Run: Analyte: TCDF Cal: 1613TCDFVG7-5-30-19Results:
Sample text: ST190530D1-3 1613 CS2 19C2203

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.21e+07	0.82 y	15:48	-	1.00
13C-2,3,7,8-TCDF	100	1.24e+07	0.80 y	18:04	-	1.03
2,3,7,8-TCDF	2.00	2.18e+05	0.74 y	18:05	-	0.88

DB
5/30/19

Filename: 190530D1 S: 6 Acquired: 30-MAY-19 13:41:11
Run: Analyte: TCDF Cal: 1613TCDFVG7-5-30-19Results:
Sample text: ST190530D1-4 1613 CS3 19C2204

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.28e+07	0.81 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.34e+07	0.80 y	18:05	-	1.05
2,3,7,8-TCDF	10.0	1.17e+06	0.73 y	18:06	-	0.87

DB
5/30/19

Filename: 190530D1 S: 7 Acquired: 30-MAY-19 14:13:01
Run: Analyte: TCDF Cal: 1613TCDFVG7-5-30-19Results:
Sample text: ST190530D1-5 1613 CS4 19C2205

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.30e+07	0.81 y	15:49	-	1.00
13C-2,3,7,8-TCDF	100	1.28e+07	0.80 y	18:05	-	0.98
2,3,7,8-TCDF	40.0	4.95e+06	0.77 y	18:06	-	0.97

DB
5/30/19

Filename: 190530D1 S: 8 Acquired: 30-MAY-19 14:44:52
Run: Analyte: TCDF Cal: 1613TCDFVG7-5-30-19Results:
Sample text: ST190530D1-6 1613 CS5 19C2206

Name	Amount	Resp	RA	RT	RF	RRF
13C-1,2,3,4-TCDF	100	1.29e+07	0.80 y	15:48	-	1.00
13C-2,3,7,8-TCDF	100	1.24e+07	0.80 y	18:05	-	0.96
2,3,7,8-TCDF	300	3.42e+07	0.74 y	18:06	-	0.92

DB
5/30/19

Vista Analytical Laboratory - Injection Log Run file: 190530D1 Instrument ID: VG-7 GC Column ID: DB-225

Data file	S#	Sample ID	Analyst	Acq date	Acq time	CCal	ECal
190530D1	1	CP190530D1-1	DB	30-MAY-19	11:02:08	ST190530D1-4	NA
190530D1	2	SOLVENT BLANK	DB	30-MAY-19	11:33:52	ST190530D1-4	NA
190530D1	3	ST190530D1-1	DB	30-MAY-19	12:05:38	ST190530D1-4	NA
190530D1	4	ST190530D1-2	DB	30-MAY-19	12:37:29	ST190530D1-4	NA
190530D1	5	ST190530D1-3	DB	30-MAY-19	13:09:20	ST190530D1-4	NA
190530D1	6	ST190530D1-4	DB	30-MAY-19	13:41:11	ST190530D1-4	NA
190530D1	7	ST190530D1-5	DB	30-MAY-19	14:13:01	ST190530D1-4	NA
190530D1	8	ST190530D1-6	DB	30-MAY-19	14:44:52	ST190530D1-4	NA
190530D1	9	SOLVENT BLANK	DB	30-MAY-19	15:16:42	ST190530D1-4	NA
190530D1	10	SS190528D1-1	DB	30-MAY-19	15:48:32	ST190530D1-4	NA
190530D1	11	SOLVENT BLANK	DB	30-MAY-19	16:20:23	ST190530D1-4	NA
190530D1	12	1901028-05RE1	DB	30-MAY-19	16:52:12	ST190530D1-4	NA
190530D1	13	1901028-07RE1	DB	30-MAY-19	17:24:02	ST190530D1-4	NA
190530D1	14	1901028-08RE1	DB	30-MAY-19	17:55:52	ST190530D1-4	NA
190530D1	15	1901028-09RE1	DB	30-MAY-19	18:27:41	ST190530D1-4	NA

Peak Locate Examination:30-MAY-2019:11:01 File:190530D1

Experiment:TCDF_DB225 Function:1 Reference:PFK

File:190530D1 #1-1559 Acq:30-MAY-2019 11:02:08 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:CP190530D1-1 DB225 CPSM Exp:TCDF_DB225
303.9016

305.8987

File:190530D1 #1-1682 Acq:30-MAY-2019 11:02:08 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:CP190530D1-1 DB225 CPSM Exp:TCDF_DB225
303.9016 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 11:02:08 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 File Text:Vista_Analytical_Laboratory_VG7 Text:CP190530D1-1 DB225 CPSM Exp:TCDF_DB225
331.9368 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792

File:190530D1 #1-1682 Acq:30-MAY-2019 12:05:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-1 1613 CS0 19C2201 Exp:TCDF_DB225
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 12:05:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-1 1613 CS0 19C2201 Exp:TCDF_DB225
303.9016 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 12:05:38 GC EI+ Voltage SIR Autospec-UltimaE
Sample#3 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-1 1613 CS0 19C2201 Exp:TCDF_DB225
331.9368 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:3 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:3

File:190530D1 #1-1683 Acq:30-MAY-2019 12:37:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-2 1613 CS1 19C2202 Exp:TCDF_DB225
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1683 Acq:30-MAY-2019 12:37:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-2 1613 CS1 19C2202 Exp:TCDF_DB225
303.9016 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1683 Acq:30-MAY-2019 12:37:29 GC EI+ Voltage SIR Autospec-UltimaE
Sample#4 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-2 1613 CS1 19C2202 Exp:TCDF_DB225
331.9368 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:4 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:4

File:190530D1 #1-1683 Acq:30-MAY-2019 13:09:20 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-3 1613 CS2 19C2203 Exp:TCDF_DB225
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1683 Acq:30-MAY-2019 13:09:20 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-3 1613 CS2 19C2203 Exp:TCDF_DB225
303.9016 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1683 Acq:30-MAY-2019 13:09:20 GC EI+ Voltage SIR Autospec-UltimaE
Sample#5 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-3 1613 CS2 19C2203 Exp:TCDF_DB225
331.9368 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:5 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:5

File:190530D1 #1-1682 Acq:30-MAY-2019 13:41:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-4 1613 CS3 19C2204 Exp:TCDF_DB225
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 13:41:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-4 1613 CS3 19C2204 Exp:TCDF_DB225
303.9016 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 13:41:11 GC EI+ Voltage SIR Autospec-UltimaE
Sample#6 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-4 1613 CS3 19C2204 Exp:TCDF_DB225
331.9368 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:6 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:6

File:190530D1 #1-1682 Acq:30-MAY-2019 14:13:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-5 1613 CS4 19C2205 Exp:TCDF_DB225
303.9016 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 14:13:01 GC EI+ Voltage SIR Autospec-UltimaE
Sample#7 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-5 1613 CS4 19C2205 Exp:TCDF_DB225
331.9368 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:7 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:7

File:190530D1 #1-1682 Acq:30-MAY-2019 14:44:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-6 1613 CS5 19C2206 Exp:TCDF_DB225
303.9016 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 14:44:52 GC EI+ Voltage SIR Autospec-UltimaE
Sample#8 File Text:Vista_Analytical_Laboratory_VG7 Text:ST190530D1-6 1613 CS5 19C2206 Exp:TCDF_DB225
331.9368 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:8 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:8

Peak Locate Examination:30-MAY-2019:19:09 File:RES_CHECK

Experiment:TCDF_DB225 Function:1 Reference:PFK

Client ID: 1613 SSS 19C2207 Filename: 190530D1 S:10 Acq:30-MAY-19 15:48:32 ConCal: ST190530D1-4
Lab ID: SS190528D1-1 GC Column ID: DB-225 ICal: 1613TCDFVG7-5-30-19 wt/vol: 1.000 EndCAL: NA

Name	Resp	RA	RT	RRF	Conc	Rec
13C-1,2,3,4-TCDF	1.15e+07	0.82 y	15:48	1.00	100.0	-
13C-2,3,7,8-TCDF	1.18e+07	0.80 y	18:04	1.02	100.0	100.0
2,3,7,8-TCDF	1.08e+06	0.74 y	18:05	0.95	9.628	

Integrations by Analyst: DB
Date: 5/31/19

Reviewed by Analyst: CT
Date: 05/31/19

File:190530D1 #1-1682 Acq:30-MAY-2019 15:48:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190528D1-1 1613 SSS 19C2207 Exp:TCDF_DB225
303.9016 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

305.8987 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

315.9419 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

317.9389 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

File:190530D1 #1-1682 Acq:30-MAY-2019 15:48:32 GC EI+ Voltage SIR Autospec-UltimaE
Sample#10 File Text:Vista_Analytical_Laboratory_VG7 Text:SS190528D1-1 1613 SSS 19C2207 Exp:TCDF_DB225
331.9368 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

333.9339 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

375.8364 S:10 BSUB(10000,15,-3.0) PKD(5,5,3,0.10%,100.0,0.00%,F,F)

330.9792 S:10