APPENDIX J DATA USABILITY SUMMARY REPORT



December 14, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples

Dear Mr. Yanowitz:

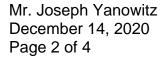
The evaluation of analytical data for inorganic analysis parameter by Eurofins Lancaster Laboratories for 24 soil samples and 2 field duplicate soil samples from the 250 Water Street site, which were reported in a single data package under Job No. 410-8826-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB4R 0-2	CDAD 2 A	CD4D 4 6	CDAD C O
3D4K_U-Z	SB4R_2-4	SB4R_4-6	SB4R_6-8
SB4R_10-12	SB4R_14-16	SB4R_18-20	SB4E1_0-2
SB4E1_2-4	SB4E1_6-8	SB4E1_10-12	SB4E1_14-16
SB4E1_16-18	SB4E1_18-20	SB4W1_0-2	SB4W1_2-4
SB4W1_4-6	SB4W1_6-8	SB4W1_6-8	SB4W1_10-12
SB4W1_12-14	SB4W1_14-16	SB4W1_16-18	SB4W1_18-20
MDUP01 072720	MDUP02 072720		

Analyses were performed in accordance with SW846 Method 7471B. ddms' review was performed, to the extent possible, in accordance with the analytical method and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report		
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes	
2.	Have all holding times been met?	Yes	
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – S Following Sections	See
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes	
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes	
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes	





Data Usability Summary Report	
7. Have any quality control (QC) exceedances been spec the DUSR and have the corresponding QC summary she package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

Mercury

- o Results for mercury in SB4R_0-2, SB4R_2-4, SB4R_4-6, SB4R_6-8, SB4R_10-12, SB4R_14-16, SB4R_18-20, SB4E1_0-2, SB4E1_2-4, SB4E1_6-8, SB4E1_10-12, SB4E1_14-16, SB4W1_0-2, SB4W1_2-4, SB4W1_16-18, SB4W1_18-20, and MDUP01_072720 were qualified as estimated (J) due to elevated relative percent difference (RPD) between field duplicate pair.
- Results for mercury in SB4R_0-2, SB4R_2-4, SB4R_4-6, SB4R_6-8, SB4R_10-12, SB4R_14-16, SB4R_18-20, SB4E1_0-2, SB4E1_2-4, SB4E1_6-8, SB4E1_10-12, SB4E1_14-16, SB4W1_0-2, SB4W1_2-4, SB4W1_16-18, SB4W1_18-20, and MDUP01_072720 were qualified as estimated (J) due to elevated matrix spike and elevated RPD between the matrix spike (MS) and matrix spike duplicate (MSD).
- Result for mercury in SB4E1_16-18 was qualified as not detected and estimated (UJ) at the reporting limit due to carry over from the high concentration of the previously analyzed sample, elevated matrix spike and elevated RPD between the matrix spike (MS) and matrix spike duplicate (MSD) and elevated relative percent difference (RPD) between field duplicate pair.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - LCS/LCSD recoveries
 - o MS/MSD recoveries
 - Duplicate

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- Instrument related quality control data:
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation

A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of July 27, 2020. The samples were received by the laboratory on the same day as sample collection. The cooler temperature on receipt at the laboratory was acceptable (2.8°C; QC 4°C ±2°C). All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Mercury

1. Field Duplicates (FD)

MDUP01_072720 was submitted as a field duplicate of SB4R_18-20 and MDUP02_072720 was submitted as a field duplicate of SB4W1_8-10. Precision between both sets of paired samples was acceptable (RPD<50 for compounds >5X RL) with the exception noted below.

Sample ID	Analyte	Conc (mg/kg)	RPD
SB4R_18-20	Maraury	0.55	75%
MDUP01_072720	Mercury	1.2	75%

The results for mercury in all detected field samples were qualified as estimated (J) due to imprecision between field duplicate samples.

2. Matrix spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on SB4R_18-20 and SB4W1_8-10. Precision and percent recoveries were acceptable (80-120%R) with the exceptions of an exceptionally high recovery (4050%R) in the MS performed on SB4R_18-20 and an elevated RPD between the MS/MSD. Mercury was qualified as estimated (J) in all field samples due to high MS recovery and unacceptable RPD between the MS and MSD.

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3. Compound Quantitation

The sample in the analytical sequence immediately preceding SB4E1_16-18 has a concentration greater than five times the response of the highest standard. Blanks were not analyzed between this high concentration sample and SB4E1_16-18 to demonstrate the absence of contamination. Carryover is suspected, and the result for mercury in SB4E1_16-18 was qualified as not detected (U) at the reporting limit on this basis.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Melissa D'Almeida Environmental Chemist

Melim D'Almenta

(862) 668-3355

mdalmeida@ddmsinc.com



ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-8826-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-8826-1

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Environmental Analysis Request/Chain of Custody

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COC #610741

Preservation Codes

Remarks

F=Field Filtered O=Other

T=Thiosulfate

B=NaOH

P=H₃PO₄

For Lab Use Only

FSC: SCR#:

H=HCI

N=HNO₂

S=H2SO4

Temperature upon receipt

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For Eurofins Lancaster Laboratories Environmental use only

Matrix

Surface

NPDES Potable

Ground

Sample # _

otal # of Containers

Analysis Requested

Preservation and Filtration Codes

Group # _____

Sediment

Soil

Composite

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories

70381202

Client Information

Yes

MA MCP

CT RCP

Acct. #:

PWSID #:

P.O. #:

Quote #:

No 🗆

Date

Collected

Time

Environmental

Sample Identification

NYSDEC Category A Dr B

ANGIAN, DPC

Site-Specific QC (MS/MSD/Dup)?

Page 37 of 38

(If yes, indicate QC sample and submit triplicate sample volume.)



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-8826-1

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: <u>SB4R_18-20 MS</u> Lab ID: 410-8826-7 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8826-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 90.2

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Mercury	8.04	0.55	0.185	4050	80-120	F1	7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: <u>SB4R_18-20 MSD</u> Lab ID: 410-8826-7 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8826-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 90.2

Analyte	(SDR)	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Mercury	0.714 J	0.176	91	80-120	167	20	F2	7471B

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

Sample ID	Type	Extended ID	Wt.	Vol.	Mean		SD	RSD	Stat Units	Туре
blank	S		1		1	-263	0	0	Intensity	Std
0.2 std	S		1		1	1842	0	0	Intensity	Std
0.5 std	S		1		1	4819	0	0	Intensity	Std
1.0 std	S		1		1	9849	0	0	Intensity	Std
2.5 std	S		1		1	25171	0	0	Intensity	Std
5.0 std	S		1		1	50498	0		Intensity	Std
ICV	С		1			2.3375	0		Concen	CK STND
ICB	С		1		1	-0.1468			Concen	CK STND
CRA	С		1			% 0.8114	0		Concen	CK STND
CCV	С		1			0.9502	0		Concen	CK STND
CCB	С		1		1	-0.0383	0		Concen	CK STND
MB 410-26944/1-A	U		1		1	-0.0074			Concen	SMPL
LCS 410-26944/2-A	U		1		1	0.9544			Concen	SMPL
410-8826-B-19-A PDS 410-8826-B-19-A ^1	U U		1		1 1	-0.0279 1.1011	0		Concen Concen	SMPL SMPL
410-8826-B-19-B DU	U		1		1	0.0186	0		Concen	SMPL
410-8826-B-19-C MS	U		1		1	1.1221			Concen	SMPL
410-8826-B-19-D MSD	U		1		1	1.0957	0		Concen	SMPL
410-8826-B-20-A	U		1		1	-0.0083			Concen	SMPL
410-8826-B-21-A	U		1		1	0.065			Concen	SMPL
410-8826-B-23-A	U		1		1	2.1777			Concen	SMPL
CCV	С		1			0.9292	0		Concen	CK STND
ССВ	C		1		1	-0.0423			Concen	CK STND
410-8826-B-24-A	U		1		1	0.162			Concen	SMPL
410-8826-B-25-A	U		1		1	7.2404	0	0	Concen	SMPL
410-8826-B-26-A	U		1		1	-0.1952	0	0	Concen	SMPL
410-8826-B-22-A	U		1		1	0.1089	0	0	Concen	SMPL
410-8826-B-1-A	Χ		1		1 HIGH		0	0	Concen	
410-8826-B-2-A	Χ		1		1 HIGH		0	0	Concen	
410-8826-B-3-A	Χ		1		1 HIGH		0	0	Concen	
410-8826-B-4-A	Χ		1		1 HIGH		0	0	Concen	
410-8826-B-6-A	Χ		1		1 HIGH		0		Concen	
410-8826-B-5-A	Χ		1		1 HIGH		0	0	Concen	
CCV	С		1		1 98.6%	0.9859	0		Concen	CK STND
CCB	С		1		1	-0.0763			Concen	CK STND
410-8826-B-8-A	U		1		1	12.0481			Concen	SMPL
410-8826-B-9-A	X		1		1 HIGH		0		Concen	
410-8826-B-13-A	U		1		1	0.2928			Concen	SMPL
410-8826-B-12-A	X		1		1 HIGH	2 2440	0		Concen	CNADI
410-8826-B-11-A	U		1		1	3.3449			Concen	SMPL
410-8826-B-10-A	U		1		1	7.1537			Concen	SMPL
410-8826-B-25-A ^5	U		1		1	1.344			Concen	SMPL
410-8826-B-1-A ^200 410-8826-B-2-A ^200	U U		1 1		1 1	1.4442 2.4451			Concen Concen	SMPL SMPL
410-8826-B-3-A ^200	U		1		1	1.5161			Concen	SMPL
CCV	С		1			0.8617	0		Concen	CK STND
CCV			т		1 00.2/0	, 0.001/	U	U	COLICELL	CK STND

Method	Units	UI	US	DL	Blank Sub	Date	Stats Data	PLOT CAL	
7470	ppb	0	1	-	-263	7/28/2020 6:06	-263		CAL:71
7470	ppb	0	1	-	1842	7/28/2020 6:08	1842		
7470	ppb	0	1	-	4819	7/28/2020 6:10	4819		
7470	ppb	0	1	-	9849	7/28/2020 6:12	9849		
7470	ppb	0	1	-	25171	7/28/2020 6:14	25171		
7470	ppb	0	1	-	50498	7/28/2020 6:16	50498		
7470	ppb	0	1	-	2.3375	7/28/2020 6:22	2.3375		
7470	ppb	0	1	-	-0.1468	7/28/2020 6:24	-0.1468		
7470	ppb	0	1	-	0.8114	7/28/2020 8:44	0.8114		
7470	ppb	0	1	-	0.9502	7/28/2020 8:46	0.9502		
7470	ppb	0	1	-	-0.0383	7/28/2020 8:48	-0.0383		
7470	ppb	0	1	0	-0.0074	7/28/2020 8:50	-0.0074		
7470	ppb	0	1	0	0.9544	7/28/2020 8:52	0.9544		
7470	ppb	0	1	0	-0.0279	7/28/2020 8:54	-0.0279		
7470	ppb	0	1	0	1.1011	7/28/2020 8:56	1.1011		
7470	ppb	0	1	0	0.0186	7/28/2020 8:58	0.0186		
7470	ppb	0	1	0	1.1221	7/28/2020 9:00	1.1221		
7470	ppb	0	1	0	1.0957	7/28/2020 9:02	1.0957		
7470	ppb	0	1	0	-0.0083	7/28/2020 9:04	-0.0083		
7470	ppb	0	1	0	0.065	7/28/2020 9:06	0.065		
7470	ppb	0	1	0	2.1777	7/28/2020 9:08	2.1777		
7470	ppb	0	1	-	0.9292	7/28/2020 9:10	0.9292		
7470	ppb	0	1	-	-0.0423	7/28/2020 9:12	-0.0423		
7470	ppb	0	1	0	0.162	7/28/2020 9:14	0.162		
7470	ppb	0	1	0	7.2404	7/28/2020 9:16	7.2404		
7470	ppb	0	1	0	-0.1952	7/28/2020 9:19	-0.1952		
7470		0	1	0	0.1089	7/28/2020 9:21	0.1089		
7470	ppb	0	1	-	622949	7/28/2020 9:23	622949		
7470		0	1		755592		755592		
7470		0	1		580251	7/28/2020 9:26	580251		
7470		0	1		363871		363871		
7470		0	1		396498		396498		
7470		0	1		646795		646795		
7470		0	1		0.9859		0.9859		
7470		0	1		-0.0763				
7470		0	1						
7470		0	1		293713		293713		
7470		0	1	0		7/28/2020 10:02			
7470		0	1		289341		289341		
7470		0	1	0	3.3449		3.3449		
7470		0	1	0			7.1537		
7470		0	1	0			1.344		
7470		0	1	0		7/28/2020 10:18			
7470		0	1	0	2.4451		2.4451		
7470		0	1	0	1.5161		1.5161		
7470	ppb	0	1	-	0.8617	7/28/2020 10:24	0.8617		



January 7, 2021

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Sample

Dear Mr. Yanowitz:

The evaluation of analytical data for inorganic analysis parameters by Eurofins Lancaster Laboratories for one soil sample from the 250 Water Street site, which was reported in a data package under Job No. 410-8828-2, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following sample was reported:

SB4R_20-22

Analyses were performed in accordance with SW846 Method 7471B. ddms' review was performed, to the extent possible, in accordance with the analytical method and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	Yes
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

Based on the data review effort, the result was determined to be usable as reported by the laboratory. No qualification was warranted.

Mr. Joseph Yanowitz January 7, 2021 Page 2 of 3



All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - Duplicate
- Instrument related quality control data:
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation

A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of July 27, 2020. The sample was received by the laboratory on the same day as sample collection. The cooler temperature on receipt at the laboratory was acceptable (2.8°C; QC 4°C ±2°C). The sample was properly preserved and was prepared and analyzed within method-specified holding times.

A. Mercury

The result for mercury was determined to be valid as reported by the laboratory. No qualification was applied by the validator.

Mr. Joseph Yanowitz January 7, 2021 Page 3 of 3



Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Denise A. Shepperd

Sr. Environmental Chemist

Denin A Syml

302-233-5274

dshepperd@ddmsinc.com



ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-8828-2



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-8828-2

Environmental Analysis Requ

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de eurofins

Lancaster Laboratories
Environmental

Acct. #

410-8828 Chain of Custody

COC # 610737

Client Informatio	n	Program and Maries are a reporting a real Philosophic	-		Matrix		T			A	nalys	is R	equest	ed	32.55		For Lab Use On	ly .	-
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250 Water Street/170381202	PWSID #:			Tissue	Ground			1	Mercury	`							Preservat H=HCl		odes iosulfate
Project Manager: Paul McMahon Sampler: AShley Stappenbeek	P.O. #: Quote #:			<u></u> ⊑			ners	Mercun	Me.								N=HNO ₃ S=H ₂ SO ₄ F=Field Filtered	B =Na P =H ₃	PO₄
7.0	Quoto #.			ii e	ple		ontai	ler	otal								Rem		iner
State where samples were collected: Yes Yes	No □	·	Gife	Soil X Sediment	Potable NPDES		Total # of Containers		, _										
Sample Identification		ected	Grab		Water	Other:	otal #	Total	HOLD										
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SB4R-4-6	<u> </u>	1126	X	$\bot\!$		<u> </u>		X.											
SB4R-6-8		1128	\propto	$\perp \!$				\times											
SB4R-10-12		1130	\times	×				$ \mathbf{x} $											
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December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report - Eurofins Lancaster Laboratories - Soil Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for 34 soil samples, one trip blank, and two field blanks from the 250 Water Street site, which were reported in a single data package under Job No. 410-8939-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB25_0-2	SB25_6-8	SB25_28-30	TB01_072820
MFB01_072830	MFB02_072820	SB25_0-2	SB25_2-4
SB25_4-6	SB25_6-8	SB25_8-10	SB25_10-12
SB25_12-14	SB25_14-16	SB25_16-18	SB25_18-20
SB4N1_0-2	SB4N1_2-4	SB4N1_4-6	SBRN1_6-8
SB4N1_8-10	SB4N1_10-12	SB4N1_12-14	SBRN1_14-16
SB4N1_16-18	SB4N1_18-20	SB4E2_0-2	SB4E2_2-4
SB4E2_4-6	SB4E2_6-8	SB4E2_8-10	SB4E2_12-14
SB4E2_14-16	SB4E2_16-18	SB4E2_18-20	MDUP03_072820
SB25 28-30			

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report		
1	. Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes	
2	P. Have all holding times been met?	Yes	
3	B. Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	Following	See

Mr. Joseph Yanowitz December 18, 2020 Page 2 of 11



Data Usability Summary Report	
4. Have all of the data been generated using established and agreed upon analytical protocols?	No
5. Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6. Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

Based on the data review effort, the results are usable, with the following qualifications:

o Volatile Organics

 Results for 1,1-dichloroethene in SB25_0-2, SB25_6-8, and SB25_28-30, and for acetone in TB01_072820, were qualified as estimated (UJ) due to unacceptable percent differences (%Ds) between the initial calibration (IC) and the IC verification (ICV) standards.

o Semi-Volatile Organics (Full Scan)

- Results for all target compounds in SB25_0-2 were qualified as estimated (J-, UJ) with the potential for low bias, based on low recoveries for all six of the surrogate compounds.
- The result for pentachlorophenol in SB25_6-8 was qualified as estimated (UJ) due to low recovery for the associated surrogate compound.

Semi-Volatile Organics (Selected Ion Monitoring)

- Results for 1,4-dioxane in SB25_0-2 and SB25_0-2 RA were qualified as estimated (J-) with the potential for low bias, based on low recoveries for the associated surrogate compound. These results were also qualified as tentatively identified (N), based on ion abundances observed in the sample raw data that do not match the abundances exhibited in the reference spectrum.
- Results for 1,4-dioxane in all of the soil samples in this SDG were qualified as estimated (J-, UJ) due to low recovery in the laboratory control sample (LCS).

Pesticides

- The results for all target pesticides in SB25_6-8 and SB25_28-30 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.
- The results for aldrin, dieldrin, endrin, and 4,4'-DDD in SB25_0-2, SB25_6-8, and SB25_28-30 were qualified as estimated (UJ) due to low matrix spike (MS) and/or MS duplicate (MSD) recoveries or imprecision between MS/MSD results.

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The positive result for 4,4'-DDE in SB25_0-2 was qualified as estimated (J) and non-detect results for 4,4'-DDE in SB25_6-8 and SB25_28-30, and non-detect results for alpha-BHC, beta-BHC, delta-BHC, endosulfan I, endosulfan II, endosulfan sulfate, gamma-BHC, heptachlor, and 4,4'-DDT in SB25_0-2, SB25_6-8, and SB25_28-30 were rejected (R) because these analytes were not recovered in the MS and/or MSD.

Herbicides

o The results for Silvex in SB25_0-2, SB25_6-8, and SB25_28-30 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - o Surrogate recoveries
 - LCS/LCSD recoveries
 - o MS/MSD recoveries
 - o Internal standards
 - Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - o Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

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Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- A "T" flag was present in the EDD for a number of results. This data flag was not present
 on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs
 are formatted with NYSDEC-specific data qualifiers for submission to the agency, although
 this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory responded that these peaks are checked both by the analyst and during a secondary level review of the calibration data.
- The ratio between the primary and secondary ion as displayed in the spectral raw data for 1,4-dioxane in samples SB25_0-2, showed poor agreement with the ratio of the same masses in the reference spectrum. Based on poor agreement with the reference spectra, the result for 1,4-dioxane in SB25_0-2 was qualified as tentatively present (N) by the validator. The lab replied to a request for documentation of ion abundances from the standards analyzed on the instruments used for sample analysis that the ratios that "the CCV ratio is 88% and that all peaks in this SDG were either <MDL or >200%."
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Results for alpha-chlordane were not reported on the pesticides laboratory control sample
 or matrix spike/matrix spike duplicate summary forms. These results were evaluated
 based on the available raw data.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did not match the responses found in the raw data. According to the laboratory, the discrepancies are because peak heights are reported in the raw data, but peak areas are reported on the summary forms. Corrected documentation was not provided by the time this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.
- A summary form and raw data for an initial calibration verification standard for technical chlordane was included with the pesticides data. Since technical chlordane is not a target analyte for these analytes, the data for this standard are not relevant and were not reviewed.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The

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laboratory responded to a question on this issue stating that "a batch is created as a place to hold the calculations."

- Run logs for hexavalent chromium do not include opening CCVs and CCBs. The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- Method detection limits (MDLs) for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.
- No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of July 28, 2020. The samples were received by the laboratory on the same day as sample collection. Most of the cooler temperatures on receipt at the laboratory were acceptable (3.8°C to 5.5°C; QC 4°C ±2°C). Two of the cooler temperatures (1.2°C in both cases) were slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

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A. Volatile Organics

1. Calibration

Two ICs were reported in support of sample analyses (Instrument 9355 – waters; Instrument 9953 – soils). All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable.

Second source IC verification (ICV) standards were analyzed in association with each IC. All ICV responses were acceptable (<20 percent difference [%D]) with the exceptions detailed below:

Instrument/ICV	Compound	%D	Affected Samples	Qualifiers Applied
9355 – 7/14/20	acetone	23.9	TB01_072820	UJ
9953 – 7/29/20	1,1-dichloroethene	21.9	SB25_0-2 SB25_6-8 SB25_28-30	UJ

Results as detailed above were qualified as estimated (UJ), based on unacceptable %Ds in the ICVs.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20 %D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
9953 – 7/30/20 @ 19:29	1,4-dioxane	+45.5	SB25_0-2	None
	n-propylbenzene	+22.3	SB25_6-8	
	1,3,5-trimethylbenzene	+23.4	SB25_28-30	
	tert-butylbenzene	+25.0		
	1,2,4-trimethylbenzene	+23.1		
	n-butylbenzene	+30.9		

%Ds representing an increase in instrument sensitivity, indicate the potential for high bias. None of these analytes were detected in the associated samples, therefore, no qualification was necessary.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

One IC (Instrument HP23296) was reported in support of the sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard was analyzed following the IC and all %Ds were acceptable. It was noted that laboratory flags indicating the potential for peak saturations were displayed on the quantitation reports of the three highest concentrations IC

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standards. There was no indication in the data package that the laboratory acknowledged or addressed this issue.

A single CC standard was analyzed in support of the sample analyses and all percent differences were acceptable (<20%D).

2. Surrogate

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable, with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB25_0-2	2-Fluorophenol	40	All target compounds	J-, UJ
	Phenol-d₅	46		
	2,4,6-Tribromophenol	28		
	Nitrobenzene-d ₅	53		
	2-Fluorobiphenyl	60		
	Terphenyl-d ₁₄	48		
SB25_6-8	2,4,6-Tribromophenol	64	Pentachlorophenol	UJ

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

3. Quantitation

Sample SB25_0-2 was analyzed at a five-times dilution due to the sample matrix and reporting limits were appropriately adjusted. Results were reported from the dilution and RLs were adjusted accordingly by the laboratory. As noted, laboratory flags indicating the potential for peak saturations were displayed on the quantitation reports of the three highest concentrations IC standards. The dilution performed brought all of the detected target analytes within the lower half of the calibration, therefore, no action was taken by the validator on this basis.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Surrogate

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane, therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:



Sample	%R	Qualifier Applied
SB25_0-2	63	J-
SB25_0-2 RA	64	

Results for 1,4-dioxane in the samples listed above were qualified as estimated (J-, UJ) with a potential low bias, based on low recovery observed in the associated surrogate compound.

2. LCS/LCSD

One LCS was prepared and analyzed with the analytical batch. Recovery (validation limits: 70-130%) was unacceptable:

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS 27711					
1,4-Dioxane	40	na	n/a	All soil samples in the SDG J-, U	

na-not analyzed n/a-not applicable

Results for 1,4-dioxane in all of the soil samples were qualified as estimated with potential low bias (J-, UJ) based on low LCS recovery.

3. Analyte Identification

The ratio between the primary and secondary ions as displayed in the spectral raw data for 1,4-dioxane in samples SB25_0-2 and SB25_0-2 RA, showed poor agreement with the ratio of the same masses in the reference spectrum. Based on poor agreement with the reference spectra, the result for 1,4-dioxane in SB25_0-2 was qualified as tentatively present (N) by the validator.

4. Quantitation

Response for the third internal standard (IS) was unacceptably low in the initial analysis of sample SB25_0-2. The sample was re-analyzed and the same IS response was low. The laboratory selected the initial analysis for reporting and the validator concurs with this choice. All of the surrogate compounds, including the one most associated with 1,4-dioxane, exhibited low recovery in both analyses of this sample.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:



Comple	Surrogate / Column			
Sample	TCX/1	TCX/2	DCB / 1	DCB / 2
SB25_6-8	62	57	а	а
SB25_28-30	68	61	а	а

a – acceptable

The results for all target pesticides in SB25_6-8 and SB25_28-30 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB25_0-2 was prepared as an MS/MSD pair with this data set. Percent recoveries and RPDs were acceptable (70-130%R, RPD<30) with the exceptions below:

Parent Sample: SB25_0-2					
Parameter	MS %R Column 1 / 2	MSD %R Column 1 / 2	RPD Col. 1 / 2	Samples Affected	Qualifiers Applied
Aldrin	a/a	63 / 65	a/a	SB25_0-2	UJ
Dieldrin	a/a	181 / a	81 / 94	SB25_6-8	
Endrin	a / 66	a / 60	a/a	SB25_28-30	
4,4'-DDD	59 / 59	48 / 50	a/a		
alpha-BHC	0/0	0/0	NC		J, R
beta-BHC	0/0	0/0	NC		
delta-BHC	0/0	0/0	NC		
Endosulfan I	0/0	0/0	NC		
Endosulfan II	0/0	0/0	NC		
Endosulfan sulfate	30 / 43	0/0	NC		
gamma-BHC	0/0	0/0	NC		
Heptachlor	0/0	0/0	NC		
4,4'-DDE	-130 / -144	40 / 28	71 / 73		
4,4'-DDT	0/0	0/0	NC		

a-acceptable

NC – not calculated

The results for aldrin, dieldrin, endrin, and 4,4'-DDD in SB25_0-2, SB25_6-8, and SB25_28-30 were qualified as estimated (UJ) due to low MS and/or MS recoveries or imprecision between MS/MSD results. The positive result for 4,4'-DDE in SB25_0-2 was qualified as estimated (J+) and nondetect results for 4,4'-DDE in SB25_6-8 and SB25_28-30, and non-detect results for alpha-BHC, beta-BHC, delta-BHC, endosulfan II, endosulfan sulfate, gamma-BHC, heptachlor, and 4,4'-DDT in SB25_0-2, SB25_6-8, and SB25_28-30 were rejected (R) because these analytes were not recovered in the MS and/or MSD.

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E. Polychlorinated Biphenyls (PCBs as Aroclors)

Based on the validation effort, all PCBs results were determined to be valid as reported by the laboratory.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate / Column		
Sample	DCPAA / 1	DCPAA / 2	
SB25_0-2	59	58	
SB25_6-8	56	55	
SB25_28-30	57	56	

The results for Silvex in SB25_0-2, SB25_6-8, and SB25_28-30 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

G. Metals

Based on the validation effort, all metals results were determined to be valid as reported by the laboratory.

H. Per- and Polyfluoroalkyl Substances (PFAS)

Based on the validation effort, all PFAS results were determined to be valid as reported by the laboratory.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent or trivalent chromium were qualified as a result of the data validation. All reported results for hexavalent and trivalent chromium were determined to be usable as reported.

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3. General Chemistry - Quantitation

No duplicate analysis was documented for cyanide, hexavalent chromium, or for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-8939-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-8939-1

Environmental Analysis



Custody

imental use only

eurofins :

Lancaster Laboratories

Acct. #

COC #610468

Client Informat	ion			T	Matrix	,		1	_	Δ	nalys	sis R	ean	ester	1	_		For Lab Use	Only	
	Acct. #:		_			,	1		Pr		ation					es		FSC:	Olly	
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Project Manager, McMahon	P.O. #:				D G	BLANK	ars	VOCS	SVOC	PCB	The	metals	Chronium	april	ano		re	N=HNO ₃ S=H ₂ SO ₄		NaOH H ₃ PO ₄
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State where samples were collected: For Compliance Yes [l No 🗆		91	Sedi	Potable	TR	of Co	S/12			1-	12/1	1	F	1	PFAS	tal			
Sample Identification	Coll	ected	Grab	Soil X Sediment	Water	other: MRIP	Total # of Containers	121/545 MEL			او	43	Pex. +	F	17	9	0			
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5825-0-2	7/28/202		X	X				X	X	X	X	X	X	X	X	X				
5825-6-8	1	1132	X	X		_		X	X	×	X	X	X	X	X	X				
58 25 - 28-30		1134	X	X				X	X	X	X		X	\times	X	\times				
TBOI- 672820		1500	\times		THA			\times												
MF801-072820		913				X											X			
MFBD2-077820		1005				\times											\times			
SB25-0-2		1250	X	\times													×			
5825-2-4		1300	X	X													X			
8625-4-6		1302	\times	X													X			
8625-6-8	V	1304	X	X													X			
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Requested TAT in business days: W.M.A.H.O.N.O.LAT E-mail address: TANDWITZ GL	tng th	COM	Relinquist	ned by		/			Date		Time	F	Receive	ську	n	-	7		Date	Time
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Type III (Reduced non-CLP) NJ DK	QP TX	TRRP-13		If yes	EDD R	equire	1?	Yes	No				Relina			Con FedE		cial Carrier: Other		
NYSDEC Category A oB MA M	OP CT	RCP	11/25		ecific QC ate QC san	CONTRACTOR OF THE PARTY OF THE					Vo ume.)			Ten	npera	ature	upon	receipt <u>(</u> ,	2 -5	500

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

eurotins	Lancaster Labora Environmental	ntories	Acct. #			up#_	ancas	ter Labo		es En ample		nental use	only			_	C	OC#	610	469
	Client	Information	1				M	atrix					Analys	is Re	queste	d		For Lab Use	Only	
Client: I AN	SAN, DR		Acct. #:									Prese	rvation	and F	iltration	Code	S	FSC:		
Project Name/#: 250 Wooter		202	PWSID #:			Tissue	Ground	Surface [Ment.						SCR#: Preserv H=HCI		Codes Thiosulfate
Project Manager:	Mahon		P.O. #: Quote #:				- 1			Total # of Containers	Mercun	at M						N=HNO ₃ S=H ₂ SO ₄ F=Field Filter	P=h	NaOH H ₃ PO ₄ Other
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The state of the s	2-14			1310	X	X					×									
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\$825	18-20			1316	X		X				X			1						
SB25-	20-22			1318	X	X						X						MOL		
SB25_	22-24			1320		X	-					X		-				101		
5825-	-24-26		1	1327		X						Ê				1		Ha		
Turnarou	ndard Time (TAT) F		(please circ		Relinquis	hed by	· L	tappe	Pre	h		Date 1/28/20	Time 160	OR	seived by	M	laa.	Da		Time \600
	ect to laboratory approva		1000310		Relinquis	hed by	DI	The				Dale	Time	Re	ceived by	00	Va C	Da		Time
Requested TAT in t	ousiness days:	5 LANGA	N. Com		Relinquis	hed by	u	<u></u>	-	_	1	Bale P	7009 Time		ceived by		/	Da	to	Time
E-mail address: 🍮	THOMOMIT	ZC LAIN	Jan.	(OM	Relinquis	hed by			/	/		Date	Time	Re	ceived by	1		Da	te	Time
Type I (EPA Le Equivalent/nor			quired) Raw Data	Only)	Relinquis	hed by	./	/				Date	Time	Re	ceived by	1/		Da Pa	18 by	Time
Type III (Redu	ced non-CLP)	NJ DKQP	TX	TRRP-13		If	ED es, for	DD Req	uirec	1?	Yes	No		Re	linquish UPS		Commer edEx_	rcial Carrier: Other		
NYSDEC Cate	NYSDEC Category A OB MA MCP CT RCP						pecifi	c QC (I				Yes te sample v	No olume.)					n receipt /. 2	-5.5	2°C

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eurotins	Lancaster Laboratories Environmental	Acct.	#			Eurofi Broup		caster Lab		ies En ample		nental use	only	r		(COC	# 61	.04	67
	Client Informa	ition			1			Matrix					Analysis	Reques	ted		For La	b Use Only		
Client: PAY IO	MI 000	Acct. #:		4						1		Prese	rvation ar	nd Filtrati	on Co	des	FSC:_	21/10	12	_
Project Name/#	HN, OPC	PWSID	#-				en	T 0				3					SCR#:		10	
250 Water	Street/17038120	2					Tissue	Ground				Mra					H=HC	reservatio		des sulfate
Project Manager:		P.O. #:						Gre			7	E					N=HN		B=NaC	
Sampler A A	Mahon	Quote #	4.				+			Jers	excurd	五	1 1				S=H ₂ S		P=H ₃ P	-
Ashler	Steppenber	le duoie	F:				imen	ble ES		ntair	Mer	P					F=Fiel	d Filtered Rema		er
State where samples were	For Complian Yes	e: No [Composite	Soil K Sediment	Potable NPDES		Total # of Containers	_									
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Samp	le Identification	Da	te	Time	Grab	Con	Soil	Water	Other:	Pota	F	Pol								
5825	-28-30	7/28	_		X		X			-		X					H	OLD	_	
SBUN	11-0-2			908	X		X				X								- 94-	
SBUN	11-2-4			0910	X		X				X						exty	a volum	e MS	MSD
SBYN				0912	X		X				X									11.24
584				0914	X		X				X									
	V1-8-10			0916	X		X				X									
SBUN				8190	X	1	X				X									
SBUN	11-12-14			0978	×		X				X									
5841				1000	X		X				X									
584		¥	-	958	X		50	1			X									
	nd Time (TAT) Reques		circle	9) /	Reling	ushed	5y//	1 th				204/20	103	Received.	1	Tables	1.1	Date		ne 7)
0.75-77-02	ndard	Rush			Religio	uished	- Jan	man	_	_		Date	Time	Paccived	vey si	affer	our	1/21	10	7:00
(Hush TA) is subje	ect to laboratory approval and surch	arge.)						starpu	Prest			1/28/202	1600	1	Line	1		285015	70 1	600
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	YANO WITZELA			m	Reling	uished	Ву		_	/		Date 1	Time	Received) V			Date	Tirr	ne
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Equivalent/non	Lyne	VI (Raw D	ata C	Only)		inio irac	1						Timbe	80	3 le	/		7280	boo	630
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NYSDEC Cate	NYSDEC Category A o B MA MCP CT RCP							ecific QC ate QC samp				Yes ate sample v	No olume.)		Tempe	100000000000000000000000000000000000000		ot/. 2-	5,5	i

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eurofins Lancaster Laboratories Environmental	Acct. #	F	or Eurofi _ Group		caster Labo		es En ample		nental use	only			COC #610730
Client Informat	on				Matrix					Analysis	Requeste	d	For Lab Use Only
Client: LANGIAN, DPC	Acct. #:					П			Prese	rvation ar	d Filtration	Codes	FSC:
	PWSID #:			ne ne					2				SCR#:
250 Water St/ 170381202	PWSID#:			Tissue	Ground Surface				a				Preservation Codes
Project Magager:	P.O. #:				Sur			7	S		1 1 1		H=HCl T=Thiosulfa N=HNO ₃ B=NaOH
Tull McManon							STS	3	0		111	- 1 1	S=H ₂ SO ₄ P=H ₃ PO ₄
Samples Stappenbeck	Quote #:			Sediment	ble C		Total # of Containers	New	op		111		F=Field Filtered O=Other Remarks
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Sample Identification	Collec	ted .	ubodu	Soil 🔀	<u>-</u>	er:	# IE	6	7		1 1 1		
Sample Identification	Date	Time o	Grab	Soil	Water	Other:	Lota		H				
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SB4 N1-26-28		952 4	<	X					X				Now
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584E2-0-2		1516	X	X				X					1100
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SB4EZ-46		15/2 7	X	X				X					
SB4E2-6-8		1510	X	1				X					
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(Rush TAT is subject to laboratory approval and surchar	ge.)	Pie	ainquisnee	9	ndV.			00	71/10	Time	Received by		Date Time
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E-mail address: TYANOWITZC L		(an) Re	linquished	by			/		Date	Time	Received by	2	Date Time
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Type III (Reduced non-CLP) NJ DKI	QP TX TR	RP-13			EDD Requirements				No		Relinquish UPS	ed by Comr FedEx	mercial Carrier: Other
NYSDEC Category A or B MA MC	CT RC	P			ecific QC (Nate QC sample					No olume.)	Ter	mperature u	pon receipt 1. 2 - 5.5c

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State where samples were	collected: For Comp	liance:				site	Soil X Sediment	Potable NPDES		Total # of Containers	THE	0-1									
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SBHE				1506			X				7										
SBHE				1504	X		X				X										
SBYK	2-16-18			1502	X		×														
SBUE	2-18-20			1500	X		\times				X										
SKHE	2-20-22			1458	'X		X					X							H01	-0	
SBUE	0000			1456	X		X					X							HOL		
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	ndard	Rush	GIIGIE	7)		Isli	les	Stapp	en b	eck	1	7/28/20	160	Cr	1 povisee	1	1		2847		1600
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Eurofins Land	aster Laboratories Environr	mental, LLC • 2	425 N	ew Holland	Pike,	Lanc	aster, l	PA 17601	717-6	556-23	00 • F	OR HELF	COMPLE	TING	FORM	CHEC	CK OUT h	ttps://w	ww.eurofing	us.com/	coc

Page 2279 of 2288

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de eurofins	Lancaster Laborat	ories	Acct. #														C	OC :	#610	728		
	Client Ir	nformation						Matrix					P	nalysis	Red	uest	ed	_		For Lab U	se Only	
Client:	1 000		Acct. #:									Pr		vation a				ies		FSC:		
LANGIA	IV, DIC						e													SCR#:		
Project Name/#: 250 Waver	A/1703212	02	PWSID #:				Tissue	Ground Surface			2									Pres H=HCl	ervation (Codes Thiosulfate
Project Manager:	McMahor)	P.O. #:] Gr] Su		srs	Les									N=HNO ₃ S=H ₂ SO ₄		NaOH H₃PO₄
sampler: Ahle	y Stopper	rbeck	Quote #:				ment	e S		ntaine	Mercu										Remark	Other
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(Rush TAT is subje	ect to laboratory approval	and surcharge.)			Heling	wspea .	Bho	(I).			0	SJUL-	20	7005	- Heci	elved by				_	Date	Time
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rioquesied in in	PMCMAHO	WE LA	NaA	N						1				formative.			/					100000
E-mail address:	YANOWITZ	PLAN	GAN	1	Reling	uished	by		/			Date		Time	Rec	wed by		0			Date	Time
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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-8939-1

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-8939-1

SDG No.:

Lab Sample ID: ICV 410-22126/10 Calibration Date: 07/14/2020 16:05

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YL14V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0,4845	0,4333	0,1000	17.9	20.0	-10.6	30,0
Chloromethane	Ave	0.5222	0,5202	0,1000	19.9	20,0	-0,4	30,0
1,3-Butadiene	Ave	0.3783	0,3965	account of the contract of the	21.0	20.0	4.8	30.0
Vinyl chloride	Ave	0.4884	0,5040	0,1000	20.6	20,0	3,2	30.0
Bromomethane	Ave	0,3588	0,3826	0,1000	21,3	20.0	6,6	30.0
Chloroethane	Ave	0,2906	0.3217	0,1000	22.1	20.0	10,7	30,0
Dichlorofluoromethane	Ave	0,6846	0,7143	11 11 W 12 W 12 W 12 W 1 W 1 W 1 W 1 W 1	20,9	20.0	4.3	30,0
Trichlorofluoromethane	Ave	0.5977	0,7172	0.1000	24,0	20.0	20.0	30,0
n-Pentane	Ave	0.5376	0.5306		19.7	20.0	=1.3	30,0
Ethyl ether	Ave	0,3238	0.3856		23.8	20.0	19.1	30,0
Freon 123a	Ave	0,3156	0.3504		22.2	20.0	11.0	30.0
Acrolein	Ave	2.359	2.343		149	150	-0.7	30.0
1,1-Dichloroethene	Ave	0.2235	0,2571	0.1000	23.0	20.0	15,0	30.0
Acetone	Ave	1,022	1,265	0.1000	186	150	23.9	30,0
Freon 113	Ave	0,2374	0,2383	0,1000	20.1	20.0	0,4	30.0
2-Propanol	Ave	0.7171	0.5755		120	150	-19,8	30.0
Methyl iodide	Ave	0.4461	0,4468		20,0	20.0	0,1	30,0
Carbon disulfide	Ave	0.7224	0.7407	0.1000	20.5	20,0	2,5	30.0
Methyl acetate	Ave	0,4441	0.4388	0.1000	19,8	20.0	-1,2	30,0
Allyl chloride	Ave	0.4681	0.4321		18.5	20,0	-7,7	30.0
Methylene Chloride	Ave	0,2773	0,3080	0,1000	22,2	20,0	11,1	30.0
t-Butyl alcohol	Lin2		1,264		199	200	-0.3	30.0
Acrylonitrile	Ave	0.2178	0.2172		99.7	100	÷0,3	30.0
Methyl tertiary butyl ether	Ave	0.9101	0.8940	0.1000	19.6	20,0	-1,8	30.0
trans-1,2-Dichloroethene	Ave	0,2707	0.2970	0.1000	21,9	20.0	9,7	30.0
n-Hexane	Ave	0,4028	0.4116		20.4	20.0	2.2	30.0
1,1-Dichloroethane	Ave	0,4809	0.5262	0.2000	21,9	20.0	9,4	30.0
di-Isopropyl ether	Ave	0,9888	0,997	**************************************	20.2	20.0	0.9	30.0
2-Chloro-1,3-butadiene	Ave	0,4619	0,4787		20,7	20.0	3,6	30.0
Ethyl t-butyl ether	Ave	0,9143	0.9223	en de la composição de la Composição de la composição de	20,2	20.0	0,9	30.0
2-Butanone	Ave	0.3251	0,3682	0,1000	170	150	13,3	30,0
cis-1,2-Dichloroethene	Ave	0.3146	0.3592	0.1000	22.8	20,0	14.2	30,0
2,2-Dichloropropane	Ave	0,3919	0,4376		22.3	20,0	11,7	30.0
Propionitrile	Ave	1.552	1,633		158	150	5,2	30,0
Methacrylonitrile	Ave	0.2344	0.2401		154	150	2,4	30,0
Bromochloromethane	Ave	0.1767	0.1699	######################################	19.2	20.0	-3.8	30.0
Tetrahydrofuran	Ave	1,623	1,693	en la servició de la companya de la	104	100	4,3	30,0
Chloroform	Ave	0,4931	0.5485	0.2000	22,2	20.0	11.2	30.0
1,1,1-Trichloroethane	Ave	0,4207	0.4724	0,1000	22,5	20.0	12,3	30,0
Cyclohexane	Ave	0,4787	0.5004	0.1000	20.9	20,0	4.5	30,0
1,1-Dichloropropene	Ave	0,3839	0.4219		22.0	20,0	9,9	30,0

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-8939-1

SDG No.:

Lab Sample ID: ICV 410-27654/10 Calibration Date: 07/29/2020 18:17

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624Si1MS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bl29v01.D Conc. Units: ug/L Heated Purge: (Y/N) N

			the second secon				,	
ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.3351	0.1000	17,9	20.0	=10.6	30.0
Chloromethane	Ave	0,4529	0.4887	0.1000	21,6	20.0	7.9	30.0
1,3-Butadiene	Ave	0.2969	0.3344	And the second s	22,5	20.0	12.6	30.0
Vinyl chloride	Ave	0.4156	0.4347	0,1000	20.9	20.0	4.6	30,0
Bromomethane	Ave	0.2846	0.3183	0.1000	22.4	20.0	11,8	30.0
Chloroethane	Ave	0.2339	0.2610	0,1000	22.3	20.0	11.6	30.0
Dichlorofluoromethane	Ave	0.5270	0.5675		21.5	20.0	7.7	30.0
Trichlorofluoromethane	Ave	0.3905	0.4655	0.1000	23,8	20,0	19.2	30.0
n-Pentane	Ave	0.4618	0.4579		19.8	20.0	=0.9	30.0
Ethanol	Ave	0.1521	0.1457	P37/02/1/02/100/100/100/100/100/100/100/100	958	1000	-4,2	30.0
Freon 123a	Ave	0.3063	0.3283		21.4	20.0	7.2	30.0
Acrolein	Ave	2,690	2.159		120	150	-19.8	30.0
1,1-Dichloroethene	Ave	0.2219	0,2705	0,1000	24.4	20.0	21.9	30.0
Acetone	Ave	1,272	1,143	0,1000	135	150	-10.1	30.0
Freon 113	Ave	0.2425	0,2414	0.1000	19.9	20.0	=0.5	30.0
Methyl iodide	Ave	0.4254	0.4491		21.1	20.0	5.6	30.0
2-Propanol	Ave	0,8154	0.7935		146	150	-2.7	30.0
Carbon disulfide	Ave	0.8045	0,8812	0.1000	21,9	20.0	9,5	30.0
Allyl chloride	Ave	0.4553	0.4477		19,7	20.0	=1,7	30.0
Methyl acetate	Ave	0.1942	0.1992	0.1000	20.5	20.0	2,6	30,0
Methylene Chloride	Ave	0,2769	0.3141	0.1000	22,7	20.0	13.4	30,0
t-Butyl alcohol	Ave	1.284	1.286		200	200	0.1	30.0
Acrylonitrile	Ave	0,1015	0.1072		106	100	5.7	30.0
trans-1,2-Dichloroethene	Ave	0.2613	0,3005	0,1000	23.0	20.0	15.0	30,0
Methyl tertiary butyl ether	Ave	0.7155	0.7471	0.1000	20,9	20.0	4.4	30.0
n-Hexane	Ave	0.3864	0.4067		21.0	20.0	5,2	30,0
1,1-Dichloroethane	Ave	0,4804	0.5448	0.2000	22.7	20.0	13.4	30,0
di-Isopropyl ether	Ave	0.9198	0,9708		21.1	20.0	5.5	30.0
2-Chloro-1,3-butadiene	Ave	0,3898	0,4194		21.5	20.0	7,6	30.0
Ethyl t-butyl ether	Ave	0.8018	0.8420	The second secon	21.0	20.0	5.0	30,0
2-Butanone	Ave	0.1268	0,1357	0.1000	161	150	7.0	30.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3500	0.1000	23.7	20.0	18.7	30.0
2,2-Dichloropropane	Ave	0,3557	0,4156		23.4	20.0	16.9	30.0
Propionitrile	Ave	1.834	1.772		145	150	-3.4	30.0
Methacrylonitrile	Ave	0,1105	0.1200		163	150	8.7	30.0
Bromochloromethane	Ave	0.1474	0,1516		20.6	20.0	2.8	30,0
Tetrahydrofuran	Ave	1.517	1,575		104	100	3,9	30.0
Chloroform	Ave	0.4429	0.5032	0.2000	22.7	20.0	13.6	30.0
1,1,1-Trichloroethane	Ave	0.3691	0,4177	0.1000	22.6	20.0	13.2	30.0
Cyclohexane	Ave	0.4942	0,5202	0.1000	21.0	20.0	5.2	30.0
1,1-Dichloropropene	Ave	0,3654	0.4151		22.7	20.0	13.6	30.0

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name	e: Eurofins Lancaster Laboratories	Job No	.: 410-8939-1
SDG No.	:		
Matrix:	Solid	Level:	Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP	PHL	# NBZ	# FBP	# TBP	# TPHd14 #
SB25_0-2	410-8939-1	40	46	53	60	28	48
SB25_6-8	410-8939-2	72	79	75	85	64	90
SB25_28-30	410-8939-3	82	87	87	93	94	101
reconstruction of Control and	MB 410-27713/12-A	75	79	80	86	91	97
	LCS 410-27713/13-A	78	84	81	86	97	93

= DAS 12/7/6

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

Column to be used to flag recovery values

FORM II 8270D

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name	e: Eurofins Lancaster Laboratories	Job No	.: 410-8939-1
SDG No.:	•		
Matrix:	Solid	Level:	Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10	BAPd12 #			
SB25_0=2	410-8939-1	63	57	47 *3		DAS 12/7/2	0
SB25_0-2 RA	410-8939-1 RA	64	58	48 *3	_	DIV 3	
SB25_6=8	410-8939-2	74	85	81	-		
SB25_28-30	410-8939-3	74	83	83			
	MB 410-27711/1-A	76	85	88			
	LCS 410-27711/2-A	83	88	91			

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaste	er Laboratories Job	No.: 410-8939-1			
SDG No.:					
Matrix: Solid	Level: Low Lab	File ID: IG2154.D			
Lab ID: LCS 410-27711/2-A	Cli	ent ID:			
		·			
	SPIKE	LCS	LCS	QC	100 100 100 100 1 1 1 1 1 1 1 1 1 1 1 1
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1 A-Diovano	33 3	13.2	40	21-79	

1

DAS 12/7/20

Column to be used to flag recovery and RPD values FORM III 8270D SIM

Chrom Revision: 2.3 30-Jun-2020 12:05:54 Report Date: 30-Jul-2020 21:43:02

Eurofins Lancaster Laboratories Env. LLC

Data File: Injection Date: \\chromfs\Lancaster\ChromData\HP10976\20200730-6886.b\IG2155.D

30-Jul-2020 19:33:30

Instrument ID:

HP10976

Lims ID:

410-8939-I-1-A

Lab Sample ID:

410-8939-1

Client ID:

SB25 0-2

Imh00956

ALS Bottle#:

6

Operator ID: Injection Vol:

1.0 ul

Dil. Factor:

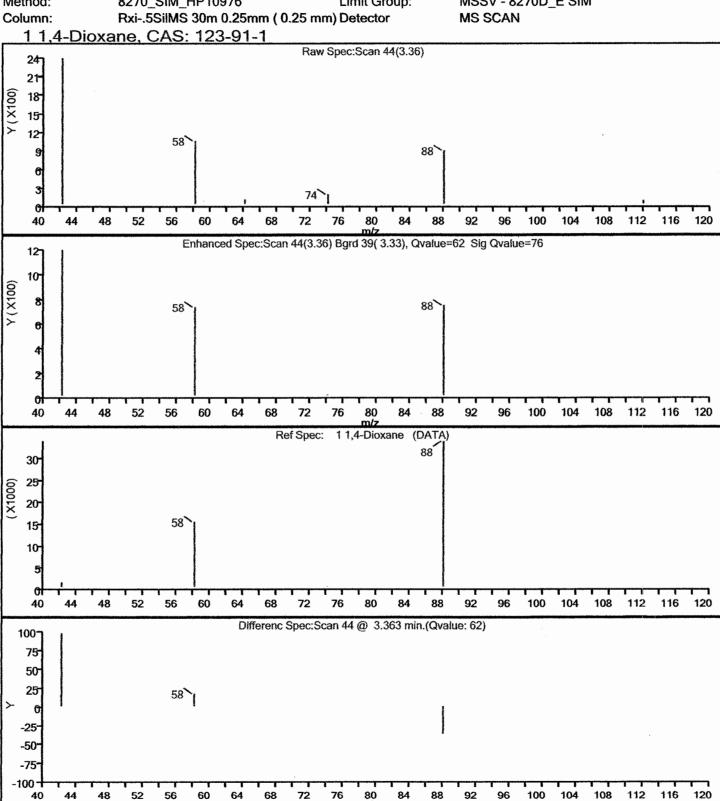
1.0000

Method: 8270_SIM_HP10976 Limit Group:

MSSV - 8270D E SIM

Worklist Smp#:

7



Chrom Revision: 2.3 30-Jun-2020 12:05:54 Report Date: 31-Jul-2020 18:42:11

Eurofins Lancaster Laboratories Env. LLC

Data File:

\\chromfs\Lancaster\ChromData\HP10976\20200731-6991.b\IG2233.D

Injection Date:

31-Jul-2020 18:00:30

Instrument ID:

HP10976

Lims ID:

410-8939-I-1-A

Lab Sample ID:

410-8939-1

Client ID:

SB25 0-2

lmh00956 ALS Bottle#: 14

Worklist Smp#:

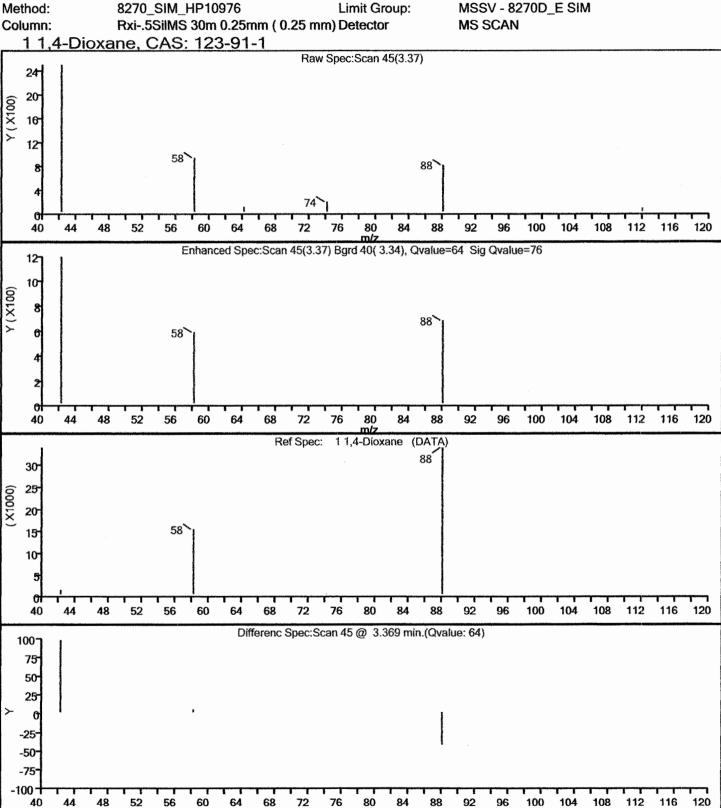
15

Operator ID: Injection Vol:

1.0 ul

Dil. Factor: Limit Group: 1.0000

8270_SIM_HP10976



FORM III PESTICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-8939-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 10PEST20175038.026.D

Lab ID: 410-8939-1 MS Client ID: SB25_0-2 MS

	SPIKE ADDED	SAMPLE CONCENTRATION	MS ICONCENTRATION	MS	QC LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	"
Aldrin	4.23	ND	3.37 J	80	60-117	
alpha-BHC	4.28	ND	ND	0	65-124	F1
beta-BHC	4.23	ND	ND	0	68-129	F1
delta-BHC	4.23	ND	ND	0	45-151	F1
Dieldrin	8.45	ND	6.87 J	81	63-126	
Endosulfan I	4.23	ND	ND	0	62-119	F1
Endosulfan II	8.45	ND	ND	0	65-126	F1
Endosulfan sulfate	8.45	ND	3.59 J	43	71-132	F1
Endrin	8.45	ND	6.96 J	82	86-135	F1
gamma-BHC (Lindane)	4.23	ND	ND	0	68-133	F1
Heptachlor	4.23	ND	2.07 J	49	66-118	F1
p,p'-DDD	8.51	ND	5.02 J	59	69-138	F1
p,p'-DDE	8.45	25	13.0	-136	68-146	F1
p,p'-DDT	8.51	ND	ND	0	67-135	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-8939-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 10PEST20175038.027.D

Lab ID: 410-8939-1 MSD Client ID: SB25_0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD %	0/0	QC L1	IMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
Aldrin	4.27	2.79 J	65	19	50	60-117	
alpha-BHC	4.32	ND	0	NC	50	65-124	F1
beta-BHC	4.27	ND	0	NC	50	68-129	F1
delta-BHC	4.27	ND	0	NC	50	45-151	F1
Dieldrin	8.54	2.48 J	29	94	50	63-126	p F2 F1
Endosulfan I	4.27	ND	0	NC	50	62-119	F1
Endosulfan II	8.54	ND	0	NC	50	65-126	F1
Endosulfan sulfate	8.54	ND	0	NC	50	71-132	F1
Endrin	8.54	6.87 J	81	1	50	86-135	F1
gamma-BHC (Lindane)	4.27	ND	0	NC	50	68-133	F1
Heptachlor	4.27	ND	0	NC	50	66-118	F1
p,p'-DDD	8.59	4.28 J	50	16	50	69-138	F1
p,p'-DDE	8.54	27.4	34	71	50	68-146	F2 F1
p,p'-DDT	8.59	ND	0	NC	50	67-135	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM II PESTICIDES SURROGATE RECOVERY

Lab Nam	ne: Eurofins	Lancaster	Laboratories	Job No.:	410-8939-1
SDG No.	:				

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SB25_0-2	410-8939-1	89	78	113	116
SB25_6-8	410-8939-2	62	57	91	92
SB25_28-30	410-8939-3	68	61	94	96
	MB 410-27704/1-A	58	55	59	58
	LCS 410-27704/2-A	42	41	106	107
SB25_0-2 MS	410-8939-1 MS	85	77	92	96
SB25_0-2 MSD	410-8939-1 MSD	56	56	127	645 X

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-8939-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB25_0-2	410-8939-1	59	58
SB25_6-8	410-8939-2	56	55
SB25_28-30	410-8939-3	57	56
	MB 410-27782/1-A	69	70
	LCS 410-27782/2-A	67	69

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A



December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report - Eurofins Lancaster Laboratories - Soil Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for 42 soil samples, five field blanks, one trip blank, and one equipment blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-9062-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB24 0-2	SB24 2-4	SB24 4-6	SB24 6-8
SB24_8-10	SB24_10-12	SB24_12-14	SB24_14-16
SB24_16-18	SB24_18-20	SB4S_0-2	SB4S2_2-4
SB4S2_4-6	SB4S2_6-8	SB4S2_8-10	SB4S2_10-12
SB4S2_12-14	SB4S2_14-16	SB4S2_16-18	SB4S2_18-20
SB4W2_0-2	SB4W2_2-4	SB4W2_4-6	SB4W2_6-8
SB4W2_8-10	SB4WS_10-12	SB4W2_12-14	SB4W2_14-16
SB4W2_16-18	SB4WS_18-20	MDUP04_072920	MDUP05_072920
MDUP06_072920	MDUP07_072920	MFB03_072920	MFB04_072920
MFB05_072920	MFB06_072920	MFB07_072920	SB4S2_18-19
SB4S2_22-23	SB19_0-2	SB19_6-8	SB19_18-20
SB24_0-2	SB24_6-8	SB24_10-12	TB02_072920
EB01_072920			

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes

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	Data Usability Summary Report		
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – Se Following Sections	ee
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No	
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes	
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes	
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes	

Based on the data review effort, the results are usable, with the following qualifications:

o Volatile Organics

- Results for 1,1-dichloroethene in SB4S2_18-19, SB4S2_22-23, SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12, and for acetone in TB02_072920, were qualified as estimated (J, UJ) due to unacceptable percent differences (%Ds) between the initial calibration (IC) and the IC verification (ICV) standards.
- o Results for 2-butanone in in SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12 were qualified as estimated (J-, UJ) based on loss of sensitivity in the CC standard.
- Results for sec-butylbenzene in SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12, and for vinyl chloride in TB02_072920, were qualified as estimated (J-, UJ) based on low recoveries in the associated LCSs.

o Semi-Volatile Organics (Full Scan)

- Results for all target compounds in SB4S2_18-19, SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12 were qualified as estimated (J-, UJ) with the potential for low bias, based on low recoveries of the associated surrogate compounds.
- Results for benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene in SB4S2_18-19, SB4S2_22-23, SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12, were qualified as estimated (J-, UJ) based on low recoveries in the associated MS and/or MSD.

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o Semi-Volatile Organics (Selected Ion Monitoring)

- Results for 1,4-dioxane in all of the soil samples in this SDG were qualified as estimated (J-, UJ) due to low recoveries in the LCS, MS, and MSD.
- O Positive results for 1,4-dioxane in SB24_10-12 and SB24_6-8 were qualified as tentatively identified (N) based on ion abundances observed in the sample raw data that do not match the abundances exhibited in the reference spectrum. These results were also qualified as estimated with a potential low bias based on spike recoveries. The final qualifier applied is NJ, with indeterminate bias.

o **Pesticides**

- The results for all target pesticide compounds in SB19_6-8, SB19_18-20, SB24_6-8, and SB24_10-12 were qualified as estimated (UJ) due to low surrogate recoveries.
- Results for alpha-chlordane and 4,4'-DDE in SB19_0-2 were qualified as estimated (J+) due to the high decachlorobiphenyl recovery on the column from which these results were reported.
- Results for aldrin, alpha-chlordane, endosulfan I, 4,4'-DDE, dieldrin, 4,4'-DDD, endosulfan II, and 4,4'-DDT in SB24_0-2 were qualified as estimated (J+) due to high recoveries of surrogate compound decachlorobiphenyl on both analytical columns.
- The results for alpha-chlordane, 4,4'-DDE, and 4,4'-DDT in SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12 were qualified as estimated (J-, UJ) due to low matrix spike recoveries.
- Results for aldrin, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II in SB24_0-2 were qualified as estimated (J) due to lack of agreement between the two column measurements.
- Based on professional judgment, results for alpha-chlordane, dieldrin, aldrin, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II in SB24_0-2 were qualified as tentatively identified and estimated (NJ) due to possible interferences from Aroclor peaks in the sample.

o PCBs

- The results for Aroclor 1254 and Aroclor 1260 in SB24_0-2 were qualified as estimated (J+) due to high recoveries of surrogate compound decachlorobiphenyl on both analytical columns.
- The result for Aroclor 1260 in SB24_0-2 was qualified as estimated (J) due to lack of agreement between the two column measurements.

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 Total Aroclors is determined by summing the concentrations of any individual Aroclors detected in a sample. When any of the individual Aroclor results is qualified, the result for total Aroclor is likewise qualified

Herbicides

The results for Silvex in SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12 were qualified as estimated (UJ) due to low surrogate and LCS recoveries on both analytical columns.

o <u>Metals</u>

- o Results for Mercury in SB24_2-4 was qualified as estimated due to elevated relative percent difference between the sample and its laboratory duplicate.
- Results for Mercury in SB24_0-2, SB24_4-6, SB24_6-8, SB24_8-10, SB24_10-12, SB24_12-14, SB24_14-16, SB24_16-18, SB4W2_4-6, SB4W2_6-8, SB4W2_8-10, SB4W2_10-12 and SB4W2_12-14 were qualified as estimated (J, UJ) due to low post spike recoveries.

o Cyanide

 The result for total cyanide in SB24_10-12 was qualified as estimated (UJ) based on low recovery in the associated LCS.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - Trip Blanks
 - Surrogate recoveries
 - o LCS/LCSD recoveries
 - MS/MSD recoveries
 - Internal standards

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- o Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- A "T" flag was present in the EDD for a number of results. This data flag was not present
 on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs
 are formatted with NYSDEC-specific data qualifiers for submission to the agency, although
 this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory responded that these peaks are checked both by the analyst and during a secondary level review of the calibration data.
- Four ICVs were listed on the SVOCs Form 5 for the IC. The purpose or identification of these ICVs are not provided in the data package. Summary and raw data for only one of the ICVs (6/2/20 @ 14:20) was provided. It was assumed that only the ICV provided was analyzed is support of the data reported with this SDG.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Results for alpha-chlordane were not reported on the pesticides laboratory control sample or matrix spike/matrix spike duplicate summary forms. These results were evaluated based on the available raw data.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did
 not match the responses found in the raw data. According to the laboratory, the
 discrepancies are because peak heights are reported in the raw data, but peak areas are
 reported on the summary forms. Corrected documentation was not provided by the time
 this report was issued; however, the data can be reassessed if corrections are

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subsequently provided. . Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.

- Raw data for barium and/or zinc in samples SB4S2_18-19, SB4S2_22-23, SB19_6-8, SB19_18-20, SB24_6-8 and SB24_10-12 analyzed 8/03/20@14:30 17:47 were not included in the data package. Concentrations for these analytes could not be verified at this time.
- MDLs for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening CCVs and CCBs. The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.
- No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

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Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of July 29, 2020. The samples were received by the laboratory on the same day as sample collection. Two of the cooler temperatures on receipt at the laboratory were acceptable (3.3°C and 3.9°C; QC 4°C ±2°C). The third cooler temperature (0.5°C) was slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

1. Calibration

Two ICs were reported in support of sample analyses (Instrument 9355 – waters; Instrument 9953 – soils). All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable.

ICV standards were analyzed in association with each IC. All ICV responses were acceptable (<20 %D) with the exceptions detailed below:

Instrument/ICV	Compound	%D	Affected Samples	Qualifiers Applied
9355 – 7/14/20	acetone	23.9	TB02_072920	J, UJ
9953 – 7/29/20	1,1-dichloroethene	21.9	SB4S2_18-10 SB4S2_22-23 SB19_0-2 SB19_6-8 SB19_18-20 SB24_0-2 SB24_6-8 SB24_10-12	J, UJ

Results as detailed above were qualified as estimated $(J,\,UJ)$ without directional bias, based on unacceptable %Ds in the ICVs.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:



Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
9355 - 8/3/20 @ 9:44	acetone	+21.5	TB02_072920	None
9953 – 7/20/20 @ 19:29	1,4-dioxane	+45.5	SB4S2_18-10	
	n-propylbenzene	+22.3	SB4S2_22-23	
	1,3,5-trimethylbenzene	+23.4	SB19_0-2	
	tert-butylbenzene	+25.0	SB19_6-8	
	1,2,4-trimethylbenzene	+23.1		
	n-butylbenzene	+30.9		
9953 – 7/31/20 @ 9:29	2-butanone	-22.6	SB19_18-20	J-, UJ
	1,4-dioxane	+47.4	SB24_0-2	None
	n-butylbenzene	+23.8	SB24_6-8 SB24_10-12	

%Ds representing an increase in instrument sensitivity indicate the potential for high bias. None of these analytes were detected in the associated samples, therefore, no qualification was necessary. The %D for 2-butanone represents a decrease in instrument response, suggesting the potential for low bias. On this basis, results for 2-butanone in samples as detailed above are qualified as estimated (J-, UJ).

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD)

One LCS/LCSD pair was prepared and analyzed with each analytical batch. Recoveries (70-130%) and precision (<30%) were acceptable, with the exceptions noted below:

Analyte	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS 28413					
Sec-butylbenzene	66	а	а	SB19_18-20 SB24_0-2 SB24_6-8 SB24_10-12	J-, UJ
LCS 28867					
Vinyl chloride	64	а	а	TB02_072920	J-, UJ

a-acceptable

The result for vinyl chloride in TB02_072920 and for sec-butylbenzene in the samples detailed above, were qualified as estimated (J-, UJ) with the potential for low bias based on low LCS recoveries.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

One IC (Instrument HP11165) was reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard was analyzed following the IC and all

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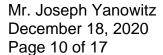
%Ds were acceptable. It was noted that laboratory flags indicating the potential for peak saturations were displayed on two of the quantitation reports of the highest concentration IC standards for one or two of the PAH surrogate compounds. There was no indication in the narrative, or elsewhere in the data package that the laboratory acknowledged or addressed this issue.

A single CC standard was analyzed in support of the sample analyses, and all percent differences were acceptable (<20%D) for the target compounds.

2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB4S2_18-19	2-Fluorophenol	64	All target compounds	J-, UJ
	Phenol-d₅	65		
	Nitrobenzene-d ₅	63		
	2-Fluorobiphenyl	58		
SB19_0-2	2-Fluorophenol	58		
	Phenol-d₅	60		
	Nitrobenzene-d ₅	66		
	2-Fluorobiphenyl	66		
SB19_6-8	2-Fluorophenol	57		
	Phenol-d₅	60		
	Nitrobenzene-d ₅	67		
	2-Fluorobiphenyl	67		
SB19_18-20	2-Fluorophenol	55		
	Phenol-d₅	55		
	Nitrobenzene-d ₅	58		
	2-Fluorobiphenyl	56		
SB24_0-2	2-Fluorophenol	58		
	Phenol-d₅	60		
	Nitrobenzene-d ₅	66		
	2-Fluorobiphenyl	64		
SB24_6-8	2-Fluorophenol	59		
	Phenol-d₅	59		
	Nitrobenzene-d ₅	65]	
	2-Fluorobiphenyl	65	1	
SB24_10-12	2-Fluorophenol	59		





Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
	Phenol-d ₅	59		
	Nitrobenzene-d ₅	64		
	2-Fluorobiphenyl	61		

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

3. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<50) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB19_0-2					
Benzo(a)anthracene	64	а	а	SB4S2_18-19	J-, UJ
Benzo(a)pyrene	65	а	а	SB4S2_22-23	
Benzo(k)fluoranthene	60	а	а	SB19_0-2	
Chrysene	65	а	а	SB19_6-8 SB19_18-20	
Fluoranthene	50	а	а	SB24 0-2	
Indeno(1,2,3-cd)pyrene	56	65	а	SB24_6-8	
Pyrene	57	а	а	SB24_10-12	

a-acceptable

Results for the target compounds in the samples as detailed above, were qualified as estimated (J-, UJ) with the potential for low bias, based on low MS and/or MSD recoveries.

4. Internal Standards

Retention times for internal standards in one or more of the CC standards analyzed in association with the soil samples were early for one or all six of the IS compounds. As the shifts appear similar for these IS compounds, it is assumed that the column was trimmed, or other minor maintenance gave rise to the shift(s). All IS RTs in the analyses associated with the CC were acceptable and matched the applicable CC standard well. Identification and quantitation of the target compounds associated with each IS in the applicable CC were unaffected by the shift(s), and the shift(s) was/were reflected in the associated sample analysis, therefore, no action was warranted on this basis.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. LCS

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One LCS was prepared and analyzed with the analytical batch. Recovery (validation limits: 70-130%) was unacceptable:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
1,4-Dioxane	38	All soil samples in the SDG	J-, UJ

Results for 1,4-dioxane in all of the soil samples were qualified as estimated (J-, UJ) with potential low bias, based on low recovery in the associated LCS.

2. MS/MSD

One MS/MSD pair was prepared and analyzed with the analytical batch. Precision (criteria: <50% RPD) between the spikes was acceptable, however, both recoveries were low (validation limits: 70-130%):

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB19_0-2					
1,4-Dioxane	35	34	а	All soil samples in the SDG	J-, UJ

a-acceptable

Results for 1,4-dioxane in all of the soil samples were qualified as estimated (J-, UJ) with potential low bias, based on low recovery in the associated MS and MSD.

3. Analyte Identification

The ratio between the primary and secondary ions as displayed in the spectral raw data for 1,4-dioxane in sample SB24_6-8 and SB24_10-12, showed very poor agreement with the ratio of the same masses in the reference spectrum. Based on poor agreement with the reference spectra, the results for 1,4-dioxane in SB24_6-8 and SB24_10-12 were qualified as tentatively present (N) by the validator. The lab replied to a request for documentation of ion abundances from the standards analyzed on the instruments used for sample analysis, that for two of the applicable CCVs, ratios of the secondary ion to primary are 88% or 77%.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:



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Surrogate / Column Sample TCX/1 TCX/2 DCB/1 DCB/2 SB19 0-2 а 133 а а SB19 6-8 49 48 а а SB19_18-20 53 49 66 а SB24 0-2 212 198 а а SB24_0-2DL а а 277 207 SB24 6-8 55 49 а а SB24_10-12 48 45 а а

a-acceptable

The results for all target pesticide compounds in SB19_6-8, SB19_18-20, SB24_6-8, and SB24_10-12 were qualified as estimated (UJ) due to low surrogate recoveries. Results for alphachlordane and 4,4'-DDE in SB19_0-2 were qualified as estimated (J+) due to the high DCB recovery on the column from which these results were reported. Results for aldrin, alphachlordane, endosulfan I, 4,4'-DDE, dieldrin, 4,4'-DDD, endosulfan II, and 4,4'-DDT in SB24_0-2 were qualified as estimated (J+) due to high recoveries of surrogate compound DCB on both analytical columns.

2. Matrix Spike (MS)Matrix Spike Duplicate (MSD):

Sample SB24_0-2 was prepared as an MS/MSD pair in association with the sample analyses reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R, RPD<30) with the exceptions below:

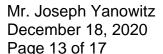
Parent Sample: SB24_0-2						
Parameter	MS %R Column 1 / 2	MSD %R Column 1 / 2	RPD Col. 1 / 2	Samples Affected	Qualifiers Applied	
alpha-Chlordane	65 / 69	a/a	a/a	SB19_0-2	J-, UJ	
4,4'-DDE	68 / 69	a/a	a/a	SB19_6-8		
4,4'-DDT	61 / 69	a/a	a/a	SB19_18-20 SB24_0-2 SB24_6-8 SB24_10-12		

a-acceptable

The results for alpha-chlordane, 4,4'-DDE, and 4,4'-DDT in SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12 were qualified as estimated (J-, UJ) due to low MS recoveries.

3. Compound Identification and Quantitation

Reported target compounds were identified based on the presence of peaks within the established retention time windows on both columns. With the exceptions noted below, the higher of the two column measurements was reported, as specified by the method.





The relative percent difference (RPD) between the two column measurements was acceptable (<40 RPD) for compounds detected in each sample, with the exceptions noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB24_0-2	Aldrin	5.5 J	2.3 J	81
	Endosulfan I	8.4	16	62
	4,4'-DDE	15	35	81
	4,4'-DDD	5.1	8.5	51
	Endosulfan II	16	28	55

Results for aldrin, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II in SB24_0-2 were qualified as estimated (J) due to lack of agreement between the two column measurements.

For SB24_0-2, the laboratory reported the higher concentration for alpha-chlordane, dieldrin, and 4,4'-DDT but reported the lower concentration for aldrin, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II. Aroclor 1254 and Aroclor 1260 are present in the sample, the patterns for these Aroclors are clearly visible in the sample chromatograms for the pesticide analyses, and the reported pesticide compounds elute within the Aroclor patterns. It appears that the laboratory selected pesticide peaks to report that were not visible in the Aroclor calibration standard, although no explanation for its approach was provided in the data package. Since distinct peaks unrelated to an Aroclor pattern are visible in the chromatograms on both columns for 4,4'-DDT, this analyte is appropriately identified and quantified based on professional judgment. For the remaining compounds reported in SB24_0-2, however, the identifications are not confirmed due to possible interferences from the Aroclors present in the sample. Results for alpha-chlordane, dieldrin, aldrin, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II in SB24_0-2 were qualified as tentatively identified and estimated (NJ) on this basis.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate / Column					
Sample	TCX/1	TCX/2	DCB/1	DCB/2		
SB19_18-20	а	а	67	а		
SB24_0-2	а	а	151	184		

a-acceptable

The results for Aroclor 1254 and Aroclor 1260 in SB24_0-2 were qualified as estimated (J+) due to high recoveries of surrogate compound DCB on both analytical columns.

Based on professional judgment, since three of four surrogate recoveries were acceptable in SB19_18-20 and no target Aroclors were detected in the sample, no action was taken due to the low DCB recovery.



2. Compound Quantitation

Detected Aroclor concentrations were correctly calculated and reported. The higher of the two column measurements was reported, as specified by the method. RPDs between the two column concentrations were acceptable (QC ≤40 RPD), except for Aroclor 1260 in SB24_0-2 (59 RPD). The result for Aroclor 1260 in SB24_0-2 was qualified as estimated (J) due to lack of agreement between the two column measurements.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate	e / Column
Sample	DCPAA / 1	DCPAA / 2
SB19_0-2	61	58
SB19_6-8	59	63
SB19_18-20	60	63
SB24_0-2	63	59
SB24_6-8	59	60
SB24_10-12	64	66

The results for Silvex in SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for one LCS associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCS were below the minimum acceptance limit (QC 70-130%R), as noted below:

Analyte	LCS %R Column 1	LCS %R Column 2	Samples Affected	Qualifier Applied
LCS 410-28653/2-A				
Silvex	53	55	SB19_0-2	UJ
			SB19_6-8	
			SB19_18-20	
			SB24_0-2	
			SB24_6-8	
			SB24_10-12	

a-acceptable

The results for Silvex in SB19_0-2, SB19_6-8, SB19_18-20, SB24_0-2, SB24_6-8, and SB24_10-12 were qualified as estimated (UJ) due to low LCS recoveries.

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G. Metals

1. Laboratory Duplicates

Laboratory duplicate analyses were performed on samples SB4W2_4-6, SB4W2_14-16, SB24_2-4 and SB4W2_2-4. The relative percent differences (RPDs) were acceptable (<50%) for all sets except SB24_2-4(199%RPD). Results for SB24_2-4 were qualified as estimated (J) due to elevated RPD between the sample and its laboratory duplicate.

2. Matrix Spike / Matrix Spike Duplicate / Post Spike

Samples SB4W2_4-6, SB4W2_14-16, SB24_2-4 and SB4W2_2-4 were prepared as MS/MSD pairs in association with the sample analyses reported in the data package. Percent recoveries and RPDs were acceptable (75-125%R, RPD<50) with the exceptions below:

Analyte	MS %R	MSD %R	PS %R	Affected Samples	Qualifiers Applied
Mercury (SB4W2_4-6)	N/A	N/A	-11	SB24_0-2	J, UJ
				SB24_4-6	
				SB24_6-8	
				SB24_8-10	
				SB24_10-12	
				SB24_12-14	
				SB24_14-16	
				SB24_16-18	
				SB4W2_4-6	
				SB4W2_6-8	
				SB4W2_8-10	
				SB4W2_10-12	
				SB4W2_12-14	
				SB24_2-4	
				SB4W2_2-4	
				SB19_0-2	
				SB19_6-8	
				SB19_18-20	
Mercury (SB4W2_2-4)	NC	NC	55	SB4W2_2-4	J

N/A – Not Applicable (>4x spike)

NC – Not Calculated (>4x spike)

Results for mercury were qualified as estimated (J, UJ) due to low post spike recoveries. The MS/MSD recovery limits were not applicable or not calculated due to sample concentration exceeding the spike added at greater than four times. However, the post spikes were spiked at levels greater that four times the sample concentration and should have been recoverable.

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H. Per- and Polyfluoroalkyl Substances (PFAS)

Based on the validation effort, all PFAS results were determined to be valid as reported by the laboratory.

I. General Chemistry

1. Total Cyanide

a. Laboratory Control Sample (LCS)

Recovery for total cyanide in the LCS for analytical batch 28321 was unacceptable (86%; QC limits: 90-110%). Only SB24_10-12 was associated with this analytical batch. Based on low recovery in the associated LCS, the result for total cyanide in SB24_10-12 was qualified as estimated (J-) with potential low bias.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent or trivalent chromium were qualified as a result of the data validation. All reported results for hexavalent and trivalent chromium are usable as reported.

3. General Chemistry - Quantitation

No duplicate analysis was documented for cyanide, hexavalent chromium, or for the percent solids/percent moisture determinations. Without these data, no assessment of precision for these parameters can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-9062-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-9062-1

Environmental Analysis



Custody

onmental use only

neurofins :

Lancaster Laboratories Environmental

Acct. #_

0-9062 Chain of Custody

COC #610462

Client Informatio	n	-	_	-	-		Ma	trix	-			_	Α.	nalve	ic D	eques	tod	_		Trans ab 1	les Ost	10	
Client:	Acct. #:	_		_	_		IVIA	LIIX			_	Dro				Filtrat		ndaa		For Lab L			
LANGAN, OPC	1								-			FIE	Serv	ation	and	Illiat	T	oues		SCR#2	2019	Ol	0
250 Water Street/170381202	PWSID	#:				Tissue	Ground	Surface			7									Pre:	servatio		odes iosulfate
Project Magager:	P.O. #:						Gro	Sur		u)	total									N=HNO ₃		B=Na	ЮН
Sampler: All Ci 1/1	Quote #:				_	#				ner	T				-					S=H ₂ SO ₄ F=Field F		P=H ₃ F	
to ney stappenbeck						imer	ple	ES		ntai	Z									P=Fleid F	Rema		ner
State where samples were collected: Yes	No E				site	Soil Sediment	Potable	NPDES		of Containers	Meraun												
Sample Identification	С	olled	cted	ap	Composite	TA I	1	Water	Other:	Total #	Z												- 1
	Dat	e	Time	Grab	ပိ	So	W	M	5	То													
5824-0-2	1/29/	20	1448	X		X					X									ana	4711	in	rts mo
SB24_Z-4			1450	X		X					X										1		12/1.2
SB24-4-6			1452	X		X					X												
SB24-6-8			1454	X		X					X												
5BZ4-8-10			1456	X		X					X				\neg			+					
SB24-10-12			1455	X		X					X				1		+	+					
SB24_12-14			1500	X		X					X					\neg							
SB 24-14-16			1502	文		X					X				\neg			_					
SB 24-16-18			1504	X		X					V				\neg		+	+					
5824-18-20		/	1500	X		X	,				X												
Turnareund Time (TAT) Requested	(please	circle)	1	Relind	ished	by	//	-1	/			Date	1	Time	F	eceivoù	by /	1.	0-	/	Date	11	ime
	lush		/	1	12	46	es W	all	a			7/24	M	10%	50	C	he	4	sky	paul	7/27,	/20	700
(Rush TAT is subject to laboratory approval and surcharge	.)		-	Heling	ushed	19	100.	20	0	2	1. 1	Date	7	time		eceived	by	1	/"	1-	7-29-	7	ime
5				Relingu	<u> </u>	SW	wy	134	7/1	du	Jen	7/19/ Date	1	7/29		4		40	De	e.			16/5
Requested TAT in business days:	SIAN	. Ca	M	rigility	1	1//	1	Me	~ .		/	7-29-		2/0 ₆	0	eceived	Бу		-		Date	"	lme
E-mail address: JYANOWITZOLA	NGA	V.C	om	Relinqu	lished	by.	10	ac-		1		Date		Time		eceived	by	/			Date	T	ime
Data Package Options (circle if re					~				/								/	1	1				
Type I (EPA Level 3 Type VI (Paw Dr	ata O	nka	Relinqu	iished	by		/				Date	7	Time	F	eceived	бу /	1			Date 1	DIT	C. oygi
Equivalent/non-CLP)	naw Da	ata O	iny)				,									14	1	1/1	/	4	189	PAR	ditt)
Type III (Reduced non-CLP) NJ DKQF	э Т	X TF	RP-13			If yes	EDI , form	Req	quired	?	Yes	No			F	Relinqu			ommer dEx_	rcial Carrie		00	0
NYSDEC Category A oB MA MCP	C	CT RO	CP									Yes te samp			1					n receipt (0	9.	С

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Lancaster Laboratories Environmental	Acct. #			oup#_	ancaster La		ries Er Sample		mental use	only		_ >	COC	# 61	0463
Client Informatio	170			1	Matri	x	T				Request		For La	b Use Only	
LANGAN, DR	Acct. #:								Prese	ervation a	nd Filtratio	n Codes	FSC:_		
Project Name/#	PWSID #:			9	7	_	1	_					SCR#:		
250 Wester St/170331202				Tissue	Ground	lac		m	13				H=HC	reservatio	n Codes T=Thiosulfate
Project Monager: McMahon	P.O. #:						STS	lenc	3				N=HN S=H ₂ S		B=NaOH P=H₃PO₄
Sampler: Ashley Stappenbeck	Quote #:	n P G		ment	ole	2	Total # of Containers	Hold-total Mercun	Meru				13219393	d Filtered (D =Other
State where samples were conected: For Compliance: Yes	No 🗆			Composite Soil X Sediment	Potable		of Co	14	ofer						
Sample Identification	Colle	ected	Grab	Composite	Water	Other:	tal #	610	10						
	Date	Time	Ö	ပိုက်	Š	ő	۴	I							
SB24-20-22	7/29/20	1508	M	X	1			X						HOLD	
5324-22-24	1	1510	X	12	9			X						HOLD	
5824-24-26		1512	X	X				X						HOLD	
8824-26-28		1514	X	1/2	2			18						HOLD	THE
SB24-28-30		1516	N					IX						HOLD	
58452-0-2		920	X	ľx	4				X				120		
58452-2-4		922	X	1×					X						
58452-4-6		974	X		9				X						
SB452-6-8		924	N		>				X						
58452-8-10	1	928	70	17	9				×			,	17		
Turnaround Time (TAT) Requested	(please circle		Relingy	shed by	2	- 0	1	1	Daje /	Time 1645	Received by		1	Date	Time
	Rush		U	ghli	4864	mer	bel	1	7/29/21	1645	1	MADL	10w	7-29-2	1645
(Rush TAT is subject to laboratory approval and surcharge	1.)		Relinqui	shed by	0	1	-	9	Date 7-10	Time	Received by			Date	Time
5			Relinqui	A L	in all	w	2		7-19-10 Date	- 10 W	D		_/		
Requested TAT in business days:	AN LOM		riciniqui	Silou dy			10	/	Date	Time	Received by			Date	Time
E-mail address: TYANDW IT 20 LA	NGAN.	com	Relinqui	shed by			/		Date	Time	Received by	/.		Date	Time
Data Package Options (circle if re						/					/	///	1		
Type I (FPA Level 3	(Raw Data C	Only)	Relinqui	shed by	./				Date	Time	Received by	Link	/	90tg/9	21212
Type III (Reduced non-CLP) NJ DKQF	P TXT	RRP-13		If v	EDD R	equire	d?	Yes	No		Relinquis UPS		ommercial Ca		
NYSDEC Category A of MA MCP	CTR	RCP	(Site-S	pecific QC icate QC sar	-		COUNTRY		No volume.)			re upon receip	0.703	<u>9</u> °c

eurofins	Lancaster Laboratorio	es	Acct. #			Eurofi Group		ncaster Labo		ies En ample		mental use	only				(coc	#61	0464
	Client Info	rmation	1					Matrix			T		Analysi	s Rea	ueste	d	_	For Lab U	lse Only	
Client: Ax1	SAN, DRC		Acct. #:					пп					rvation				es	FSC:	- and	
Project Name/#:	STIN, DIC		PWSID #:				Pe											SCR#:		
250 Water	r St/170381 2	202	PWSID #:				Tissue	Ground			-	5			1			Pre:	servation	Codes Thiosulfate
Project Manager:	McMahon Stappenber		P.O. #:	and a] Gr	-	ars	Mun.	Star Clu						N=HNO ₃ S=H ₂ SO ₄	В	=NaOH =H ₃ PO ₄
Sampler Ashley	Stappenbed	che	Quote #:				Soil K Sediment	SE CE		Total # of Containers	Men	Z Z		1	1				iltered O	=Other
State where samples were NY	collected: For Com	es 🗆	No 🗆			site	Sedi	Potable NPDES		of Co		1)								
Samp	le Identification		Colle	ected	ap	Composite		Water	Other:	# le	四五	10								. 1
			Date	Time	Grab	ပိ	So	_ ∧a	otto	To	,	工								
513457	2_10-12		7/29/20	930	X		X				X									
	2-12-14			932	X		X				X									
88482	14-16			934	X		X				X									
SK482	1-16-18			936	X		X				X									- 1
SB482	18-20			938	X		X				X									
	2 - 20-22			940	I.X		X					X						LIA	LD	
The state of the s	1 _ 22 - 24			942	X		X					2							10	
	1-24-26			944	X		V					2					-		OLD	
	2-26-28			946	X		X					8		_		-	_		SLD	
	2-28-30		V	948	X		V					X		_		1		The same of the sa		
	and Time (TAT) Requ	uested (please circle		Reling	ryished	big	0		1	/	Dafe /	Time	Rece	ved by	A	1	HO	Date	Time
	ndard)		ish			lsh	ly	Supp	eal	ecl	1 .	7/29/20	164	5	1	Med	U	lui	7-29-3	0 1/145
(Rush TAT is subje	ect to laboratory approval and	surcharge.)			Relino	uished	X-	1/2	40			Date 7-29-2	Time	Pieca	ved by	0	~		Date	Time
	5				-	~	nu c	XIII	ر ع				2100	0				/		
Requested TAT in b	PMCM HUW	OLA	WEAN	I can	Reling	uished	by				/	Date	Time	Rece	ved by		/		Date	Time
E-mail addrage:	TYANOVIT	1011	Ank in	1 low	Palina	ulshed	hur			/		Dele	-		- 11	/				
	Package Options			יושטיי	Fiching	pusition	Ly		/			Date	Time	Hece	ved by	1			Date	Time
Type I (EPA Lo	evel 3				Reling	uished	by	-	_		-	Date	Time	Rece	ved by	//	1		Date	Tieso
Equivalent/nor		Type VI (F	Raw Data (Only)									NILLOW TO SERVICE AND ADDRESS OF THE PERSON NAMED AND ADDRESS		51	5.11	h		77.Jay	H 2120
Type III (Redu	ced non-CLP)	NJ DKQP	TXT	RRP-13			If yes	EDD Rec	quired	!?	Yes	No			nquish PS	The same of the same of	Comm	ercial Carrie	r:	
NYSDEC Cate	egory A or B N	ИА МСР	CT P	ICP			e-Sp	ecific QC (No olume.)		-			on receipt	3,5-3.9	_°C

Lancaster Laboratories Environmental	Acct. #			Eurofir Proup		ncaster Lab		ies Er Sample		ental use	only			4_	(COC	#61	0465
Client Informatio	n					Matrix		T			Analys	sis F	Reques	ted		For Lab L	Jse Only	
Client: LANGAN, DPC	Acct. #:							1					Filtratio		les	FSC:	10	_
LANGAN, Dre					е е											SCR#	0	0
250 Water St /170381202	PWSID #:				Tissue	Ground			h	,						Pre:	servation T	Codes =Thiosulfate
Project Manager: Paul McMahan	P.O. #:					رة 1 م		ers	the							N=HNO ₃ S=H ₂ SO ₄	1000	B=NaOH P=H ₃ PO ₄
Project Name/8: 250 Water St /170381202 Project Manager: Paul McMahan Sampler: Ashley Songarback	Quote #:				Sediment	es C		Containers	Mercu							F=Field F	Remar	
State where samples were collected: For Compliance: Yes	No 🗆			site		Potable NPDES		of Co	7					1				
Sample Identification	Colle	ected	ap	Composite	Soil	Water	Other:	Total #	Otal									- 1
TO SHOW TO A STATE OF DEATH AND SHOWED THE SHOW	Date	Time	Grab	ပိ	So	×	ō	P										
8B4WZ-0-Z	7/27/20		\sim		X				17							extra analy	rolline red is	MS/MSD
SB4W2-2-4	1 1	1128	X		X				X							"		
SB4W2_4-6		1130	X		X				1							ancha	red as	43/MS
534W2-6-8		1132	M		X				X									
SB4W2-8-10		1134	X		X				X									
SB4W2-10-12		1136	X		Y				X								4	
SB4WZ-12-14		1138	X		X				X									
SB4W2-14-16		1140	Do		X				X							Sotra	valur	MS/MCD
SB4WZ-16-18		1142	1		X				文							Unaig	ua co	1.3/1.180
SB4WZ-18-Z6	-	1144	1		X	2	\vdash		X									
Turnaround Time (TAT) Requested	(please circl		Filming	uished	by	111	11	1		Date /	Time	-	Received t	tr /	1	1.1.	Date	/ Time
/ // // //	Rush			1/1		HOLF	oly	U	9	B4120	10	:38	Ugl	Must	tenny	equers	11071	to 700
(Rush TAT is subject to laboratory approval and surcharge	9.)	1	Beling	usfied	4	1. 84	-0	0.	0. 8	Date /	fime	15	Received b	Y/K	1/1	-	Date	Time
5			0	11	11/	llyxa	201	ny	ld	129/2	16t	10	5	19	Us	~	7-29-1	
Requested TAT in business days: PMCM 4 40 NO LAW E-mail address: TYANOW LTZ CL	GAW	1 0000	Heling	uished	*	1h	-		-	-29-2	Time	. 1	Received t	W		/	Date	Time
E-mail address: TYANOW ITZCL	ANKA	N. lom	Reling	uishori	104 104	Suu	~	-	_	Date	1 2/0	18	Received t	10	/		Date	Time
Data Package Options (circle if r					-,		/				1			/	1 ,			
Type I (EPA Level 3			Reling	uished	by	-/		_		Date	Time		Received t	ny /	-		Date /	Time
Equivalent/non-CLP) Type VI	(Raw Data	Only)			-								9,	Aus	h		1/89	JH 212
	D TVT	TDDD 12			-	EDD Re	quire	d?	Yes	No			Relinqui	shed b	y Comm	ercial Carri	er:	W III
Type III (Reduced non-CLP) NJ DKQ	IXI	TRRP-13			_	s, format: _	100				_		UPS		FedEx_	Othe	r	
NYSDEC Category A o B MA MCF	CT F	RCP				ecific QC sate QC samp			4.00		No volume.)			Гетре	rature up	on receipt	0.5-3,	9.°C

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Lancaster Laboratories Environmental	Acct. #			roup #		caster Lab		es En ample		ientai us	se or	ıly				C	OC#	610	466
Client Information	on			T		Matrix	-			_	A	nalysis F	Reque	sted			For Lab Use	Only	
Client: LANG AN, DPC	Acct. #:					пп	П			Pres	serv	ation and	Filtra	tion C	odes		FSC:		
	PWSID #:				en					7							SCR#:		
250 Water St/170381202	! WSID W.	4,			Tissue	Ground	4		5	13	,						Preser H=HCl		Thiosulfate
Project Manager: Paul McMahen	P.O. #:					Gre	Wasey	ers	Henry	total Marcin							N=HNO ₃ S=H ₂ SO ₄	B= P=	NaOH H₃PO₄
Sampler: Andry Starpehul State where samples were collected: For Compliance:	Quote #:				Sediment	Potable NPDES	2	Containers	3	tota							F=Field Filte	red O= emark	10.000
State where samples were conected.	No 🗆			site	Sec	Pota	9	ō	Z	1									
Sample Identification	Coll	ected	Grab	Composite	Soil	Water	Other:	Total #	Defe	HOLD									
5010-10-7	Date	Time	Ö	ŭ	S	3	ŏ	P	1	4					-				
584W2_20-22	7/29/20	1146	X	-	\approx					X	-			-	-				
SB4WZ_ 72-24		1148	\otimes	-	\Leftrightarrow		-		-		-			-	+				
SB4WZ- 24-76 SB4WZ- 26-28	-	1150	$\langle \rangle$	-	Ş					\bigcirc	\dashv			+	+				
SK4WZ - 78-30		1154	8	-	\Diamond					☆	\dashv			+	+	+			
M DUPO4 -072920		11 54	\sim		\Diamond				V						+			_	
MDUP05-072920		-	X	'	V				\Rightarrow										
MDWP06_072920		-	X		X				X										
MOUPO7-072720		-	X		X				X							1			
MFB03-072920		1132	X			,	X		X					1	/	1/	27		
Turnaround Time (TAT) Requested		e)	Relingt	shed t	by),	42	Tou	10-11	,	罗田	120	1645	Receive	d by	1	1	7-	19-Jo	Time
	Rush		Beling	uisheda	Lu Ca	SIG	pre	yer		Date		Time	Placeive	I All	a	lu		ate	1645 Time
(Rush TAT is subject to laboratory approval and surcharg	e.)	1.0	. 0	4	3	Bui				7-29-	3	2128	-	9-1					
Requested TAT in business days:	JG 10W		Reling	sistled t	by				/	Date	00	Time	Receive	d by	/	/	D	ate	Time
E-mail address: TYANOWITZE	ANGH	N-COM	Reling	uished t	by		-	/		Date		Time	Receive	ed by	2	l _{op}	D	ate	Time
Data Package Options (circle if	required)						/							/		1			
Type I (EPA Level 3 Equivalent/non-CLP) Type VI	(Raw Data	Only)	Relinqu	uished t	by	/				Date		Time	Receive 9	he	6		9	7291	1212
Type III (Reduced non-CLP) NJ DKC	P TX	TRRP-13			If yes	EDD Re	quire	d?	Yes	No			Relind			omme dEx_	rcial Carrier: Other		Vo
NYSDEC Category A or MA MC	P CT	RCP		Site	e-Sp	ecific QC ate QC samp						No lume.)		Tem	oeratu	re upo	n receipt O	5-3.9	_°C

eurofins Lancaster Laboratories Environmental	Acct. #			rofins La	ncaster Lab		ies En ample		ental u	se onl	У					(CO	C#	610	0554
Client Informat	ion	_	_		Matrix					An	alys	is R	eque	sted	-	_	Fo	r Lab Us	e Only	
CHENT: LANGIAN, OPC	Acct. #:						1		Pre					ion C	odes		FS		2000-021	
				0													SC	R#:		
250 Water St/170301202	PWSID #:			Tissue	Ground	8				4	SUNS	1	teris				H=	Prese HCI	ervation T:	Codes =Thiosulfate
Project Manager As Paul McMahon	P.O. #:] Gr	hlater	SIS	un	SOUS C	2 2	July State	T	and a	3 8	*			:HNO ₃ :H ₂ SO ₄		=NaOH =H ₃ PO ₄
Sampler: Bohley Starper beef	Quote #:			Sediment	e Si		ntaine	Merrin	5	A DE	2 2	4	124	182	3		F=		ered O	=Other
State where samples were collected: For Compliance Yes				Site	Potable	Di	Total # of Containers		545	Part 5 to	12x+3+5/11/11/11/28	Bes	THE P	- Diaza	OCA		4			
Sample Identification		ected	Grab	Composite Soil- Soil- Se	Water	Other:	tal #	Otal	rat o	art	ant and	pcBs,	Pex.	To ta						
	Date	Time	Ü	ഠ് ത്	3	ō	P		2 2	2	70	90	5+ ,			_	_			
MF804-077920	7/29/20		X	_		X		$ \mathbf{x} $		_										
MPB05-072920	1	1140	X			X		×						-						
nFB06_072920		1145	X			X		X								3				
MPB07-07920		150	X			X		X	-											
58452-18-19		844	X	IX	1				X	X	0									
513452-22-23		849	X	∇						N)	0									
SB19-0-2		1502	X	\neg	1							2	X	XX			\top			
SB19-6-8		1500	V	TV	1						1	V			X	7				
5819-18-20		1459	X	$\neg \triangleright$	2		-				1	7	X	1	↟	1				
Se24-0-2	NE.	1300			1						1	V	V	W)	XX	7		3		
Turnaround Time (TAT) Requeste	d (please circ		Relinqui	shed by	()		11		Date	/ T	me *		eceived	i by	OX	7			Date_	Time
Standard	Rush	1		shil	eistag	col	relle		1/29/	20	110	15	-	1	T.	1	3	- 7	Date 19-H	1645
(Rush TAT is subject to laboratory approval and surcha	rge.)		Relindui	shed	1/1	1.			Date	T	me	F	lecejved	100		1	_		Date	Time
5			0	7/4	Mar	in		1	79-		7100						/		-	
Requested TAT in business days: PMCM AHLOW CLAN	KAN / A	Na.	Relinqui	shot by				-	Date	T	me	F	Received	i by	/				Date	Time
E-mail address: SYANDWITZGLI	ANIC HOU	1 1000	Relinqui	short by		-			Date	T	me	- 0	Received	(but	-				Date	Time
Data Package Options (circle		Colol	- Inchesqui	silicu by	/				Date	- 1"	ine	ľ	leceived /	7	/	1	1		Jate	Time
Type I (EPA Level 3			Relingui	shed by	-	_	_		Date	Ti	me	F	Received	i by	1	1	-		Date, A	Tirfle
Equivalent/non-CLP)	I (Raw Data	Only)	The Advisor	MUNICIPAL TO	/								9		1.1		1		7,19	MULTA
Type III (Reduced non-CLP) NJ DK	QP TX	TRRP-13		If ye	EDD Res, format:	equire	d?	Yes	No			F	Relinq			omm dEx_	ercial	Carrier: Other_	, VI	M CO
NYSDEC Category A dB MA MG	CP CT	RCP	(A CONTRACTOR OF THE PARTY OF TH	cate QC sam	17		1000									oon re	ceipt().	53,9	_°C

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eurofins	Lancaster Laborat Environmental	ories	Acct. #			Eurofir Group		caster La		ries En Sample		nental (use or	nly			_	C	OC #	610	1553
	Client Ir	nformation	1					Matrix	(T			Α	nalys	sis F	equeste	d		For Lab U	e Only	
Client: LANGE &	IN OPC		Acct. #:					ПГ	1	1		Pre	eserv	ation	and	Filtration	Code	s	FSC:	200	17
0 - 111 - 11	8/17038	1200	PWSID #:				Tissue	Ground Gruface Surface			5			Spa	Z				Pres	ervation	Codes Thiosulfate
Project Manager:	McMaho.	7	P.O. #:					Gro	Mase	STS	Vacs		34	Dure Dure	en	3			N=HNO ₃ S=H ₂ SO ₄	B=	NaOH H ₃ PO ₄
Sampler: Ashly	y Stappent	seek	Quote #:				iment	ole C	3	Containers	721		27 72	E3	3	000			F=Field Fi		Other
State where samples were	collected: For (Yes	No 🗆			osite	Sed	Potable		of Co	1618	A	15/	が	九	7-17					
Sampl	le Identification		Coll	ected	Grab	Composite	Soil Sediment	Water	Other:	Total # of	Part 375/17CL	9	Tage .	25	4	11					
SB2			7/29/20	1302	X		Ž				X	X	X	X	X	7					
	-07292		7	1622	Ŕ				Ì		×	X	×	×	>	7					
1	/							1	1)												
Stan	nd Time (TAT) Rendard	Ri	ush	le)	Relino	quished	by by	ALLE DOLE	lei	200	D. 10	Date Date	40	Time	10	Received by Beceived by	luf	Supp	gebre	Date 2-18	Time 700
Requested TAT in b	PMCMAHO	ELAN	5AW.	Com	Relino	1	A C	de	roy	grec	Lin	929 2-24	b	Time 210	20	Received by	MU	SO -		7-21-10 Date	Time
E-mail address:	Package Option			1. Certy	Relinic	uished	Ъу		/			Date		Time		Received by	1	,		Date	Time
Type I (EPA Le Equivalent/non	evel 3		Raw Data	Only)	Relino	quished	by /					Date		Time		Received by	ule			7. A.L	Raid
Type III (Reduc	ced non-CLP)	NJ DKQP	TX	TRRP-13			If ves	EDD R	equire	d?	Yes	No				Relinquist UPS		Comme	rcial Carrie Other		
NYSDEC Cate	gory A oB	МА МСР	СТ	RCP			e-Spe	ecific QC ate QC san			71.5			No ume.)					n receipt	5-3,9	_°C



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-9062-1

45 12/20

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9062-1

SDG No.:

Lab Sample ID: ICV 410-22126/10 Calibration Date: 07/14/2020 16:05

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YL14V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4845	0.4333	0.1000	17.9	20.0	-10.6	30.0
Chloromethane	Ave	0.5222	0.5202	0,1000	19.9	20,0	-0.4	30.0
1,3-Butadiene	Ave	0.3783	0.3965		21.0	20.0	4.8	30.0
Vinyl chloride	Ave	0.4884	0.5040	0,1000	20,6	20.0	3,2	30.0
Bromomethane	Ave	0,3588	0,3826	0.1000	21.3	20.0	6.6	30.0
Chloroethane	Ave	0,2906	0.3217	0,1000	22.1	20.0	10.7	30.0
Dichlorofluoromethane	Ave	0.6846	0.7143	T. 500 TH	20.9	20.0	4.3	30.0
Trichlorofluoromethane	Ave	0.5977	0.7172	0,1000	24.0	20.0	20.0	30.0
n-Pentane	Ave	0,5376	0.5306		19,7	20,0	-1.3	30.0
Ethyl ether	Ave	0,3238	0.3856	Manager and the second	23.8	20.0	19.1	30.0
Freon 123a	Ave	0.3156	0,3504		22.2	20.0	11.0	30.0
Acrolein	Ave	2.359	2.343	Commence of the second	149	150	-0.7	30.0
1,1-Dichloroethene	Ave	0.2235	0.2571	0.1000	23.0	20.0	15.0	30.0
Acetone	Ave	1,022	1,265	0.1000	186	150	23,9	30.0
Freon 113	Ave	0.2374	0.2383	0.1000	20,1	20.0	0.4	30.0
2-Propanol	Ave	0.7171	0,5755		120	150	-19.8	30.0
Methyl iodide	Ave	0.4461	0.4468		20.0	20.0	0,1	30.0
Carbon disulfide	Ave	0.7224	0,7407	0.1000	20,5	20.0	2,5	30,0
Methyl acetate	Ave	0.4441	0.4388	0.1000	19.8	20.0	-1.2	30.0
Allyl chloride	Ave	0.4681	0.4321		18.5	20.0	-7,7	30.0
Methylene Chloride	Ave	0.2773	0.3080	0,1000	22.2	20.0	11.1	30.0
t-Butyl alcohol	Lin2		1.264		199	200	-0.3	30.0
Acrylonitrile	Ave	0.2178	0.2172		99.7	100	-0,3	30.0
Methyl tertiary butyl ether	Ave	0.9101	0.8940	0.1000	19.6	20.0	-1.8	30.0
trans-1,2-Dichloroethene	Ave	0,2707	0.2970	0.1000	21.9	20.0	9.7	30,0
n-Hexane	Ave	0.4028	0.4116		20.4	20.0	2.2	30.0
1,1-Dichloroethane	Ave	0,4809	0.5262	0.2000	21.9	20.0	9,4	30.0
di-Isopropyl ether	Ave	0.9888	0.997		20,2	20.0	0.9	30.0
2-Chloro-1,3-butadiene	Ave	0,4619	0.4787	The second section of the section of the second section of the section of the second section of the sectio	20.7	20.0	3.6	30.0
Ethyl t-butyl ether	Ave	0.9143	0.9223		20.2	20.0	0.9	30.0
2-Butanone	Ave	0,3251	0,3682	0.1000	170	150	13.3	30.0
cis-1,2-Dichloroethene	Ave	0.3146	0.3592	0.1000	22.8	20.0	14.2	30,0
2,2-Dichloropropane	Ave	0.3919	0.4376		22.3	20.0	11.7	30.0
Propionitrile	Ave	1.552	1,633	ALL CONTRACTOR OF THE PROPERTY OF	158	150	5.2	30.0
Methacrylonitrile	Ave	0,2344	0.2401	and the second difference of the second differ	154	150	2.4	30.0
Bromochloromethane	Ave	0.1767	0.1699		19.2	20.0	-3.8	30.0
Tetrahydrofuran	Ave	1.623	1,693	The second secon	104	100	4.3	30,0
Chloroform	Ave	0,4931	0.5485	0.2000	22.2	20.0	11.2	30.0
1,1,1-Trichloroethane	Ave	0,4207	0,4724	0,1000	22,5	20,0	12,3	30.0
Cyclohexane	Ave	0,4787	0,5004	0.1000	20.9	20.0	4.5	30.0
1,1-Dichloropropene	Ave	0.3839	0.4219	C-2 W 4110	22.0	20.0	9.9	30.0

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9062-1

SDG No.:

Lab Sample ID: ICV 410-27654/10 Calibration Date: 07/29/2020 18:17

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bl29v01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.3351	0.1000	17,9	20.0	-10.6	30.0
Chloromethane	Ave	0,4529	0.4887	0.1000	21.6	20.0	7.9	30.0
1,3-Butadiene	Ave	0,2969	0.3344	a sun , ,	22,5	20.0	12,6	30.0
Vinyl chloride	Ave	0.4156	0.4347	0,1000	20.9	20.0	4.6	30.0
Bromomethane	Ave	0,2846	0,3183	0.1000	22.4	20.0	11.8	30.0
Chloroethane	Ave	0,2339	0.2610	0.1000	22.3	20.0	11.6	30.0
Dichlorofluoromethane	Ave	0,5270	0.5675	10.10 10.10 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10	21.5	20.0	7.7	30.0
Trichlorofluoromethane	Ave	0.3905	0.4655	0,1000	23,8	20.0	19.2	30.0
n-Pentane	Ave	0.4618	0.4579		19.8	20,0	-0.9	30.0
Ethanol	Ave	0,1521	0.1457		958	1000	-4.2	30.0
Freon 123a	Ave	0.3063	0.3283	de como de deservición de la como	21,4	20.0	7.2	30,0
Acrolein	Āve	2,690	2.159		120	150	-19.8	30.0
1,1-Dichloroethene	Ave	0.2219	0.2705	0,1000	24.4	20.0	21.9	30.0
Acetone	Ave	1.272	1.143	0.1000	135	150	-10.1	30.0
Freon 113	Ave	0,2425	0.2414	0.1000	19.9	20,0	-0.5	30.0
Methyl iodide	Ave	0.4254	0.4491		21.1	20.0	5.6	30.0
2-Propanol	Ave	0.8154	0.7935		146	150	-2.7	30.0
Carbon disulfide	Ave	0.8045	0,8812	0.1000	21,9	20.0	9.5	30.0
Allyl chloride	Ave	0,4553	0.4477		19.7	20.0	=1,7	30.0
Methyl acetate	Ave	0,1942	0.1992	0.1000	20.5	20.0	2,6	30.0
Methylene Chloride	Ave	0,2769	0.3141	0.1000	22,7	20.0	13.4	30.0
t-Butyl alcohol	Ave	1.284	1,286	The state of the s	200	200	0.1	30.0
Acrylonitrile	Ave	0,1015	0.1072		106	100	5.7	30.0
trans-1,2-Dichloroethene	Ave	0.2613	0.3005	0.1000	23.0	20.0	15,0	30.0
Methyl tertiary butyl ether	Ave	0,7155	0.7471	0,1000	20.9	20.0	4.4	30.0
n-Hexane	Ave	0,3864	0.4067	T. R. Carlotte Control of the Contro	21.0	20.0	5.2	30.0
1,1-Dichloroethane	Ave	0.4804	0.5448	0.2000	22,7	20.0	13.4	30.0
di-Tsopropyl ether	Ave	0.9198	0.9708		21.1	20,0	5.5	30.0
2-Chloro-1,3-butadiene	Ave	0.3898	0.4194		21.5	20.0	7.6	30.0
Ethyl t-butyl ether	Ave	0.8018	0.8420		21.0	20.0	5.0	30.0
2-Butanone	Ave	0.1268	0.1357	0.1000	161	150	7.0	30.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3500	0.1000	23.7	20.0	18.7	30,0
2,2-Dichloropropane	Ave	0.3557	0.4156		23.4	20.0	16,9	30.0
Propionitrile	Ave	1.834	1.772		145	150	-3.4	30.0
Methacrylonitrile	Ave	0,1105	0.1200		163	150	8.7	30.0
Bromochloromethane	Ave	0.1474	0.1516		20.6	20.0	2.8	30.0
Tetrahydrofuran	Ave	1,517	1.575		104	100	3.9	30.0
Chloroform	Ave	0,4429	0.5032	0.2000	22,7	20.0	13.6	30.0
1,1,1-Trichloroethane	Ave	0.3691	0.4177	0.1000	22,6	20.0	13.2	30.0
Cyclohexane	Ave	0.4942	0.5202	0.1000	21.0	20.0	5.2	30.0
1,1-Dichloropropene	Ave	0.3654	0.4151	**************************************	22.7	20.0	13.6	30.0

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9062-1

SDG No.:

Lab Sample ID: CCVIS 410-28413/3 Calibration Date: 07/31/2020 09:29

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: BA30c50.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.4113	0.1000	165	150	9.7	20.0
Chloromethane	Ave	0.4529	0.4749	0.1000	157	150	4,9	20,0
1,3-Butadiene	Ave	0.2969	0.3317		168	150	11.7	20.0
Vinyl chloride	Ave	0.4156	0.4271	0.1000	154	150	2.8	20.0
Bromomethane	Ave	0.2846	0.2850	0.1000	150	150	0.1	20.0
Chloroethane	Ave	0.2339	0.2333	0,1000	150	150	-0.2	20.0
Trichlorofluoromethane	Ave	0.3905	0.3999	0.1000	154	150	2.4	20.0
n-Pentane	Ave	0.4618	0.5298		172	150	14.7	20.0
Ethanol	Ave	0.1521	0.1709		8420	7500	12.3	20.0
Freon 123a	Ave	0,3063	0.3425	m management and a series of series	168	150	11.8	20.0
Acrolein	Ave	2.690	3.108		1730	1500	15.6	20.0
1,1-Dichloroethene	Ave	0.2219	0.2577	0.1000	174	150	16,2	20.0
Acetone	Ave	1.272	1.249	0.1000	295	300	-1.8	20.0
Freon 113	Ave	0.2425	0.2839	0.1000	176	150	17.1	20.0
Methyl iodide	Ave	0.4254	0.4760		168	150	11.9	20.0
2-Propanol	Ave	0.8154	0.9504		874	750	16.6	20.0
Carbon disulfide	Ave	0.8045	0.9246	0.1000	172	150	14.9	20.0
Allyl chloride	Ave	0.4553	0.4911		162	150	7.9	20.0
Methyl acetate	Ave	0.1942	0.1672	0.1000	129	150	-13.9	20.0
Methylene Chloride	Ave	0.2769	0.2907	0.1000	157	150	5.0	20,0
t-Butyl alcohol	Ave	1,284	1.312		766	750	2.1	20.0
Acrylonitrile	Ave	0.1015	0.0843		125	150	-17.0	20.0
trans-1,2-Dichloroethene	Ave	0.2613	0.2946	0.1000	169	150	12.7	20.0
Methyl tertiary butyl ether	Ave	0.7155	0.6898	0.1000	145	150	-3,6	20.0
n-Hexane	Ave	0.3864	0.4755		185	150	23.0*	20.0
1,1-Dichloroethane	Ave	0,4804	0.5257	0.2000	164	150	9.4	20,0
di-Isopropyl ether	Ave	0.9198	0.9752		159	150	6.0	20.0
2-Chloro-1,3-butadiene	Ave	0,3898	0.4614		178	150	18.3	20.0
Ethyl t-butyl ether	Ave	0.8018	0.8121		152	150	1.3	20.0
2-Butanone	Ave	0.1268	0.0981*	0.1000	232	300	-22.6*	20.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3271	0.1000	166	150	10.9	20.0
2,2-Dichloropropane	Ave	0.3557	0.4148		175	150	16.6	20.0
Propionitrile	Ave	1.834	2.027		829	750	10.6	20.0
Methacrylonitrile	Ave	0.1105	0.0960		326	375	-13.1	20.0
Bromochloromethane	Ave	0.1474	0.1515		154	150	2.8	20.0
Tetrahydrofuran	Ave	1.517	1.667	A	330	300	9.9	20.0
Chloroform	Ave	0.4429	0.4837	0.2000	164	150	9.2	20,0
1,1,1-Trichloroethane	Ave	0.3691	0.4298	0.1000	175	150	16.5	20.0
Cyclohexane	Ave	0.4942	0.5851	0.1000	178	150	18.4	20.0
1,1-Dichloropropene	Ave	0.3654	0.4265	2,200	175	150	16.7	20.0
Carbon tetrachloride	Ave	0.3104	0.3694	0.1000	179	150	19.0	20.0

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Nar	me: Eurofins Lancast	er Laboratories	Job No.: 410	-9062-1
SDG No	.:			
Matrix	: Water	Level: Low	Lab File ID:	YU03L01.D
Lab ID	: LCS 410-28867/5		Client ID:	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	96	LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
1,1,1-Trichloroethane	20.0	21.7	108	67-126	The state of the s
1,1-Dichloroethane	20.0	21.0	105	80-120	
1,1-Dichloroethene	20.0	22.7	113	80-131	
1,2,4-Trimethylbenzene	20.0	20.6	103	75-120	
1,2-Dichlorobenzene	20.0	20.8	104	80-120	
1,2-Dichloroethane	20.0	20.9	105	73-124	
1,3,5-Trimethylbenzene	20.0	21.0	105	75-120	
1,3-Dichlorobenzene	20.0	20.6	103	80-120	
1,4-Dichlorobenzene	20.0	20.7	103	80-120	
1,4-Dioxane	500	512	102	63-146	
2-Butanone	150	144	96	59-135	
Acetone	150	136	91	54-157	
Benzene	20.0	21.2	106	80-120	
Carbon tetrachloride	20.0	21.9	109	64-134	
Chlorobenzene	20.0	21,3	106		S
Chloroform	20.0	21.5	108		V2
cis-1,2-Dichloroethene	20.0	22.2	111	80-125	
Ethylbenzene	20.0	20.9	105	80-120	2.37
Methyl tertiary butyl ether	20.0	19.0	95	69-122	
Methylene Chloride	20.0	21.2	106	80-120	
n-Butylbenzene	20.0	20,3	101	76-120	
N-Propylbenzene	20.0	21.7	108	79-121	
sec-Butylbenzene	20,0	21,5	107	77-120	
tert-Butylbenzene	20.0	20.6	103	78-120	
Tetrachloroethene	20.0	19,1	96	80-120	
Toluene	20.0	21.2	106	80-120	
trans-1,2-Dichloroethene	20.0	21,4	107	80-126	
Trichloroethene	20.0	21.3	107	80-120	
Vinyl chloride	20.0	12,8	64	56-120	
Xylenes, Total	60.0	61.8	103	80-120	7

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 4	110-9062-1
SDG No.	•			
Matrix:	Solid	Level: Low	Lab File I	ID: BA30101.D
Tab ID:	T.CS 410-28413/4		Client ID:	•

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	ક	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	20,0	20.2	101		
1,1-Dichloroethane	20,0	20.7	103		
1,1-Dichloroethene	20,0	22.1	111	73-129	
1,2,4-Trimethylbenzene	20,0	16,6	83	73-120	
1,2-Dichlorobenzene	20.0	17.5	88	76-120	
1,2-Dichloroethane	20.0	19,9	100		
1,3,5-Trimethylbenzene	20.0	16.4	82	73=120	
1,3-Dichlorobenzene	20,0	17.3	87	75=120	
1,4-Dichlorobenzene	20.0	17.4	87		
1,4-Dioxane	500	556	111	62-131	
2-Butanone	150	138	92	57-128	
Acetone	150	129	86		
Benzene	20.0	20.3	102	80-120	***************************************
Carbon tetrachloride	20,0	19,9	100		
Chlorobenzene	20.0	19.0	95	80-120	
Chloroform	20.0	20.3	102	80-120	
cis-1,2-Dichloroethene	20.0	21.6	108	80-125	
Ethylbenzene	20,0	18.1	91	78-120	
Methyl tertiary butyl ether	20.0	19.5	97	72-120	
Methylene Chloride	20.0	20.6	103	76-122	
n-Butylbenzene	20.0	14,9	74	71-121	
N-Propylbenzene	20.0	17.0	85	72-123	AND THE RESERVE OF
sec-Butylbenzene	20.0	13.3	66	7 (00)	*
tert-Butylbenzene	20,0	15.6	78	68-120	
Tetrachloroethene	20.0	17.6	88	73=120	
Toluene	20.0	19,4	97	80-120	
trans-1,2-Dichloroethene	20.0	21.3	107	80-126	A
Trichloroethene	20.0	20.0	100	80-120	
Vinyl chloride	20.0	19.1	96	52-120	****
Xylenes, Total	60.0	54.7	91	75-120	

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Nam	e: Eurofins	Lancaster	Laboratories	Job No	.:	410-9062-1
SDG No.	:					
Matrix:	Solid			Level:	Lo	DW .

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP	PHL	#	NBZ	#	FBP	#	TBP	# T	PHd14 #	-	8
SB4S2_18=19	410-9062-40	64	65	7	63	\dashv	58	\dashv	78	\dashv	96	-	
SB4S2_22-23	410-9062-41	73	75	Ħ	77	7	76		98		105	1	6
SB19_0-2	410-9062-42	58	60	7	66	7	66		77		85	4	18
SB19_6-8	410-9062-43	57	60	1	67	7	67		77		98	—	
SB19_18-20	410-9062-44	55	55	1	58	1	56		70		71	-	8
SB24_0-2	410-9062-45	58	60	-+	66	7	64	-	71		82	+	8
SB24_6-8	410-9062-46	59	59		65		65		83		84	-	0
SB24 10-12	410-9062-47	59	59	-	64		61		84		87	6	
	MB 410-28229/1-A	78	77	1	82	-	82		102		114	1	
45 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	LCS 410-28229/2-A	69	73		76	1	76	1	103	1	108		
SB19_0-2 MS	410-9062-42 MS	70	73	7	78	7	78	7	93		97	1	
SB19_0-2 MSD	410-9062-42 MSD	67	72	7	74		78	7	95	1	97	1	

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

Column to be used to flag recovery values

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	dot	No.:	410-9062-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: GG2860.D

Lab ID: 410-9062-42 MS Client ID: SB19_0-2 MS

		 					-
	SPIKE	SAMPLE	MS	MS	QC		
	ADDED	CONCENTRATION	CONCENTRATION	엉	LIMITS	#	
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC		
Acenaphthene	3700	68	3030	80	61-112		
Acenaphthylene	3710	420	3330	78			7
Anthracene	3710	440	3620	86	67-120		
Benzo[a]anthracene	3700	2300	4660	64		F1	7
Benzo[a]pyrene	3710	2100	4460	65		F1	
Benzo[b]fluoranthene	3710	2900	5540	71	67-125		
Benzo[g,h,i]perylene	3700	1400	4410	81	68-125	. 23 7 1.87 1.7	
Benzo[k]fluoranthene	3700	980	3210	60		F1	
Chrysene	3700	2100	4490	65		F1	
Dibenz(a,h)anthracene	3710	390	3740	90	69-135		7
Fluoranthene	3700	3700	5520	50	7.00	F1	
Fluorene	3700	68	3140	83	62-110		
Indeno[1,2,3-cd]pyrene	3710	1400	3410	56		F1	
Naphthalene	3720	65	2890	76	49-104		
Phenanthrene	3710	1300	4310	81	67-116		7
Pyrene	3730	3100	5210	57	67-109	F1	
2-Methylphenol	3710	ND	3000	81	52-116		
4-Methylphenol	3700	ND	2940	79	52-121		1
Dibenzofuran	3700	41 J	3020	81	62-113		1
Hexachlorobenzene	3700	ND	3720	101	62-124		
Pentachlorophenol	3720	ND	2710	73	40-131		
Phenol	3710	ND	2900	78	41-107		

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.: 410-9062-1
SDG No.	•		
Matrix:	Solid	Level: Low	Lab File ID: GG2861.D
Lab ID:	410-9062-42 MSD		Client ID: SB19 0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD %	96	QC L	IMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	Ħ
Acenaphthene	3700	3120	83	3	30	61-112	
Acenaphthylene	3710	3400	80	2	30	60-124	
	3710	3930	94	8	30	67-120	
Anthracene		1	7				
Benzo[a]anthracene	3700	5450	86		30	68-120	
Benzo[a]pyrene	3710	5210	85		30	68-119	
Benzo[b] fluoranthene	3710	5630	74	2	30	67-125	
Benzo[g,h,i]perylene	3700	4800	92	8	30	68-125	1.7-
Benzo[k]fluoranthene	3700	4280	89	28	30	66-122	
Chrysene	3700	5060	81	12	30	66-111	
Dibenz(a,h)anthracene	3710	3770	91	1	30	69-135	
Fluoranthene	3700	6990	90	24	30	65-114	
Fluorene	3700	3250	86	3	30	62-110	
Indeno[1,2,3-cd]pyrene	3710	3780	65	10	30	64-130	
Naphthalene	3720	2770	73	4	30	49-104	
Phenanthrene	3710	5340	109		30	67-116	
Pyrene	3730	6390	89	20	30	67-109	
2-Methylphenol	3710	2920	79	3	30	52-116	
4-Methylphenol	3700	2870	78	2	30	52-121	
Dibenzofuran	3700	3070	82	2	30	62-113	
Hexachlorobenzene	3700	3650	99	2	30	62-124	
Pentachlorophenol	3720	2700	73	0	30	40-131	
Phenol	3710	2880	78	1	30	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancast	er Laboratories	Job No.: 410-9062-1							
SDG No.:									
Matrix: Solid	Level: Low	Lab File ID: IG2224.D							
Lab ID: LCS 410-28221/2-A		Client ID:							
	SPIKE	LCS	LCS	QC					
	ADDED	CONCENTRATION	્ર	LIMITS	#				
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC					
1,4-Dioxane		33.3 12.6	38	21-79					

DAS 12/7/20

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster	Laboratories	Job No.: 410-9062-1					
SDG No.:							
Matrix: Solid Le	Lab File ID: IG2231.D						
Lab ID: 410-9062-42 MS	Client ID: SB19_0-2 MS						
	SPIKE	SAMPLE	MS	MS	ос	·	
GOMBOTHER	ADDED	CONCENTRATION	CONCENTRATION	કુ	LIMITS	#	
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg) 25.7	REC 35	REC 21-79		

DAS 12/7/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9062-1							
SDG No.:							
Matrix: Solid	Lab File ID: IG2232.D						
Lab ID: 410-9062-42 MSD	Client ID: SB19_0-2 MSD						
	SPIKE	SPIKE MSD MSD QC LII		MITS			
	ADDED	CONCENTRATION	용	용			#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
1,4-Dioxane 72.5		24.8	34	3	30	21-79	
	and the second s		1.00.00.00		1		

DAS 12/7/20

Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM II PESTICIDES SURROGATE RECOVERY

Lab Na	ıme: Eu	irofins	Lancaster	Laboratories	M dot	0.:	410-9062-1	
SDG No	.:							
Matrix	: Soli	.d			Level	: Lo	ow.	

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SB19_0-2	410-9062-42	82	77	121	133
SB19_6-8	410-9062-43	49	48	81	91
SB19_18-20	410-9062-44	53	49	66	72
SB24_0-2	410-9062-45	72	73	212 X	198 X
SB24_0-2 DL	410-9062-45 DL	75	76	277 X	207 X
SB24_6-8	410-9062-46	55	49	87	97
SB24_10-12	410-9062-47	48	45	86	94
	MB 410-28213/1-A	29	31	87	96
	LCS 410-28213/2-A	39	39	92	98
SB19_0-2 MS	410-9062-42 MS	67	65	94	103
SB19_0-2 MSD	410-9062-42 MSD	72	68	108	118

Column to be used to flag recovery values

FORM II 8081B

FORM III PESTICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9062-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 10PEST20175038.092.D

Lab ID: 410-9062-42 MS Client ID: SB19_0-2 MS

	SPIKE ADDED	SAMPLE	MS CONCENTRATION	MS %	QC LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	π
Aldrin	7.34	ND	5.22	71	60-117	
alpha-BHC	7.43	ND	5.64	76	65-124	
beta-BHC	7.34	ND	5.77	79	68-129	
delta-BHC	7.34	ND	5.91	81	45-151	
Dieldrin	14.7	ND	11.5	78	63-126	
Endosulfan I	7.34	ND	5.49	75	62-119	
Endosulfan II	14.7	ND	11.3	77	65-126	
Endosulfan sulfate	14.7	ND	12.4	84	71-132	
Endrin	14.7	ND	12.3	84	86-135	F1
gamma-BHC (Lindane)	7.34	ND	5.62	77	68-133	
Heptachlor	7.34	ND	5.73	78	66-118	
p,p'-DDD	14.8	1.1 J	12.3	76	69-138	
p,p'-DDE	14.7	2.4 J	12.6	69	68-146	
p,p'-DDT	14.8	5.1	14.0	61	67-135	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9062-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 10PEST20175038.093.D

Lab ID: 410-9062-42 MSD Client ID: SB19_0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD &		QC LIMITS		#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Aldrin	7.39	5.53	75	6	50	60-117	
alpha-BHC	7.48	5.63	75	0	50	65-124	
beta-BHC	7.39	6.16	83	7	50	68-129	
delta-BHC	7.39	6.32	85	7	50	45-151	
Dieldrin	14.8	12.0	81	4	50	63-126	
Endosulfan I	7.39	5.95	81	8	50	62-119	
Endosulfan II	14.8	12.1	82	7	50	65-126	
Endosulfan sulfate	14.8	13.2	89	6	50	71-132	
Endrin	14.8	13.2	90	8	50	86-135	
gamma-BHC (Lindane)	7.39	5.82	79	3	50	68-133	
Heptachlor	7.39	5.93	80	3	50	66-118	
p,p'-DDD	14.9	13.6	84	11	50	69-138	
p,p'-DDE	14.8	14.7	83	15	50	68-146	
p,p'-DDT	14.9	18.3	89	26	50	67-135	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9062-1

SDG No.:

Client Sample ID: <u>SB24_0-2</u> Lab Sample ID: 410-9062-45

Date Analyzed (1): 07/31/2020 22:17 Date Analyzed (2): 07/31/2020 22:17

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	'RATION	RPD
ANALIIE	COL	PEAN	KI	FROM	TO	PEAK	MEAN	RED
Aldrin	1		3.16	3.11	3.17	5.5		81.1
	2		3.83	3.79	3.85	2.3		1
alpha-Chlordane	1		3.91	3.88	3.94	18		3.0
	2		4.48	4.45	4.51	19		1
Endosulfan I	1		3.94	3.92	3.98	8.4		61.5
	2		4.52	4.48	4.54	16		7
p,p'-DDE	1		4.09	4.06	4.12	15		81.1
	2		4.61	4.57	4.63	35		1
Dieldrin	1		4.19	4.16	4.22	5.0		22.7
	2		4.71	4.68	4.74	6.2		1
p,p'-DDD	1		4.55	4.52	4.58	5.1		51.0
	2		5.00	4.96	5.02	8.5		1
Endosulfan II	1		4.66	4.62	4.68	16		54.7
	2		5.06	5.05	5.11	28		1

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancast	er Laboratories	Job No.: 410-9062-1				
SDG No.:	_					
Matrix: Solid		Level: Low				
GC Column (1): DB CLP1	ID: 0.32 (mm)	GC Column (2): DB CLP2	ID: 0.32 (mm)			

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2	#
SB19_0-2	410-9062-42	76	81	108	128	٦
SB19_6-8	410-9062-43	77	90	85	95	٦
SB19_18-20	410-9062-44	77	88	67	74	٦
SB24_0-2	410-9062-45	71	80	151 X	174	Χ
SB24_6-8	410-9062-46	74	87	83	96	٦
SB24_10-12	410-9062-47	84	95	93	101	٦
	MB 410-28218/1-A	93	99	92	102	٦
	MB 410-28774/1-A	89	100	96	98	٦
	LCS 410-28218/2-A	86	93	87	99	
	LCS 410-28774/2-A	89	101	94	106	
SB19_0-2 MS	410-9062-42 MS	77	68	115	137	
SB19_0-2 MSD	410-9062-42 MSD	84	87	93	110	

QC LIMITS 53-140 45-143

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9062-1

SDG No.:

Client Sample ID: <u>SB24_0-2</u> Lab Sample ID: 410-9062-45

Instrument ID (1): $\underline{18274}$ Instrument ID (2): $\underline{18274}$

Date Analyzed (1): 08/04/2020 10:16 Date Analyzed (2): 08/04/2020 10:16

ANALYTE	COL	PEAK	RT	RT W	INDOW	CONCENT	TRATION	RPD	
ANALITE	СОП	FEAN	KI	FROM	TO	PEAK	MEAN	KED	
PCB-1254	1	1	3.61	3.58	3.64	770	840	18.8	
		2	3.82	3.79	3.85	824			
		3	3.88	3.85	3.91	913			
	2	1	3.91	3.88	3.94	952	1000		
		2	4.08	4.05	4.11	1000			
		3	4.13	4.11	4.17	1080			
PCB-1260	1	4	4.49	4.46	4.52	287	310	59.0	
		5	4.62	4.60	4.66	313			
		6	4.86	4.83	4.89	339			
	2	3	4.39	4.36	4.42	884	580		
		5	4.75	4.73	4.79	436			
		6	5.12	5.10	5.16	406			

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancast	er Laboratories	Job No.: 410-9062-1				
SDG No.:	_					
Matrix: Solid		Level: Low				
GC Column (1): DB CLP1	ID: 0.32 (mm)	GC Column (2): DB CLP2	ID: 0.32 (mm)			

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2	#
SB19_0-2	410-9062-42	76	81	108	128	٦
SB19_6-8	410-9062-43	77	90	85	95	٦
SB19_18-20	410-9062-44	77	88	67	74	٦
SB24_0-2	410-9062-45	71	80	151 X	174	Χ
SB24_6-8	410-9062-46	74	87	83	96	٦
SB24_10-12	410-9062-47	84	95	93	101	٦
	MB 410-28218/1-A	93	99	92	102	٦
	MB 410-28774/1-A	89	100	96	98	٦
	LCS 410-28218/2-A	86	93	87	99	
	LCS 410-28774/2-A	89	101	94	106	
SB19_0-2 MS	410-9062-42 MS	77	68	115	137	
SB19_0-2 MSD	410-9062-42 MSD	84	87	93	110	

QC LIMITS 53-140 45-143

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9062-1

SDG No.:

Client Sample ID: <u>SB24_0-2</u> Lab Sample ID: 410-9062-45

Instrument ID (1): $\underline{18274}$ Instrument ID (2): $\underline{18274}$

Date Analyzed (1): 08/04/2020 10:16 Date Analyzed (2): 08/04/2020 10:16

ANALYTE	COL	PEAK	RT	RT W	INDOW	CONCENT	TRATION	RPD	
ANALITE	СОП	FEAN	KI	FROM	TO	PEAK	MEAN	KED	
PCB-1254	1	1	3.61	3.58	3.64	770	840	18.8	
		2	3.82	3.79	3.85	824			
		3	3.88	3.85	3.91	913			
	2	1	3.91	3.88	3.94	952	1000		
		2	4.08	4.05	4.11	1000			
		3	4.13	4.11	4.17	1080			
PCB-1260	1	4	4.49	4.46	4.52	287	310	59.0	
		5	4.62	4.60	4.66	313			
		6	4.86	4.83	4.89	339			
	2	3	4.39	4.36	4.42	884	580		
		5	4.75	4.73	4.79	436			
		6	5.12	5.10	5.16	406			

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: 410-9062-1				
SDG No.:						
Matrix: Solid		Level: Low				
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)			

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB19_0-2	410-9062-42	61	58
SB19_6-8	410-9062-43	59	63
SB19_18-20	410-9062-44	60	63
SB24_0-2	410-9062-45	63	59
SB24_6-8	410-9062-46	59	60
SB24_10-12	410-9062-47	64	66
	MB 410-28653/1-A	44	46
	LCS 410-28653/2-A	48	53

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster Laboratories			Job	No.: 43	10-9062-1				
SDG No.	:								
Matrix:	Solid	Level:	Low	Lab	File II	36HERB2020	5007.	008.D	
Lab ID:	LCS 410-28653/2-A			Cli	ent ID:				
			SPIKE			LCS	LCS	OC.	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	왕	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	4.55	55	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

5B-IN POST DIGESTION SPIKE SAMPLE RECOVERY METALS

Client ID: SB4W2 2-4 PDS Lab ID: 410-9062-22 PDS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9062-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Mercury	349	250	184	55	85-115	W	7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5B-IN POST DIGESTION SPIKE SAMPLE RECOVERY METALS

Client ID: SB4W2 4-6 PDS Lab ID: 410-9062-23 PDS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9062-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Mercury	0.376	19	172	-11	85-115	W	7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

6-IN DUPLICATES METALS

Client ID: SB24_2-4 DU Lab ID: 410-9062-2DU

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9062-1

SDG No.:

% Solids for Sample: 86.0 % Solids for Duplicate: 86.0

Matrix: Solid Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	Duplicate (D)	RPD	Q	Method
Mercury	70	470	275	199	F3	7471B

Calculations are performed before rounding to avoid round-off errors in calculated results.

08/2/20

7A-IN LAB CONTROL SAMPLE GENERAL CHEMISTRY

SDG No.:	Lab	Name:	 	Laboratories		Job	No.:	410-9062-1
	SDG	No.:	 		-,,			

Matrix: Solid

Method	Lab Sample ID Analyte	Spike Pct. RPD Result C Unit Amount Rec. Limits RPD Limit	
Batch	ID: 29150 Date: 08/01/2020 09:02	Prep Batch: 28310 Date: 07/31/2020 01:19	
		LCS Source: WC_HX_5ppm_00001	
7196A	LCS Cr (VI) 410-28310/2-A	4.91 mg/Kg 5.00 98 80-120	
Batch	ID: 28538 Date: 07/31/2020 12:14	Prep Batch: 28321 Date: 07/31/2020 06:10	
		LCS Source: WC-PR20mg/1QC_00047	
9012B	LCS Cyanide, Total 410-28321/1-A	8.61 mg/Kg 10.1 86 90-110	*
Batch	ID: 29469 Date: 08/04/2020 08:42	Prep Batch: 29065 Date: 08/03/2020 14:38	
and the same of th		LCS Source: WC-PR20mg/lQC_00051	
9012B	LCS Cyanide, Total 410-29065/1-A	10.2 mg/Kg 10.1 101 90-110	

Calculations are performed before rounding to avoid round-off errors in calculated results.



December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report - Eurofins Lancaster Laboratories - Soil Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for seven soil samples, one field blank, one equipment blank, and one trip blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-9194-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB18_0-2	SB18_7-8	SB18_18-20	SB20_0-2
SB20_10-12	SB20_20-22	SB20_30-32	EB03_073020
SOFB01_073020	TB03_073020		

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report		
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes	
2.	Have all holding times been met?	Yes	
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – S Following Sections	See
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No	
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes	
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes	

Mr. Joseph Yanowitz December 18, 2020 Page 2 of 16



Data Usability Summary Report	
7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

o Volatile Organics

- Results for acetone in TB03_073020 and SOFB01_073020 and for 1,1-dichloroethene in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, and SB_30-32 were qualified as estimated (J, UJ) based on a high percent difference (%D) between the initial calibration (IC) and the IC verification (ICV) standards.
- Results for 2-butanone in SB20_20-22 and for vinyl chloride in SOFB01_073020 and TB03_073020 were qualified as estimated (J-, UJ) with the potential for low bias based on the low recoveries in the laboratory control sample (LCS) and/or LCS duplicate (LCSD).
- Results for 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, and N-propylbenzene in SB20_0-2 were qualified as estimated (J, UJ) based on low response for the internal standard (IS) upon which these compound results are calculated.

o Semi-Volatile Organics (Fullscan)

- Results for phenol, 2-methylphenol and 4-methylphenol in SB18_0-2 and SB18_7-8 were qualified as estimated (J-, UJ) based on low recovery for an associated surrogate compound
- Results for phenol, 2-methylphenol, 4-methylphenol, and pentachlorophenol in SB20_10-12, SB20_20-22, and the aqueous field blank SOFB01, were qualified as estimated (J-, UJ) based on low recoveries for the associated surrogate compounds.
- Results for acenaphthene, acenaphthylene, dibenzofuran, fluorene, fluoranthene, anthracene, phenanthrene, and hexachlorobenzene in SOFB01 were qualified as estimated (UJ) based on low recovery for the associated surrogate compound.
- The result for phenol in SOFB01 was qualified as estimated (UJ) based on low recoveries in the associated LCS and LCSD.
- Results for pentachlorophenol in all of the soil samples in this SDG were qualified as estimated (J-, UJ) based on low recoveries in the associated matrix spike (MS) and MS duplicate (MSD).

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o <u>Semi-Volatile Organics (Selected ion monitoring [SIM])</u>

- Results for 1,4-dioxane in SB18_18-20 and SOFB01_073020 were qualified as estimated (UJ) based on low recoveries for the associated surrogate compound
- Results for 1,4-dioxane in all of the soil samples in the SDG, as well as the
 aqueous field blank SOFB01_073020, were qualified as estimated (UJ) based on
 low recoveries in the laboratory control sample (LCS) and/or LCS duplicate
 (LCSD) and the MS and MSD.

o Pesticides

- The results for all target pesticide compounds in SOFB01_073020 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.
- o The result for beta-BHC in SB20_20-22 was qualified as estimated (J+) due to the high surrogate recovery on the column from which this result was reported.
- The results for aldrin and heptachlor in SOFB01_073020 were qualified as estimated (UJ) due to low LCSD and/or LCS recoveries and imprecision between LCS and LCSD results.
- The results for endosulfan I in SB18_0-2 and beta-BHC, delta-BHC, and gamma-BHC in SB20_20-22 were qualified as estimated (J) due to lack of agreement between the two column measurements.

o PCBs

 The results for all Aroclors in SB20_0-2, SB20_10-12, SB20_20-22, and SOFB01_073020 were qualified as estimated (J-, UJ) due to low surrogate recoveries on both analytical columns.

Herbicides

The results for Silvex in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22, and SOFB01_073020 were qualified as estimated (UJ) due to low surrogate and LCSD and/or LCS recoveries on both analytical columns.

Metals

- Results for arsenic, chromium, nickel and zinc in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22 and SB20_30-32 were qualified as estimated (J-) due to low matrix spike and/or matrix spike duplicate recoveries.
- Results for arsenic, chromium, lead and nickel in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22 and SB20_30-32 and cadmium in SB18_0-2, SB20_0-2 and SB20_10-12 were qualified as estimated (J) due to elevated relative percent difference with the laboratory duplicate pair.

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o Per- and Polyfluoroalkyl Substances (PFAS)

 The result for perfluorotetradecanoic acid (PFTeDA) in SOFB01_073020 was qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

o Chromium, Hexavalent and Trivalent

 Results for trivalent chromium in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22 and SB20_30-32 were qualified as estimated (J) due to qualification of the total chromium results from which the trivalent chromium results are calculated.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - o Internal standards
 - o Duplicate
- Instrument related quality control data:
 - o Instrument tunes
 - o Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

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Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- A "T" flag was present in the EDD for a number of results. This data flag was not present
 on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs
 are formatted with NYSDEC-specific data qualifiers for submission to the agency, although
 this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on
 one or more of the quantitation reports of the highest concentration IC standards for the
 SVOCs. There was no indication in the narrative or elsewhere in the data package that
 the laboratory acknowledged or addressed this issue. In response to a request for
 clarification, the laboratory responded that these peaks are checked both by the analyst
 and during a secondary level review of the calibration data.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Summary forms and raw data for a pesticides initial calibration run on June 24, 2020 on Instrument 9191 were included in the data package. Since the compounds included in this initial calibration are not target analytes for this data set, the initial calibration was not relevant and was not reviewed.
- Summary forms and raw data for a pesticide initial calibration, technical chlordane initial calibration, toxaphene initial calibration, and performance evaluation mixture analyzed on August 3-4, 2020 on instrument 9147 were included in the data package. Since none of these standards was relevant to the site sample analyses, these data were not reviewed.
- Results for alpha-chlordane were not reported on the pesticides laboratory control sample summary forms. These results were evaluated based on the available raw data.
- A summary form and raw data for an initial calibration verification standard for technical chlordane was included with the pesticides data. Since technical chlordane is not a target analyte for these analytes, the data for this standard are not relevant and were not reviewed.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did not match the responses found in the raw data. According to the laboratory, the discrepancies are because peak heights are reported in the raw data, but peak areas are reported on the summary forms. Corrected documentation was not provided by the time this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.
- The laboratory reported the lower concentrations for target analytes in a few samples and
 was contacted for explanation. The laboratory responded that where the RPD between
 the two column measurements is greater than 40%, it is laboratory policy to report the
 lower concentration. This policy should have been noted in the case narrative.

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- According to the pesticide method blank summary, samples SB18_0-2, SB20_0-2, and SB20_20-22 were re-analyzed, and samples SB18_0-2 and SB20_0-2 were analyzed at dilutions for pesticides. No explanation for the re-analyses and diluted analyses was provided in the data package, and no raw data for the additional analyses was provided. The laboratory was contacted and responded that the additional analyses for these three samples were not needed but that the raw data would be included in the data package revision. It was not.
- Although detected and reported in SB20_20-22, results for gamma-BHC were not included on the Form X identification for the sample. The result was verified by the validator using the available raw data.
- Raw metals data from instrument E08 30647 analyzed on 8/10/20 17:15 18:04 was not included in the data package. Verification of the concentrations of zinc in samples SB20_30-32, SB18_7-8, SB20_10-12, SB20_20-22 and SB18_18-20 could not be performed. Should that data be provided in the future it can be reassessed.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening CCVs and CCBs. The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- MDLs for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.
- No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are

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dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

A copy of the applicable chain of custody (COC) record was included in the data package, documenting a collection date of July 30, 2020. The samples were received by the laboratory on the same day as sample collection. One of the cooler temperatures on receipt at the laboratory was acceptable (2.1°C; QC 4°C ±2°C); the second cooler temperature (1.9°C) was slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

1. Calibration

Three ICs were reported in support of sample analyses (one on Instrument 9915 – waters; 1 each on Instruments 23313 and 9953 – soils). All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable.

Second source ICV standards were analyzed in association with each IC. All ICV responses were acceptable (<20 %D) with the exceptions detailed below:

Instrument/ICV	Compound	%D	Affected Samples	Qualifiers Applied
9915 – 5/4/20	acetone	28.1	TB03_073020 SOFB01_073020	J, UJ
9953 – 7/29/20	1,1-dichloroethene	21.9	SB18_0-2 SB18_7-8 SB18_18-20 SB20_0-2 SB20_10-12 SB20_30-32	J, UJ

Results as detailed above were qualified as estimated (J, UJ) without directional bias, based on unacceptable %Ds in the ICVs.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
23313 - 8/4/20 @ 19:13	1,4-dioxane	+63.4	SB20_20-22	None
9953 – 8/5/20 @ 8:38	1,4-dioxane	+42.3	SB18_0-2	
			SB18_7-8	
			SB18_18-20	

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Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
			SB20_0-2	
			SB20_10-12	
			SB20_30-32	

%Ds for 1,4-dioxane represent an increase in instrument sensitivity, with the potential for high bias. 1,4-Dioxane was not detected in any of the associated samples and no action was necessary.

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD)

One LCS/LCSD pair was prepared and analyzed with each analytical batch. Recoveries (70-130%) and precision (<30%) were acceptable, with the exceptions noted below:

Analyte	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS 28871					
1,4-dioxane	137	136	а	SOFB01_073020	None
Vinyl chloride	66	68	а	TB03_073020	J-, UJ
LCS 29545	<u>.</u>				
1,4-dioxane	151	143	а	SB20_20-22	None
2-butanone	а	64	а		J-, UJ

Results for 2-butanone in SB20_20-22 and for vinyl chloride in SOFB01_073020 and TB03_073020 were qualified as estimated (J-, UJ) with the potential for low bias based on the low recoveries in the LCS and/or LCSD. 1,4-Dioxane was not detected in any of the associated samples, high recoveries indicate the potential for high bias or false positives, therefore, no action was necessary.

3. Internal Standards

The analysis of SB20_0-2 exhibited unacceptable internal standard response for 1,4-dichlorobenzene-d₄. For this sample, results for 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, and n-propylbenzene were qualified as estimated (UJ) based on low response for the IS upon which these compound results are calculated.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

Two ICs (Instruments HP11165 – soils and HP197760 - waters) were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard, analyzed following each IC was provided, and all %Ds were acceptable.

A single CC standard was analyzed at the appropriate frequency and all percent differences were acceptable (<20%D).



2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB18_0-2	2-Fluorophenol	66	Phenol	J-, UJ
SB18_7-8	2-Fluorophenol	69	2-Methylphenol 4-Methylphenol	
SB20_10-12	2-Fluorophenol	62	All acid-extractable	
	Phenol-d ₅	69	target compounds	
SB20_20-22	2-Fluorophenol	49		
	Phenol-d ₅	60]	
SOFB01_073020	2-Fluorophenol	36]	
	Phenol-d ₅	30]	
	2-Fluorobiphenyl	62	List 1*	

*List 1 - acenaphthene, acenaphthylene, dibenzofuran, fluorene, fluoranthene, anthracene, phenanthrene, and hexachlorobenzene

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

3. LCS/LCSD

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied		
LCS 28583/LCSD							
Phenol	45	43	а	SOFB01_073020	UJ		

a-acceptable

The result for phenol in SOFB01_073020 was qualified as estimated (UJ) based on low recoveries in the LCS and LCSD.

4. MS/MSD

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied		
Parent Sample SB18	Parent Sample SB18_7-8						
Pentachlorophenol	68	63	а	All soil samples in the SDG	J-, UJ		

a-acceptable

Sample results for pentachlorophenol, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low MS and MSD recoveries.

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5. Quantitation

Sample SB20_0-2 was analyzed at a ten-times dilution. Results were reported from the dilution and RLs were adjusted accordingly by the laboratory.

6. Internal Standards

Retention times for all six of the IS compounds were out of the acceptance windows. The early RTs are assumed to be due to routine instrument maintenance. The IS RTs in all of the samples associated with the CC were consistent and within the revised RT windows.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Surrogate

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane, therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

Sample	%R	Qualifier Applied
SB18_18-20	67	UJ
SOFB01_073020	59	

Results for 1,4-dioxane in the samples listed above were qualified as estimated (UJ) with a potential low bias, based on low recovery observed in the associated surrogate compound.

2. LCS/LCSD

One LCS was analyzed with the soil samples and on LCS/LCSD pair was analyzed with the water field blank. Precision between the spiked pair was acceptable; recoveries for both the water and soil were not (see below):

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS 28584					
1,4-Dioxane	36	35	а	SOFB01_073020	UJ
LCS 29099					
1,4-Dioxane	40	na	na	All soil samples in the SDG	UJ

a-acceptable na-not analyzed

Results for all of the soil samples and the aqueous field blank were qualified as estimated (UJ) based on the low LCS and/or LCSD recoveries.

3. MS/MSD

One MS/MSD pair was analyzed with the field samples. Precision between the spiked pair was acceptable; recoveries for both the MS and MSD were not (see below):



Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied	
Parent Sample SB18_7-8						
1,4-Dioxane	42	37	а	All soil samples in the SDG J-,		

a-acceptable

4. Quantitation

Responses for one or more of the later eluting IS were unacceptable in the initial analysis of some of the samples (SB20_10-12, SB18_0-2, SB20_0-2, and SB20_20-22). These samples were reanalyzed. One or more responses in SB20_20-22 RA, SB20_10-12 RA, SB18_0-2 RA, and SB20_0-2 RA, were again unacceptable. The laboratory selected the initial analysis for reporting and the validator concurs with this choice. Only the two earliest IS have bearing on the results for 1,4-dioxane.

Samples SB18_0-2 and SB20_20-22 were analyzed at a ten-times dilution. The laboratory adjusted the reporting limit appropriately.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate / Column						
Sample	TCX/1	TCX/2	DCB/1	DCB/2			
SB18_7-8	а	а	147	158			
SB18_18-20	а	а	137	140			
SB20_20-22	158	а	а	а			
SB20_20-22RA	а	а	а	137			
SOFB01_073020	а	а	37	44			

a-acceptable

The results for all target pesticide compounds in SOFB01_073020 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns. The result for beta-BHC in SB20_20-22 was qualified as estimated (J+) due to the high surrogate recovery on the column from which this result was reported. Since no target analytes were detected in SB18_7-8 and SB18_18-20, no action was necessary based on the high surrogate recoveries.

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS associated with the soil sample analyses and one LCS/LCSD pair associated with the field blank analysis were reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R, RPD<30) with the exceptions below:



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LCS/LCSD 410-29565/2-A and /3-A							
Parameter	LCS %R Column 1 / 2	LCSD %R Column 1 / 2	RPD Col. 1 / 2	Samples Affected	Qualifiers Applied		
Aldrin	40 / 41	67 / a	50 / 51	SOFB01_073020	ÜJ		
Heptachlor	55 / 54	a/a	42 / 56				
Endosulfan I	a/a	a/a	a / 33		None		
4,4'-DDE	65 / a	a/a	34/a				
4,4'-DDT	a/a	a / 132	a / 39				

a-acceptable

The results for aldrin and heptachlor in SOFB01_073020 were qualified as estimated (UJ) due to low LCSD and/or LCS recoveries and imprecision between LCS and LCSD results. Since LCS/LCSD results on one column for endosulfan I, 4,4'-DDE, and 4,4'-DDT were acceptable and these analytes were not detected in SOFB01_073020, no additional action was taken on this basis.

3. Compound Identification and Quantitation

The relative percent difference (RPD) between the two column measurements columns was acceptable (≤40 RPD) for compounds detected in each sample, with the exception noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB18_0-2	Endosulfan I	0.97	0.35 J	93
SB20_20-22	beta-BHC	8.8 E	3.4	89
	delta-BHC	0.75 J	7.5	164
	gamma-BHC	0.75 J	19 E	185

The results for endosulfan I in SB18_0-2 and beta-BHC, delta-BHC, and gamma-BHC in SB20_20-22 were qualified as estimated (J) due to lack of agreement between the two column measurements.

The concentration of endosulfan I in the initial, undiluted analysis of SB20_20-22 exceeded the upper limit of the established instrument calibration range. This result was reported by the laboratory from a 10-fold diluted re-analysis. Endosulfan I was not detected in the diluted analysis.

The laboratory reported the lower concentrations for endosulfan I and 4,4'-DDT in SB18_0-2 and for beta-BHC, delta-BHC, and gamma-BHC in SB20_20-22 and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

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Sample	Surrogate / Column						
Sample	TCX/1	TCX/2	DCB/1	DCB/2			
SB18_0-2	68	а	а	а			
SB18_7-8	63	65	а	а			
SB20_0-2	61	63	58	67			
SB20_10-12	64	62	59	63			
SB20_20-22	42	38	59	64			
SOFB01_073020	53	64	43	46			

a-acceptable

The results for all Aroclors in SB20_0-2, SB20_10-12, SB20_20-22, and SOFB01_073020 were qualified as estimated (J-, UJ) due to low surrogate recoveries on both analytical columns.

For SB18_0-2, since three of four surrogate recoveries were acceptable, no action was taken based on the low TCX recovery. For SB18_7-8, both DCB recoveries were acceptable and no target Aroclors were detected in the sample. Therefore, no action was taken due to the low TCX recoveries.

F. Herbicides

1. Surrogates

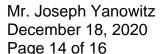
One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate / Column					
Sample	DCPAA / 1	DCPAA / 2				
SB18_0-2	48	47				
SB18_7-8	53	55				
SB18_18-20	52	51				
SB20_0-2	53	52				
SB20_10-12	53	56				
SB20_20-22	51	51				
SOFB01 073020	52	55				

The results for Silvex in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22, and SOFB01_073020 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for one aqueous-matrix LCS and one solid-matrix LCS/LCSD pair associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCSs and LCSD were below the minimum acceptance limit (QC 70-130%R), as noted below:





Analyte	LCS %R Column 1	LCS %R Column 2	LCSD %R Column 1	LCSD %R Column 2	Samples Affected	Qualifier Applied	
LCS/LCSD	410-29694/2-	A and /3-A					
Silvex	58	59	59	62	SB18_0-2 SB18_7-8 SB18_18-20 SB20_0-2 SB20_10-12 SB20_20-22	S	
LCS 410-30623/2-A							
Silvex	60	62	NA	NA	SOFB01_073020	UJ	

NA-not applicable

The results for Silvex in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22, and SOFB01_073020 were qualified as estimated (UJ) due to low LCSD and/or LCS recoveries.

G. Metals

1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD) / Post Spike (PS)

Matrix spike and matrix spike duplicate analysis was performed on sample SB18_0-2. All recoveries and relative percent differences were acceptable (75-125%R; 50%RPD) with exceptions noted below:

Analyte	MS %R	MSD %R	PS %R	Affected Samples	Qualifiers Applied
Arsenic	-86	-45	NC	SB18_0-2	J-
Chromium	4	6	NC	SB18_7-8	J-
Nickel	-97	-92	NC	SB18_18-20	J-
Zinc	а	73	NC	SB20_0-2	J-
				SB20_10-12	
				SB20_20-22	
				SB20 30-32	

A – acceptable

NC - Not calculated

The results for Arsenic, Chromium, Nickel and Zinc were qualified as estimated biased low (J-) due to low MS and/or MSD recoveries. The post-spikes were spiked at concentrations less than four times the sample concentration and do not accurately represent the laboratory's sability to recovery the analyte.

2. Laboratory Duplicate

A laboratory duplicate was performed on sample SB18_0-2. The relative percent differences (RPDs) were acceptable (<50%RPD) with exceptions noted below:

Analyte	RPD	Samples affected	Qualifier Applied
Arsenic	67	SB18_0-2	J
Chromium	75	SB18_7-8	J



Lead	70	SB18_18-20	J
Nickel	83	SB20_0-2	J
		SB20_10-12	
		SB20_20-22	
		SB20_30-32	
Cadmium	97	SB18_0-2	J
		SB20_0-2	
		SB20_10-12	

Detected results for Arsenic, Chromium, Lead, and Nickel for SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22 and SB20_30-32 and Cadmium in SB18_0-2, SB20_0-2 and SB20_10-12 were qualified as estimated (J) due to elevated relative percent difference between the sample and its laboratory duplicate.

3. Blanks

It is ddms's procedure to qualify data based on like matrices. However, the user is cautioned that Barium (0.85 ug/L) and Chromium (2.9 ug/L) were detected in the associated with these samples. No qualifications were made based on the soil field blank results.

H. Per- and Polyfluoroalkyl Substances (PFAS)

1. Surrogates (Extracted Internal Standards/ Labeled Analogs):

All labeled analog recoveries were acceptable (40-140%R) with the following exception:

Sample	Labeled Analog	%R
SOFB01_073020	Perfluoro[13C2]tetradecanoic acid	35

The result for PFTeDA in SOFB01_073020 was qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent chromium were qualified as a result of the data validation. All reported results for hexavalent chromium were determined to be usable as reported.

Results for trivalent chromium in SB18_0-2, SB18_7-8, SB18_18-20, SB20_0-2, SB20_10-12, SB20_20-22 and SB20_30-32 were qualified as estimated (J) due to qualification of the total chromium results (see Section G.) from which the trivalent chromium results are calculated.

Mr. Joseph Yanowitz December 18, 2020 Page 16 of 16



3. General Chemistry - Quantitation

No duplicate analysis was documented for cyanide, hexavalent chromium, or for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-9194-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. 410-9194-1

Environmental Analy

Lancaster Laboratories

Acc

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ies Environmental use only

lample #

COC #610556

Environmental	ACC					,	ample	0#						_	•	00 1	OTO	000
Client Informati	on			T	Matrix					Analy	/sis	Requ	este	d		For Lab Us	e Only	
Client: LANGAN, OPC	Acct. #:						1		Prese	rvatio	n and	Filtr	ation	Codes		FSC:		
				0	100											SCR#:		
Project Name/#: 250 Water St/170381202 Project Manager	PWSID #:			Tissue	Ground	5		18 'S	netals ne	150	g	7) 4			H=HCI		Thiosulfate
Sampler: David McMahon	Quote #:			_ <u> </u>		Wast	ners	700	A Property	PC6s,	ania	ra	an			N=HNO ₃ S=H ₂ SO ₄ F=Field Fill	P=	NaOH H ₃ PO ₄
HShley Stoppenbed				Sediment	Potable NPDES	10	ontai	Miles I	是是	120	1 2	2	dioxa	8			Remark	
NY Yes [No 🗆		:	Se	Pot NP	2	of C	375	375	75	tal	7	10	\$				
Sample Identification		ected	Grab	Soil X Se	Water	Other:	Total # of Containers	本社	+3+3	1375 M	12	tot	1,4	0				
60.0	Date	Time	5 0	S G	3	0	F	1	7.3	0								
SB18-0-2	V30/20		X	\dashv ×				X	XX	X	X	X	X	X				
3818-7-8		1017	X	$\perp \times$				X	$\times \times$	X	X	X	X	X				
JB18 - 18-20		1019	X	$\perp \!\!\! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$				X	XX	X	X	X	X	\times				
SB20-0-Z		837	\times					×	XX		X	X	X	X				
SB20-10-12		841	X	TX				ľ _×		V	X	X	5	X				
5620-20-22		835	X	15				X		X	X	V	\sim			1		
SK20-30-32		920	X	X								\Diamond		\sim	_			
EB02-073020		1300	X	-		X			1	4					-	-		
SOFB01-073020		1305		+			-	~					~		-	-		
TB03_073020	1	160		+		0		Θ	XX	1		X	N	~	-			
Turnaround Time (TAT) Requeste	d /nlease circ		Relinguis	bed/by	0		_	IX	Date /	Time		Receive	ed by		10	_	Date	Time
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(Rush TAT is subject to laboratory approval and surchar			Relinquis	hed-by (A COUNTY	0-01			Date	Time		Receive	ed by	-1 4		_	Date	Time
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-mail address: TYANDWITZ@LANGAN, Com Relinquished		hed by		1	_		Date	Time		Receive	ed by				Date	Time		
Data Package Options (circle if required)				/	/ .				4 Days		/	/	2	1				
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Type III (Reduced non-CLP) NJ DK0	QP TX	TRRP-13		If ye	EDD Res	quirec	1?	Yes	No			Relig			omme	ercial Carrier	-00	
NYSDEC Category A or B MA MC	P CT	RCP	(11		pecific QC (cate QC samp	1				No olume.)			Te	mperatu	ire upo	on receipt [9-2.1	_°C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client. 7044 0919 A



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-9194-1

DAG 12/8/20

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9194-1

SDG No.:

Lab Sample ID: ICV 410-8010/11 Calibration Date: 05/04/2020 14:52

Instrument ID: 9915 Calib Start Date: 05/04/2020 12:18

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 05/04/2020 14:30

Lab File ID: LY04V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3381	0.3120	0.1000	18.5	20.0	-7.7	30.0
Chloromethane	Ave	0.3183	0.3334	0.1000	20.9	20.0	4.7	30.0
1,3-Butadiene	Ave	0.2231	0.2376		21.3	20.0	6.5	30.0
Vinyl chloride	Ave	0.3102	0.3274	0.1000	21.1	20.0	5.5	30.0
Bromomethane	Ave	0.2226	0.2133	0.1000	19.2	20.0	-4.2	30.0
Chloroethane	Ave	0.1726	0.1690	0.1000	19.6	20.0	-2.1	30.0
Dichlorofluoromethane	Ave	0.3730	0.3436		18.4	20.0	-7.9	30.0
Trichlorofluoromethane	Ave	0.3394	0.3822	0.1000	22.5	20.0	12.6	30.0
n-Pentane	Ave	0.3119	0.2898		18.6	20.0	-7.1	30.0
Ethyl ether	Ave	0.2393	0.2439	I I I I I I I I I I I I I I I I I I I	20.4	20.0	1.9	30.0
Freon 123a	Ave	0.2743	0.2860		20.9	20.0	4.3	30.0
Acrolein	Ave	2.062	1.919		139	150	-7.0	30.0
1,1-Dichloroethene	Ave	0.2151	0.2241	0.1000	20.8	20.0	4.2	30.0
Freon 113	Ave	0.2242	0.2163	0.1000	19.3	20.0	-3.5	30.0
Acetone	Ave	0.9477	1.214	0.1000	192	150	28.1	30.0
Methyl iodide	Ave	0.4162	0.4147		19.9	20.0	-0.4	30.0
2-Propanol	Ave	0.6005	0.5829		146	150	-2.9	30.0
Carbon disulfide	Ave	0.7295	0.7621	0.1000	20.9	20.0	4.5	30.0
Methyl acetate	Ave	0.2733	0.2624	0.1000	19.2	20.0	-4.0	30.0
Allyl chloride	Ave	0.3465	0.3400		19.6	20.0	-1.9	30.0
Methylene Chloride	Ave	0.2581	0.2648	0.1000	20.5	20.0	2.6	30.0
t-Butyl alcohol	Ave	1.011	1.027		203	200	1.6	30.0
Acrylonitrile	Ave	0.1506	0.1429		94.9	100	-5.1	30.0
Methyl tertiary butyl ether	Ave	0.7413	0.7103	0.1000	19.2	20.0	-4.2	30.0
trans-1,2-Dichloroethene	Ave	0.2486	0.2542	0.1000	20.4	20.0	2.2	30.0
n-Hexane	Ave	0.3646	0.3643		20.0	20.0	-0.0	30.0
1,1-Dichloroethane	Ave	0.4324	0.4343	0.2000	20.1	20.0	0.4	30.0
di-Isopropyl ether	Ave	0.7676	0.7639		19.9	20.0	-0.5	30.0
2-Chloro-1,3-butadiene	Ave	0.3479	0.3550		20.4	20.0	2.0	30.0
Ethyl t-butyl ether	Ave	0.7140	0.7091		19.9	20.0	-0.7	30.0
2-Butanone	Ave	0.1844	0.2044	0.1000	166	150	10.9	30.0
cis-1,2-Dichloroethene	Ave	0.2787	0.2992	0.1000	21.5	20.0	7.3	30.0
2,2-Dichloropropane	Ave	0.3376	0.3428		20.3	20.0	1.6	30.0
Propionitrile	Ave	1.359	1.354		150	150	-0.3	30.0
Methacrylonitrile	Ave	0.1528	0.1563		153	150	2.3	30.0
Bromochloromethane	Ave	0.1440	0.1401		19.5	20.0	-2.7	30.0
Tetrahydrofuran	Ave	1.201	1.173		97.7	100	-2.3	30.0
Chloroform	Ave	0.4262	0.4305	0.2000	20.2	20.0	1.0	30.0
1,1,1-Trichloroethane	Ave	0.3663	0.3631	0.1000	19.8	20.0	-0.9	30.0
Cyclohexane	Ave	0.4315	0.4382	0.1000	20.3	20.0	1.6	30.0
Carbon tetrachloride	Ave	0.3066	0.3126	0.1000	20.4	20.0	1.9	30.0

12 12/8/20

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9194-1

SDG No.:

Lab Sample ID: ICV 410-27654/10 Calibration Date: 07/29/2020 18:17

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bl29v01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.3351	0.1000	17.9	20.0	-10.6	30.0
Chloromethane	Ave	0.4529	0.4887	0.1000	21.6	20.0	7.9	30.0
1,3-Butadiene	Ave	0.2969	0.3344		22.5	20.0	12.6	30.0
Vinyl chloride	Ave	0.4156	0.4347	0.1000	20.9	20.0	4.6	30.0
Bromomethane	Ave	0.2846	0.3183	0.1000	22.4	20.0	11.8	30.0
Chloroethane	Ave	0.2339	0.2610	0.1000	22.3	20.0	11.6	30.0
Dichlorofluoromethane	Ave	0.5270	0.5675		21.5	20.0	7.7	30.0
Trichlorofluoromethane	Ave	0.3905	0.4655	0.1000	23.8	20.0	19.2	30.0
n-Pentane	Ave	0.4618	0.4579	,	19.8	20.0	-0.9	30.0
Ethanol	Ave	0.1521	0.1457		958	1000	-4.2	30.0
Freon 123a	Ave	0.3063	0.3283		21.4	20.0	7.2	30.0
Acrolein	Ave	2.690	2.159		120	150	-19.8	30.0
1,1-Dichloroethene	Ave	0.2219	0.2705	0.1000	24.4	20.0	21.9	30.0
Acetone	Ave	1.272	1.143	0.1000	135	150	-10.1	30.0
Freon 113	Ave	0.2425	0.2414	0.1000	19.9	20.0	-0.5	30.0
Methyl iodide	Ave	0.4254	0.4491		21.1	20.0	5.6	30.0
2-Propanol	Ave	0.8154	0.7935		146	150	-2.7	30.0
Carbon disulfide	Ave	0.8045	0.8812	0.1000	21.9	20.0	9.5	30.0
Allyl chloride	Ave	0.4553	0.4477		19.7	20.0	-1.7	30.0
Methyl acetate	Ave	0.1942	0.1992	0.1000	20.5	20.0	2.6	30.0
Methylene Chloride	Ave	0.2769	0.3141	0.1000	22.7	20.0	13.4	30.0
t-Butyl alcohol	Ave	1.284	1.286		200	200	0.1	30.0
Acrylonitrile	Ave	0.1015	0.1072		106	100	5.7	30.0
trans-1,2-Dichloroethene	Ave	0.2613	0.3005	0.1000	23.0	20.0	15.0	30.0
Methyl tertiary butyl ether	Ave	0.7155	0.7471	0.1000	20.9	20.0	4.4	30.0
n-Hexane	Ave	0.3864	0.4067		21.0	20.0	5.2	30.0
1,1-Dichloroethane	Ave	0.4804	0.5448	0.2000	22.7	20.0	13.4	30.0
di-Isopropyl ether	Ave	0.9198	0.9708		21.1	20.0	5.5	30.0
2-Chloro-1,3-butadiene	Ave	0.3898	0.4194		21.5	20.0	7.6	30.0
Ethyl t-butyl ether	Ave	0.8018	0.8420		21.0	20.0	5.0	30.0
2-Butanone	Ave	0.1268	0.1357	0.1000	161	150	7.0	30.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3500	0.1000	23.7	20.0	18.7	30.0
2,2-Dichloropropane	Ave	0.3557	0.4156		23.4	20.0	16.9	30.0
Propionitrile	Ave	1.834	1.772		145	150	-3.4	30.0
Methacrylonitrile	Ave	0.1105	0.1200		163	150	8.7	30.0
Bromochloromethane	Ave	0.1474	0.1516		20.6	20.0	2.8	30.0
Tetrahydrofuran	Ave	1.517	1.575		104	100	3.9	30.0
Chloroform	Ave	0.4429	0.5032	0.2000	22.7	20.0	13.6	30.0
1,1,1-Trichloroethane	Ave	0.3691	0.4177	0.1000	22.6	20.0	13.2	30.0
Cyclohexane	Ave	0.4942	0.5202	0.1000	21.0	20.0	5.2	30.0
1,1-Dichloropropene	Ave	0.3654	0.4151		22.7	20.0	13.6	30.0

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: Eurofins Lancaste	er Laboratories	Job No.: 410-9194-1
SDG No.	:		
Matrix:	Water	Level: Low	Lab File ID: LU03L01.D
Lab ID:	LCS 410-28871/6		Client ID:

	1		1		
	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
1,1,1-Trichloroethane	20.0	20.0	100	67-126	
1,1-Dich1oroethane	20.0	19.2	96	80-120	
1,1-Dich1oroethene	20.0	19.1	95		
1,2,4-Trimethylbenzene	20.0	19.2	96	75-120	
1,2-Dichlorobenzene	20.0	20.6	103	80-120	
1,2-Dich1oroethane	20.0	22.3	112		
1,3,5-Trimethylbenzene	20.0	19.4	97	75-120	
1,3-Dichlorobenzene	20.0	20.7	104	80-120	
1,4-Dichlorobenzene	20.0	20.6	103	80-120	
1,4-Dioxane	500	684	137	63-146	1
2-Butanone	150	151	101	59-135	
Acetone	150	131	87	54-157	
Benzene	20.0	19.0	95	80-120	
Carbon tetrachloride	20.0	20.6	103	64-134	
Chlorobenzene	20.0	20.0	100	80-120	
Chloroform	20.0	20.5	102	80-120	
cis-1,2-Dichloroethene	20.0	20.1	100	80-125	
Ethy1benzene	20.0	19.8	99	80-120	
Methyl tertiary butyl ether	20.0	18.4	92	69-122	
Methylene Chloride	20.0	19.3	97	80-120	
n-Butylbenzene	20.0	20.4	102	76-120	
N-Propy1benzene	20.0	20.2	101	79-121	
sec-Butylbenzene	20.0	19.5	98	77-120	
tert-Butylbenzene	20.0	19.3	96	78-120	
Tetrach1oroethene	20.0	21.1	105	80-120	
Toluene	20.0	19.1	95	80-120	
trans-1,2-Dichloroethene	20.0	18.9	95	80-126	
Trich1oroethene	20.0	19.2	96	80-120	
Vinyl chloride	20.0	13.1	66	56-120	/
Xylenes, Total	60.0	61.2	102	80-120	

DAS 12/8/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name:	Eurofins Lancaste	r Laboratories	Job No.: 410-9194-1	
SDG No.:				
Matrix: W	ater	Level: Low	Lab File ID: LU03L02.D	
Lab ID: L	CSD 410-28871/8		Client ID:	

	i	T		т			-
	SPIKE	LCSD	LCSD	1	QC LI	MITS	
	ADDED	CONCENTRATION	ક	8			#
COMPOUND	(ug/L)	(ug/L)	REC	RPD	RPD	REC	
1,1,1-Trichloroethane	20.0	20.2	101	NaN	30	67-126	
1,1-Dichloroethane	20.0	19.8	99	NaN	30	80-120	
1,1-Dichloroethene	20.0	19.1	96	NaN	30	80-131	
1,2,4-Trimethylbenzene	20.0	19.5	98	NaN	30	75-120	
1,2-Dichlorobenzene	20.0	20.7	104	NaN	30	80-120	i
1,2-Dichloroethane	20.0	21.9	110	NaN	30	73-124	
1,3,5-Trimethylbenzene	20.0	19.3	96	NaN	30	75-120	
1,3-Dichlorobenzene	20.0	20.9	104	NaN	30	80-120	
1,4-Dichlorobenzene	20.0	20.5	103	NaN	30	80-120	5 i
1,4-Dioxane	500	681	136	NaN	30	63-146	
2-Butanone	150	154	102	NaN	30	59-135	(
Acetone	150	129	86	NaN	30	54-157	£
Benzene	20.0	19.2	96	NaN	30	80-120	
Carbon tetrachloride	20.0	20.8	104	NaN	30	64-134	
Chlorobenzene	20.0	20.2	101	NaN	30	80-120	l
Chloroform	20.0	20.4	102	NaN	30	80-120	1
cis-1,2-Dichloroethene	20.0	20.4	102	NaN	30	80-125	
Ethylbenzene	20.0	20.0	100	NaN	30	80-120	
Methyl tertiary butyl ether	20.0	18.8	94	NaN	30	69-122	
Methylene Chloride	20.0	19.9	99	NaN	30	80-120	
n-Butylbenzene	20.0	20.7	103	NaN	30	76-120	
N-Propylbenzene	20.0	20.7	104	NaN	30	79-121	
sec-Butylbenzene	20.0	19.7	98	NaN	30	77-120	1
tert-Butylbenzene	20.0	19.7	99	NaN	30	78-120	
Tetrachloroethene	20.0	21.9	109	NaN	30	80-120	·
Toluene	20.0	19.3	97	NaN	30	80-120	
trans-1,2-Dichloroethene	20.0	18.9	95	NaN	30	80-126	
Trichloroethene	20.0	19.5	97	NaN	30	80-120	
Vinyl chloride	20.0	13.5	68	NaN	30	56-120	
Xylenes, Total	60.0	62.0	103	NaN	30	80-120	

DAS 12/8/20

[#] Column to be used to flag recovery and RPD values FORM III 8260C

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FORM III GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410-9194-1	_
SDG No.				
Matrix:	Solid	Level: Medium	Lab File ID: Vg04L11.D	
Lab ID:	LCSD 410-29545/6		Client ID:	

	SPIKE ADDED	LCSD CONCENTRATION	LCSD	96	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
1,1,1-Trichloroethane	1000	924	92	0	30	69-123	
1,1-Dichloroethane	1000	1040	104	1	30	79-120	
1,1-Dichloroethene	1000	1030	103	0	30	73-129	
1,2,4-Trimethylbenzene	1000	1000	100	0	30	73-120	
1,2-Dichlorobenzene	1000	1000	100	0	30	76-120	
1,2-Dichloroethane	1000	947	95	0	30	71-128	
1,3,5-Trimethylbenzene	1000	1040	104	1	30	73-120	
1,3-Dichlorobenzene	1000	1010	101	0	30	75-120	
1,4-Dichlorobenzene	1000	1010	101	0	30	80-120	
1,4-Dioxane	25000	35800	143	5	30	62-131	* ~
2-Butanone	7500	4820	64	8	30	57-128	V
Acetone	7500	7240	97	2	30	41-150	-
Benzene	1000	1020	102	0	30	80-120	
Carbon tetrachloride	1000	942	94	1	30	64-134	
Chlorobenzene	1000	972	97	1	30	80-120	
Chloroform	1000	985	99	1	30	80-120	
cis-1,2-Dichloroethene	1000	1050	105	0	30	80-125	
Ethylbenzene	1000	1010	101	0	30	78-120	
Methyl tertiary butyl ether	1000	903	90	0	30	72-120	
Methylene Chloride	1000	1030	103	0	30	76-122	
n-Butylbenzene	1000	1000	100	0	30	71-121	
N-Propylbenzene	1000	1070	107	0	30	72-123	!
sec-Butylbenzene	1000	1050	105	0	30	72-120	
tert-Butylbenzene	1000	1010	101	1	30	68-120	
Tetrachloroethene	1000	1060	106	3	30	73-120	
Toluene	1000	1040	104	0	30	80-120	
trans-1,2-Dichloroethene	1000	1030	103	0	30	80-126	
Trichloroethene	1000	969	97	1	30	80-120	
Vinyl chloride	1000	888	89	0	30	52-120	
Xylenes, Total	3000	3010	100	1	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-9194-1
SDG No.:	
Sample No.: CCVIS 410-28910/3	Date Analyzed: 08/03/2020 09:20
Instrument ID: 9953	GC Column: R-624SilMS 30m ID: 0.25(mm)
Lab File ID (Standard): bg03c01.D	Heated Purge: (Y/N) N
Calibration ID: 7943	

	ALANA AL	DCBd	1				
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		478594	10.29				
UPPER LIMIT		957188	10.79				
LOWER LIMIT		239297	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-28910/5		440166	10.29				
LCSD 410-28910/6		424171	10.29				
MB 410-28910/10		402912	10.29				
410-9194-1	SB18_0-2	253059	10.29		1		i
410-9194-2	SB18_7-8	381166	10.29				
410-9194-3	SB18_18-20	363240	10.29				
410-9194-4	SB20_0-2	118577*3	10.29				
410-9194-5	SB20_10-12	373829	10.29				
410-9194-7	SB20_30-32	377416	10.29				

DAS 12/5/20

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-9194-1
ab	Name:	Eurolins	Lancaster	Laboratories	JON GOL:	410-9194-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP	#	PHL	#	NBZ	#	FBP	#	TBP	#	TPHd14 #
SB18_0-2	410-9194-1	66		70		75		73		74		89
SB18_7-8	410-9194-2	69		72		75		71		84		92
SB18_18-20	410-9194-3	76		80		84		79		78		108
SB20_0-2	410-9194-4	74	1	76		79		76		67		97
SB20_10-12	410-9194-5	62	1	69		71		72		90		95
SB20_20-22	410-9194-6	49	1	60		75		75		80		79
SB20_30-32	410-9194-7	82	1	88		93		89		44		109
	MB 410-28583/1-A	70	1	72		79		75		92		103
	LCS 410-28583/2-A	78		84		89		83		104		107
SB18_7-8 MS	410-9194-2 MS	73		80		84		82		98		106
SB18_7-8 MSD	410-9194-2 MSD	75		81		83		81		97		105

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-91	94-1
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SDG No.:

Matrix: Water Level: Low

GC Column (1): DB-5MS 30m ID: 0.25(mm)

Client Sample ID	Lab Sample ID	2FP	#	PHL :	#	NBZ	#	FBP	#	TBP	#	TPHd14 #
SOFB01_073020	410-9194-9	36		30		74		62		77		72
	MB 410-29096/1-A	38		30		79		66		83		74
	LCS 410-29096/2-A	47		40		84		75		87		79
	LCSD 410-29096/3-A	46		38		84		73		84		82

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	10-84
PHL = Phenol-d5 (Surr)	10-67
NBZ = Nitrobenzene-d5 (Surr)	38-113
FBP = 2-Fluorobiphenyl (Surr)	44-102
TBP = 2, 4, 6-Tribromophenol (Surr)	18-141
TPHd14 = p-Terphenyl-d14 (Surr)	34-128

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.: 410-	-9194-1
SDG No.	:			
Matrix:	Solid	Level: Low	Lab File ID:	GG2906.D
Lab ID:	LCS 410-28583/2-A		Client ID:	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1670	1430	85	61-112	
Acenaphthylene	1670	1480	88	60-124	
Anthracene	1670	1640	98	67-120	
Benzo[a]anthracene	1670	1630	98	68-120	
Benzo[a]pyrene	1670	1640	98	68-119	
Benzo[b]fluoranthene	1670	1680	100	67-125	
Benzo[g,h,i]perylene	1670	1730	104	68-125	
Benzo[k]fluoranthene	1670	1630	98	66-122	
Chrysene	1670	1550	93	66-111	
Dibenz(a,h)anthracene	1670	1750	105	69-135	
Fluoranthene	1670	1670	100	65-114	
Fluorene	1670	1560	93	62-110	
Indeno[1,2,3-cd]pyrene	1670	1740	104	64-130	
Naphthalene	1680	1390	83	49-104	
2-Methylphenol	1670	1500	90	52-116	
Phenanthrene	1670	1580	95	67-116	
4-Methylphenol	1670	1480	89	52-121	
Dibenzofuran	1670	1480	89	62-113	
Pyrene	1680	1550	92	67-109	
Hexachlorobenzene	1670	1870	112	62-124	
Pentachlorophenol	1680	1570	93	40-131	
Phenol	1670	1490	89	57-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410	-9194-1
SDG No.	:			
Matrix:	Water	Level: Low	Lab File ID:	DH0153.D
Lab ID:	I.CS 410-29096/2-A		Client ID:	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
Acenaphthene	50.1	42.5	85	52-114	
Acenaphthylene	50.2	48.1	96	56-127	
Anthracene	50.1	48.2	96	67-116	
Benzo[a]anthracene	50.0	42.4	85	68-123	
Benzo[a]pyrene	50.2	41.2	82	71-117	
Benzo[b]fluoranthene	50.1	42.5	85	69-121	
Benzo[g,h,i]perylene	50.1	37.9	76	60-119	
Benzo[k]fluoranthene	50.1	47.0	94	69-122	
Chrysene	50.0	45.9	92	65-121	
Dibenz(a,h)anthracene	50.2	38.5	77	63-128	
Fluoranthene	50.1	51.7	103	63-122	
Fluorene	50.1	47.8	95	56-115	
Indeno[1,2,3-cd]pyrene	50.2	37.5	75	59-123	
Naphthalene	50.4	40.2	80	51-102	
2-Methylphenol	50.2	36.8	73	53-107	
Phenanthrene	50.2	47.2	94	65-113	
4-Methylphenol	50.1	33.9	68	49-108	
Dibenzofuran	50.0	45.1	90	60-112	
Pyrene	50.4	45.0	89	65-115	
Hexachlorobenzene	50.1	43.7	87	60-117	
Pentachlorophenol	50.4	47.8	95	54-131	
Phenol	50.2	22.5	45	19-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410-	-9194-1
SDG No.	:			
Matrix:	Water	Level: Low	Lab File ID:	DH0154.D
Lab ID:	LCSD 410-29096/3-A		Client ID:	

	SPIKE	LCSD	LCSD		QC LIMITS		
	ADDED	CONCENTRATION	용	용 -	1		#
COMPOUND	(ug/L)	(ug/L)	REC	RPD	RPD	REC	
Acenaphthene	50.1	42.1	84	1	30	52-114	
Acenaphthylene	50.2	47.5	95	1	30	56-127	
Anthracene	50.1	48.7	97	1	30	67-116	
Benzo[a]anthracene	50.0	44.1	88	4	30	68-123	
Benzo[a]pyrene	50.2	42.0	84	2	30	71-117	
Benzo[b]fluoranthene	50.1	44.1	88	4	30	69-121	
Benzo[g,h,i]perylene	50.1	39.7	79	5	30	60-119	
Benzo[k]fluoranthene	50.1	48.8	97	4	30	69-122	
Chrysene	50.0	48.4	97	5	30	65-121	
Dibenz(a,h)anthracene	50.2	40.6	81	5	30	63-128	
Fluoranthene	50.1	52.6	105	2	30	63-122	
Fluorene	50.1	46.8	93	2	30	56-115	
Indeno[1,2,3-cd]pyrene	50.2	38.8	77	3	30	59-123	
Naphthalene	50.4	39.2	78	2	30	51-102	
2-Methylphenol	50.2	35.4	71	4	30	53-107	
Phenanthrene	50.2	46.9	93	1	30	65-113	
4-Methylphenol	50.1	32.7	65	4	30	49-108	
Dibenzofuran	50.0	44.8	90	0	30	60-112	
Pyrene	50.4	46.2	92	3	30	65-115	
Hexachlorobenzene	50.1	43.9	88	1	30	60-117	
Pentachlorophenol	50.4	44.5	88	7	30	54-131	
Phenol	50.2	21.6	43	4	30	19-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name	e: Eurofins	Lancaster	Laboratories	Job No.:	410-9194-1
SDG No.	:				
Matrix:	Solid	Le	evel: Low	Lab File	ID: GG2913.D

Lab ID: 410-9194-2 MS Client ID: SB18_7-8 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1690	ND	1450	86	61-112	
Acenaphthylene	1700	ND	1480	87	60-124	
Anthracene	1700	ND	1610	95	67-120	
Benzo[a]anthracene	1690	ND	1640	97	68-120	
Benzo[a]pyrene	1700	ND	1690	99	68-119	
Benzo[b]fluoranthene	1700	ND	1760	103	I	
Benzo[g,h,i]perylene	1690	ND	1700	100		
Benzo[k]fluoranthene	1690	ND	1640	97	66-122	
Chrysene	1690	ND	1590	94	66-111	
Dibenz(a,h)anthracene	1700	ND	1760	103	69-135	
Fluoranthene	1700	ND	1660	98	65-114	
Fluorene	1700	ND	1580	93	62-110	
<pre>Indeno[1,2,3-cd]pyrene</pre>	1700	ND	1720	101	64-130	
Naphthalene	1700	ND	1330	78	49-104	
2-Methylphenol	1700	ND	1420	84	52-116	
Phenanthrene	1700	ND	1590	94	67-116	
4-Methylphenol	1700	ND	1410	83	52-121	
Dibenzofuran	1690	ND	1500	89	62-113	
Pyrene	1710	ND	1600	94	67-109	
Hexachlorobenzene	1690	ND	1800	106	62-124	
Pentachlorophenol	1700	ND	1160	68	40-131	
Phenol	1700	ND	1400	82	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

				_			
SDG	No.:						
Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-9194-1	

Matrix: Solid Level: Low Lab File ID: GG2914.D

Lab ID: 410-9194-2 MSD Client ID: SB18_7-8 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD %	%	QC LIMITS		#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Acenaphthene	1710	1440	85	1	30	61-112	
Acenaphthylene	1710	1480	87	0	30	60-124	
Anthracene	1710	1610	94	0	30	67-120	
Benzo[a]anthracene	1700	1670	98	1	30	68-120	
Benzo[a]pyrene	1710	1690	99	0	30	68-119	
Benzo[b]fluoranthene	1710	1780	104	2	30	67-125	
Benzo[g,h,i]perylene	1710	1710	100	1	30	68-125	
Benzo[k]fluoranthene	1710	1610	95	2	30	66-122	
Chrysene	1700	1630	96	2	30	66-111	
Dibenz(a,h)anthracene	1710	1750	102	1	30	69-135	
Fluoranthene	1710	1690	99	2	30	65-114	
Fluorene	1710	1580	92	0	30	62-110	
<pre>Indeno[1,2,3-cd]pyrene</pre>	1710	1720	101	0	30	64-130	
Naphthalene	1720	1330	78	0	30	49-104	
2-Methylphenol	1710	1420	83	0	30	52-116	
Phenanthrene	1710	1570	92	1	30	67-116	
4-Methylphenol	1710	1440	85	2	30	52-121	
Dibenzofuran	1700	1480	87	1	30	62-113	
Pyrene	1720	1590	93	1	30	67-109	
Hexachlorobenzene	1710	1810	106	1	30	62-124	
Pentachlorophenol	1720	1090	63	7	30	40-131	
Phenol	1710	1460	85	4	30	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-9194-1	

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SB18_0-2	410-9194-1	83	92	85 *3
SB18_0-2 RA	410-9194-1 RA	79	77	96 *3
SB18_7-8	410-9194-2	78	89	89
SB18_18-20	410-9194-3	67	79	77
SB20_0-2	410-9194-4	76	68	78 *3
SB20_0-2 RA	410-9194-4 RA	77	57	79 *3
SB20_10-12	410-9194-5	71	84	85 *3
SB20_10-12 RA	410-9194-5 RA	70	72	84 *3
SB20_20-22	410-9194-6	114 X	612 X	99 *3
SB20_20-22 RA	410-9194-6 RA	100	649 X	97 *3
	MB 410-28584/1-A	74	82	81
	LCS 410-28584/2-A	82	92	92
SB18_7-8 MS	410-9194-2 MS	80	94	95 *3
SB18_7-8 MSD	410-9194-2 MSD	78	92	95 *3

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-9194-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): DB-5MS 30m ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SOFB01_073020	410-9194-9	59	74	60
	MB 410-29099/1-A	61	75	66
	LCS 410-29099/2-A	51	80	71
	LCSD 410-29099/3-A	67	81	71

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name:	Eurofins Lancast	er Labora	atories	Job	b No.: 410-9194-1						
SDG No.:											
Matrix: Solid		Level: I			Lab File ID: IH0004.D						
Lab ID: LCS 410-28584/2-A					Client ID:						
	COMPOUND		SPIKE ADDED (ug/Kg)		CONCE	LCS NTRATION	LCS % REC	QC LIMITS REC	#		

13.3

21-79

1,4-Dioxane

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	ab Name: Eurofins Lancaster Laboratories			Job No.: 410-9194-1							
SDG No.	:										
Matrix: Water		Level: Low	Level: Low Lab		Lab File ID: NH0003.D						
Lab ID:	b ID: LCS 410-29099/2-A			Client ID:							
	COMPOUND	SPIKE ADDED (ug/L)		LCS CONCENTRATION	LCS % REC	QC LIMITS REC	#				

1.00

0.358

18-91

1,4-Dioxane

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster	Laboratories	Job No.: 4	Job No.: 410-9194-1 Lab File ID: NH0004.D Client ID:				
SDG No.:							
Matrix: Water Le	vel: Low	Lab File I	D: NH	0004.	D		
Lab ID: LCSD 410-29099/3-A		Client ID:					
	SPIKE	LCSD	LCSD		QC L	IMITS	
	ADDED	CONCENTRATION	용	용		I	#
COMPOUND	(ug/L)	(ug/L)	REC	RPD	RPD	REC	
1.4-Dioxane	1 00	0 347	35	3	3.0	18-91	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9194-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: IH0013.D

Lab ID: 410-9194-2 MS Client ID: SB18_7-8 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATIONCONCENTRATION		%	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	34.0	ND	14.4	42	21-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9194-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: IH0014.D

Lab ID: 410-9194-2 MSD Client ID: SB18_7-8 MSD

			MSD		QC L1		
	ADDED	CONCENTRATION	용	용			#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD REC		
1,4-Dioxane	33.6	12.3	37	16	30	21-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-9194-1	410-9194-1					
SDG No.:								
Matrix: Solid		Level: Low						
GC Column (1): DB CLP1	ID: 0.32 (mm)	GC Column (2): DB CLP2	ID: 0.32 (mm)					

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB18_0-2	410-9194-1	75		71		97		105	
SB18_7-8	410-9194-2	94		90		147		158	Х
SB18_18-20	410-9194-3	103		93		137		140	
SB20_0-2	410-9194-4	93		91		99		104	
SB20_10-12	410-9194-5	88		79		98		106	
SB20_20-22	410-9194-6	158	Х	120		90		100	
SB20_20-22 RA	410-9194-6 RA	109		109		133		137	
	MB 410-28581/1-A	79		78		133		150	
	LCS 410-28581/2-A	65		65		121		137	

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8081B

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanc	aster Laboratories	Job No.: 410-9194-1				
SDG No.:						
Matrix: Water		Level: Low				
GC Column (1): MR2	ID:	GC Column (2): MR2	ID:			

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SOFB01_073020	410-9194-9	70	79	37	44
	MB 410-29565/1-A	43	49	43	53
	LCS 410-29565/2-A	47	53	39	48
	LCSD 410-29565/3-A	68	75	54	59

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III PESTICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410-9194-1			
SDG No.	:					
Matrix:	Water	Level: Low	Lab File II): 41PEST20216003.005.D		
Lab ID:	LCS 410-29565/2-A		Client ID:			

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
Aldrin	0.100	0.0412	41	28-119	
alpha-BHC	0.101	0.0920	91	47-132	
beta-BHC	0.100	0.0899	90	27-143	
delta-BHC	0.100	0.0912	91	28-141	
Dieldrin	0.200	0.173	87	31-145	
Endosulfan I	0.100	0.0866	87	40-138	
Endosulfan II	0.200	0.184	92	27-138	
Endosulfan sulfate	0.200	0.206	103	41-133	
Endrin	0.200	0.180	90	35-143	
gamma-BHC (Lindane)	0.100	0.0870	87	29-136	
Heptachlor	0.100	0.0546	55	38-135	
p,p'-DDD	0.201	0.188	93	42-148	
p,p'-DDE	0.200	0.140	70	22-138	
p,p'-DDT	0.201	0.197	98	40-145	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-9194-1	

 SDG No.:
 Level:
 Low
 Lab File ID:
 41PEST20216003.006.D

Lab ID: LCSD 410-29565/3-A Client ID:

	SPIKE ADDED	LCSD LCSD CONCENTRATION % %		QC L1	#		
COMPOUND	(ug/L)	(ug/L)	REC	RPD	RPD	REC	"
Aldrin	0.100	0.0697	70	51	30	28-119	*1
alpha-BHC	0.101	0.118	116	24	30	47-132	
beta-BHC	0.100	0.119	119	28	30	27-143	
delta-BHC	0.100	0.119	119	27	30	28-141	
Dieldrin	0.200	0.228	114	27	30	31-145	
Endosulfan I	0.100	0.121	121	33	30	40-138	*1
Endosulfan II	0.200	0.239	119	26	30	27-138	
Endosulfan sulfate	0.200	0.247	123	18	30	41-133	
Endrin	0.200	0.231	115	25	30	35-143	
gamma-BHC (Lindane)	0.100	0.116	116	28	30	29-136	
Heptachlor	0.100	0.0857	86	44	30	38-135	*1
p,p'-DDD	0.201	0.236	117	23	30	42-148	
p,p'-DDE	0.200	0.195	98	33	30	22-138	*1
p,p'-DDT	0.201	0.266	132	30	30	40-145	

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery and RPD values FORM III 8081B

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9194-1

SDG No.:

Client Sample ID: <u>SB18_0-2</u> Lab Sample ID: <u>410-9194-1</u>

Date Analyzed (1): 08/01/2020 13:34 Date Analyzed (2): 08/01/2020 13:34

ANALYTE	COL	PEAK	RT	RT WI	NDOW	CONCENT	RATION	RPD
ANALITE	COL	FEAN	KI	FROM	TO	PEAK	MEAN	
gamma-BHC (Lindane)	1		2.56	2.52	2.58	0.45		37.4
	2		2.98	2.95	3.01	0.65		
Endosulfan I	1		3.95	3.92	3.98	0.97		93.2
	2		4.52	4.48	4.54	0.35		
p,p'-DDE	1		4.09	4.06	4.12	0.85		37.4
	2		4.61	4.57	4.63	1.2		
p,p'-DDT	1		4.76	4.73	4.79	2.1		27.2
	2		5.22	5.19	5.25	1.6		

FORM II PCBS SURROGATE RECOVERY

Lab N	lame:	Eurofins	Lancaster	Laboratories	Jok	No.:	410-9194-1	
SDG N	io.:							
Matri	x: S	olid			Lev	el: L	low	
						_		

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB18_0-2	410-9194-1	68		71		86		92	
SB18_7-8	410-9194-2	63		65		74		78	
SB18_18-20	410-9194-3	70		76		80		86	
SB20_0-2	410-9194-4	61		63		58		67	
SB20_10-12	410-9194-5	64		62		59		63	
SB20_20-22	410-9194-6	42	Х	38	Χ	59		64	
	MB 410-28582/10-A	69		75		77		81	
	LCS 410-28582/11-A	79		84		85		90	

QC LIMITS 53-140 45-143

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories	Job No.: 410-9194-1				
SDG No.:					
Matrix: Water	Level: Low				
GC Column (1): DB CLP1	GC Column (2): DB CLP2 ID: 0.32 (mm)				

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SOFB01_073020	410-9194-9	53		64		43		46	
	MB 410-28905/1-A	60		69		55		61	
	LCS 410-28905/2-A	60		71		44		49	

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8082A

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	ies Job No.: 410-9194-1					
SDG No.:							
Matrix: Solid		Level: Low					
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)				

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB18_0-2	410-9194-1	48	47
SB18_7-8	410-9194-2	53	55
SB18_18-20	410-9194-3	52	51
SB20_0-2	410-9194-4	53	52
SB20_10-12	410-9194-5	53	56
SB20_20-22	410-9194-6	51	51
	MB 410-29694/1-A	53	55
	LCS 410-29694/2-A	52	53
	LCSD 410-29694/3-A	53	56

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: 410-9194-1				
SDG No.:						
Matrix: Water		Level: Low				
GC Column (1): ZB-35	TD: 0.32 (mm)	GC Column (2): ZB-XLB	TD: 0.32 (mm)			

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SOFB01_073020	410-9194-9	52	55
	MB 410-30623/1-A	50	53
	LCS 410-30623/2-A	58	58

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{34-142}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster		er Labo	Laboratories		No.: 410	-9194-1				
SDG No.	:									
Matrix:	Solid	Level	: Low	Lab	File ID:	36HERB2020	5007.	093.D		
Lab ID:	LCS 410-29694/2-A			Cli	ent ID:					
			SPIKE		_	CS	LCS	QC		

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	4.88	59	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job	No.: 410-9194-1						
SDG No.:	:									
Matrix:	Water	Level: Low	Lab	File ID: 36HERB20	205008.	007.D				
Lab ID: LCS 410-30623/2-A			Clie		Client ID:					
		SPIKE		LCS	LCS	QC		_		
	COMPOUND	ADDED (ug/L)		CONCENTRATION (ug/L)	% REC	LIMITS REC	#			

0.250

0.155

81-137

Silvex (2,4,5-TP)

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancaste	er Laboratories	Job No.: 41	: 410-9194-1				
SDG No.	:							
Matrix:	Solid	Level: Low	Lab File II	D: 36HERB20205007.094.D				
Lab ID:	LCSD 410-29694/3-A		Client ID:					

	SPIKE	LCSD	LCSD		QC L1	IMITS	
	ADDED	CONCENTRATION %		%			#
COMPOUND	(ug/Kg)	(ug/Kg) REC		RPD	RPD	REC	
Silvex (2,4,5-TP)	8.33	5.13	62	5	50	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB18 0-2 MS Lab ID: 410-9194-1 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9194-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 89.5

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	6.54	8.4	2.17	-86	75-125	F1	6020B
Barium	280	240	10.9	383	75-125	4	6020B
Beryllium	1.22	0.32	0.881	102	75-125		6020B
Cadmium	1.64	0.27	1.10	125	75-125		6020B
Chromium	20.1	20	11.0	4	75-125	F1	6020B
Lead	478	780	1.08	-28269	75-125	4	6020B
Manganese	331	420	11.0	-763	75-125	4	6020B
Nickel	25.5	36	11.0	-97	75-125	F1	6020B
Selenium	2.11	ND	2.19	96	75-125		6020B
Silver	12.0	0.79	11.0	101	75-125		6020B
Zinc	261	160	110	92	75-125		6020B
Mercury	10.1	8.8	0.180	677	80-120	4	7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: SB18 0-2 MSD Lab ID: 410-9194-1 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9194-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 89.5

Analyte	(SDR)	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Arsenic	7.44	2.17	-45	75-125	13	20	F1	6020B
Barium	277	10.9	351	75-125	1	20	4	6020B
Beryllium	1.18	0.881	97	75-125	3	20		6020B
Cadmium	1.44	1.10	107	75-125	13	20		6020B
Chromium	20.2	11.0	6	75-125	1	20	F1	6020B
Lead	340	1.08	-41064	75-125	34	20	4 F2	6020B
Manganese	304	11.0	-1010	75-125	9	20	4	6020B
Nickel	26.1	11.0	-92	75-125	2	20	F1	6020B
Selenium	2.05	2.19	93	75-125	3	20		6020B
Silver	11.8	11.0	100	75-125	1	20		6020B
Zinc	241	110	73	75-125	8	20	F1	6020B
Mercury	12.0	0.177	1813	80-120	18	20	4	7471B

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

6-IN DUPLICATES METALS

Client ID: SB18_0-2 DU Lab ID: 410-9194-1 DU

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9194-1

SDG No.:

% Solids for Sample: 89.5 % Solids for Duplicate: 89.5

Matrix: Solid Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	Duplicate (D)	RPD	Q	Method
Arsenic	0.84	8.4	4.18	67	F3	6020B
Barium	0.84	240	353	39	F3	6020B
Beryllium	0.13	0.32	0.349	7		6020B
Cadmium	0.21	0.27	0.741	94	F3	6020B
Chromium	0.84	20	8.88	75	F3	6020B
Lead	0.42	780	379	70	F3	6020B
Manganese	0.84	420	288	36	F3	6020B
Nickel	0.84	36	14.9	83	F3	6020B
Selenium	0.84	ND	ND	NC		6020B
Silver	0.21	0.79	0.785	0.1		6020B
Zinc	4.2	160	120	29	F3	6020B
Mercury	1.6	8.8	11.2	24	F3	7471B

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II LCMS SURROGATE RECOVERY

ab N	Name: Eurofin	Lancaster	Laboratories	Job No.:	410-9194-	-1
ab N	Name: Eurofin	Lancaster	Laboratories	Job No.:	410-9194	1 –

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	C3PFBS #	13С5РНА#	C3PFHS #	C4PFHA #	M262FTS#	C8PFOA #
EB03_073020	410-9194-8	106	108	106	107	101	102	113	110
SOFB01_073020	410-9194-9	110	111	104	113	106	109	113	110
	MB 410-28974/1-A	105	117	115	107	103	110	116	109
	LCS 410-28974/2-A	97	99	98	103	97	97	107	99
	LCSD 410-28974/3-A	106	111	111	106	103	108	116	106

	QC LIMITS
PFBA = 13C4 PFBA	43-130
PFPeA = 13C5 PFPeA	38-150
C3PFBS = 13C3 PFBS	23-175
13C5PHA = 13C5 PFHxA	36-137
C3PFHS = 13C3 PFHxS	35-143
C4PFHA = 13C4 PFHpA	33-140
M262FTS = M2-6:2 FTS	29-182
C8PFOA = 13C8 PFOA	52-124

Column to be used to flag recovery values

FORM II 537 (Mod)

FORM II LCMS SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9	194-1
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SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	C8PFOS #	C9PFNA #	C6PFDA #	M282FTS #	PFOSA #	d3NMFOS#	13C7PUA #	d5NEFOS #
EB03_073020	410-9194-8	103	110	107	122	96	101	105	111
SOFB01_073020	410-9194-9	107	112	107	121	101	109	99	111
	MB 410-28974/1-A	108	112	109	130	103	117	99	119
	LCS 410-28974/2-A	97	103	96	107	95	101	97	103
	LCSD 410-28974/3-A	109	119	105	127	104	112	113	122

	QC LIMITS
C8PFOS = 13C8 PFOS	52-121
C9PFNA = 13C9 PFNA	48-130
C6PFDA = 13C6 PFDA	50-124
M282FTS = M2-8:2 FTS	37-169
PFOSA = 13C8 FOSA	10-134
d3NMFOS = d3-NMeFOSAA	36-143
13C7PUA = 13C7 PFUnA	44-128
d5NEFOS = d5-NEtFOSAA	42-149

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 537 (Mod)

FORM II LCMS SURROGATE RECOVERY

Lab Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-9194-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFDoDA #	PFTDA #
EB03_073020	410-9194-8	97	76
SOFB01_073020	410-9194-9	84	35
	MB 410-28974/1-A	81	38
	LCS 410-28974/2-A	93	62
	LCSD 410-28974/3-A	106	99

PFDoDA = 13C2-PFDoDA PFTDA = 13C2 PFTeDA QC LIMITS 36-127 21-134



December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report - Eurofins Lancaster Laboratories - Soil Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for seven soil samples, one field blank, one equipment blank, and one trip blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-9318-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB17_0-2 SB17_14-16 SB17_30-32 SB23_0-2 SB23_9-11 SB23_26-28 EB03-073120 TB04_073120 SODUP01 073120 SOFB02 073120

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report		
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes	
2.	Have all holding times been met?	Yes	
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – Following Sections	See
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No	
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes	
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes	

Mr. Joseph Yanowitz December 18, 2020 Page 2 of 14



	Data Usability Summary Report	
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data	
	package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

Volatile Organics

- Results for 1,1-dichloroethene in SB17_30-32, SB23_9-11, SB23_26-28, SODUP01_073120, SB17_0-2, and SB23_0-2, and for acetone in TB04_073120 and SOFB02_073120, were qualified as estimated (UJ) due to unacceptable percent differences (%Ds) in the second source initial calibration verification (ICV) standards.
- Positive results for 2-butanone and acetone in SB17_0-2, SB17_30-32, SB23_9-11, and SODUP01_073120 were qualified as estimated (J+) based on high recoveries for these compounds in the associated matrix spike (MS) and/or MS duplicate (MSD).
- Results for acetone in all of the soil samples in this SDG were qualified as estimated (J, UJ) based on poor precision in the field duplicates.

o Semi-Volatile Organics (Full Scan)

- Results for indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)pyerlyene in SOFB02_073120 were qualified as estimated (UJ) based on high %Ds in the associated continuing calibration (CC) standard.
- Results for all acid-extractable target compounds, acenapthene, acenaphthylene, dibenzofuran, fluorene, hexachlorobenzene, phenanthrene, anthracene, and fluoranthene, in SB23_0-2, and for all target compounds in SB23_9-11 and SOFB02_073120 were qualified as estimated (J-, UJ) with the potential for low bias, based on low recoveries of the surrogate compounds.
- Results for 4-methylphenol and phenol in SOFB02_073120 were qualified as estimated (UJ) based on low recoveries in the associated laboratory control sample (LCS) and LCS duplicate (LCSD).
- Results for chrysene in all of the soils samples in this SDG were qualified as estimated (J, UJ) based on poor precision in the field duplicate pair.

o Semi-Volatile Organics (Selected Ion Monitoring)

 Results for 1,4-dioxane in SB17_0-2, SB17_30-32, SB23_0-2, SB23_26-28, and SOFB02_073120 were qualified as estimated (UJ) based on low recoveries for the associated surrogate compound. Mr. Joseph Yanowitz December 18, 2020 Page 3 of 18



 Results for 1,4-dioxane in all of the soil samples in this SDG, as well as the aqueous field blank. SOFB02_073120, were qualified as estimated (UJ) due to low recoveries in the LCS and/or LCSD, and/or MS/MSD.

o Pesticides

- The results for all target pesticide compounds in SODUP01_073120 and SOFB02_073120 were qualified as estimated (J-, UJ) due to low surrogate recoveries on both analytical columns.
- The results for delta-BHC in SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28, and SODUP01_073120 were qualified as estimated (J, UJ) due to unacceptable MS/MSD recoveries and imprecision between MS/MSD results.
- Results for 4,4'-DDE in SB17_0-2 and SB17_30-32 and 4,4'-DDD in SB17_30-32 were qualified as estimated (UJ) due to lack of confirmation at low concentrations in subsequent sample analyses.
- Results for 4,4'-DDT in SB17_0-2 and SB17_30-32 and for 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT in SODUP01_073120 were rejected (R) due to lack of confirmation at significant concentrations in subsequent sample analyses.
- Results for 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT in all of the soil samples were rejected
 (R) due to lack of confirmation at significant concentrations in the field duplicate analysis.

o PCBs

 Results for all Aroclors in SOFB02_073120 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns. The result for Aroclor 1016 in SOFB02_0731120 was also qualified as estimated (UJ) due to low LCS and LCSD recoveries.

Herbicides

The results for Silvex in SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28, SODUP01_073120, and SOFB02_0731120 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns and low LCSD and/or LCS recoveries. The results for Silvex in SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28, and SODUP01_073120 were also qualified as estimated (UJ) due to low MS/MSD recoveries.

o **Metals**

 Results for results for Lead and Nickel in samples SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28 and SODUP01_073120 were qualified as estimated biased low (J-) due to low MS and/or MSD recoveries. Mr. Joseph Yanowitz December 18, 2020 Page 4 of 18



Per- and Polyfluoroalkyl Substances (PFAS)

 The results for NMeFOSAA and NEtFOSAA in SB23_9-11 and perfluorotetradecanoic acid (PFTeDA) in SOFB01_073020 were qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - o MS/MSD recoveries
 - o Internal standards
 - Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - o Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

• Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.

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- A "T" flag was present in the EDD for a number of results. This data flag was not present on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for submission to the agency, although this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory responded that these peaks are checked both by the analyst and during a secondary level review of the calibration data.
- Three ICVs were listed on the Form 5s for the ICs. The purpose or identification of these ICVs are not provided in the data package. Summary and raw data for only one of the ICVs for each IC (6/2/20 @ 14:20 and 7/31/20 @ 21:08) was provided.
- the Form 1s in the data package, nor was it listed in the definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for submission to the agency, although this qualifier format is not reflected in the data package.
- Two Form 5s and two copies of the raw data for the DFTPP tune for 7/31/20 @ 15:03 were included in the data package, representing comparison to two different sets of criteria, presumably meant to cover multiple revisions of the 8270 method. Only the current criteria (Form 5, p705, and raw data, beginning on p1391) were assessed for this validation effort.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did
 not match the responses found in the raw data. According to the laboratory, the
 discrepancies are because peak heights are reported in the raw data, but peak areas are
 reported on the summary forms. Corrected documentation was not provided by the time
 this report was issued; however, the data can be reassessed if corrections are
 subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown
 was less than the maximum acceptance limit of 15% in every case.
- Multiple extractions and analyses of the samples were performed in association with the
 pesticide analyses. The reasons for all of these extractions and analyses were not
 documented in the data package. On request, the laboratory provided explanations via a
 separate email but did not include them in the revised data package (Revision 2).
- Raw data were included in the initial data package only for the analyses reported by the laboratory, but two to six analyses of each sample were performed, and identification summaries were provided for most of the additional analyses performed. In order to verify the summary form results, the laboratory was asked to provide raw data for all of the unreported analyses that were documented on identification summaries. The laboratory declined to do so, instead stating "this data is not required in the data package and has been removed in the latest version" of the data package (Revision 2).

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- Results for alpha-chlordane were not reported on the pesticides laboratory control sample
 or matrix spike/matrix spike duplicate summary forms. These results were evaluated
 based on the available raw data.
- Recoveries of tetrachloro-m-xylene and decachlorobiphenyl on the DB CLP1 column of pesticides laboratory control sample 410-31471/2-A were not reported on the summary form. These recoveries were calculated using the available raw data.
- Summary forms and raw data for toxaphene initial calibrations performed on August 4, 2020 on instrument 249552 and August 9, 2020 on instrument 9191 were included in the data package. Since toxaphene is not a target analyte for these analyses, the data are not relevant and were not reviewed.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening CCVs and CCBs. The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- MDLs for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.
- No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

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Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of July 31, 2020. The samples were received by the laboratory on the same day as sample collection. One of the cooler temperatures on receipt at the laboratory was acceptable (2.2°C; QC 4°C ±2°C); the other two cooler temperatures (0.8°C and 1.6°C) were slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

1. Calibration

Three ICs were reported in support of sample analyses (one on Instrument 9355 – waters; 1 each on Instruments 23313 and 9953 – soils). All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable.

Second source ICV standards were analyzed in association with each IC. All ICV responses were acceptable (<20 %D) with the exceptions detailed below:

Instrument/ICV	Compound	%D	Affected Samples	Qualifiers Applied
9355 – 7/14/20	acetone	23.9	TB04_073120 SOFB02_073120	υJ
99553 – 7/29/20	1,1-dichloroethene	21.9	SB17_30-32 SB23_9-11 SB23_26-28 SODUP01_073120 SB17_0-2 SB23_0-2	S

Results as detailed above were qualified as estimated (UJ) without directional bias, based on unacceptable %Ds in the ICVs.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
23313 - 8/4/20 @ 19:13	1,4-dioxane	+63.4	SB17_14-16	None
99553 - 8/5/20 @ 8:38	1,4-dioxane	+27.4	SB17_0-2	
			SB23_0-2	

The %Ds for 1,4-dioxane represent an increase in instrument sensitivity, with the potential for high bias. 1,4-Dioxane was not detected in any of the associated samples, therefore, no qualification of results was warranted.

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2. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported in the project-related data package for SDG 11359. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<50) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB13_12-14					
2-Butanone	131	а	а	SB17_14-16	J+
Acetone	317	246	а	SB17_30-32 SB23_26-28 SODUP01_073120 SB17_0-2 SB23_0-2 SB23_9-11	

a-acceptable

Positive results for acetone and 2-butanone in the samples detailed above are qualified as estimated (J+) with the potential for high bias, based on high MS/MSD recoveries.

3. Field Duplicates

Sample SODUP01_073120 was collected and submitted as a field duplicate of SB23_26-28. Acetone (25 μ g/kg) was detected in the field duplicate, but was not found in SB23_26-28 (19 U μ g/kg). Based on poor precision observed for acetone, results for acetone in all of the soil samples in the data set were qualified as estimated (J, UJ).

B. Semi-Volatile Organics (Full Scan)

1. Calibration

Two ICs (Instruments HP11165 and HP19760) were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard was analyzed following each IC and all %Ds were acceptable. It was noted that three ICVs were analyzed after the IC. Summary forms and data for only one for each IC were included in the data package. It was noted that "e" flags indicating the potential for peak saturations were displayed on one or more of the quantitation reports of the highest concentration IC standards. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) for the target compounds, with the exceptions noted below:

СС	Compound	%D	Affected Samples	Qualifiers Applied
	Indeno(1,2,3-cd)pyrene	-24.4	SOFB02_073120	UJ
	Dibenz(a,h)anthracene	-23.5		



СС	Compound	%D	Affected Samples	Qualifiers Applied
HP19769 / 8/5/20 @ 12:52	Benzo(g,h,i)perylene	-27.7		

The percent differences represent a decrease in instrument sensitivity. Results in SOFB02 073120 were qualified as estimated (UJ) due to low CC response.

2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB23_0-2	2-Fluorophenol	64	All acid-extractable	J-, UJ
	Phenol-d ₅	69	target compounds	
	2-Fluorobiphenyl	68	Acenaphthylene Acenaphthene Dibenzofuran Fluorene Hexachlorobenzene Phenanthrene Anthracene Fluoranthene	
SB23_9-11	2-Fluorophenol	19	All target compounds	
	Phenol-d ₅	51		
	2,4,6-Tribromophenol	45		
	Nitrobenzene-d ₅	69		
	2-Fluorobiphenyl	60		
SOFB02_073120	2-Fluorophenol	28		
	Phenol-d ₅	26		
	2,4,6-Tribromophenol	18		
	2-Fluorobiphenyl	64		
	Terphenyl-d ₁₄	61		

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

3. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one water LCS/LCSD pair associated with the water sample and one LSC for the soil sample analyses were reported. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<50) with the exceptions below:

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Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS 29096					
4-Methylphenol	68	65	а	SOFB02_073120	J-, UJ
Phenol	45	43	а		

a-acceptable

Results for the target compound listed above in the field blank as detailed above are qualified as estimated (J-, UJ) with the potential for low bias, based on low LCS and LCSD recoveries.

4. Internal Standards

Retention times for internal standards in one or more of the CC standards analyzed in association with the soil samples were early for one or all six of the IS compounds. As the shifts appear similar for these IS compounds, it is assumed that column trimming, or other minor maintenance gave rise to the shift(s). All IS RTs in the analyses associated with the CC were acceptable and matched the applicable CC standard well. Identification and quantitation of the target compounds associated with each IS in the applicable CC were unaffected by the shift(s), and the shift(s) was/were reflected in the associated sample analysis, therefore, no action was warranted on this basis.

5. Field Duplicates

Sample SODUP01_073120 was collected and submitted as a field duplicate of SB23_26-28. Results for fluoranthene and pyrene showed good agreement at low concentrations below the RL. Chrysene was detected at a low concentration in SB23_26-28 but was not detected in the field duplicate. On this basis, results for chrysene in all of the soil samples were qualified as estimated (J, UJ) without directional bias.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Calibration

Two ICs (Instruments HP10623 and HP23263) were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) for the project target analyte were acceptable. One ICV standard was analyzed following each IC and %Ds for 1,4-dioxane were acceptable. It was noted that three ICVs were analyzed after the IC on HP23263. Summary forms and data for all three ICVs were included in the data package, however, only one included a response and data for 1,4-dioxane, and only that standard was reviewed.

CC standards were analyzed at the appropriate frequency and percent differences were acceptable (<20%D) for the target analyte.

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2. Surrogates:

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane, therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

Sample	%R	Qualifier Applied
SB17_0-2	65	UJ
SB17_30-32	69	
SB23_0-2	66	
SB23_26-28	65	
SOFB02 073120	63	

Result for 1,4-dioxane in the samples listed above were qualified as estimated (UJ) with the potential low bias, based on low recovery observed in the associated surrogate compound.

3. LCS/LCSD

One LCS was prepared and analyzed with the soil samples, and one LCS/LCSD pair with the water field blank. Precision was acceptable for the paired results, however, all recoveries were unacceptable.

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS 29087					
1,4-Dioxane	36	35	а	SOFB02_073120	J-, UJ
LCS 29099					·
1,4-Dioxane	31	na	na	All soil samples in the SDG	

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

4. MS/MSD

One MS/MSD pair was prepared and analyzed with the soil samples. Good precision was observed, however, both recoveries were unacceptable.

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied	
Parent Sample SB23_26-28						
1,4-Dioxane	35	34	а	All soil samples in the SDG	J-, UJ	

a-acceptable

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

5. Field Duplicates

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Sample SODUP01_073120 was collected and submitted as a field duplicate of SB23_26-28. 1,4-Dioxane was not detected in either of the paired field duplicate samples.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column					
Sample	TCX/1	TCX/2	DCB/1	DCB/2		
SB17_0-2	a	а	133	а		
SB17_14-16	a	66	а	а		
SB17_30-32	a	a	134	а		
SB23_0-2	a	a	а	156		
SB29_9-11	a	61	а	а		
SODUP01_073120	40	39	а	а		
SODUP01_073120DL	49	45	111	113		
SOFB02_073120	а	а	45	51		

a-acceptable

The results for all target pesticide compounds in SODUP01_073120 and SOFB02_073120 were qualified as estimated (J-, UJ) due to low surrogate recoveries on both analytical columns. For all other samples listed above, three of four surrogate recoveries were acceptable. Therefore, no additional action was taken on this basis.

2. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB23_26-28 was prepared as an MS/MSD pair with this data set. Percent recoveries and RPDs were acceptable (70-130%R, RPD<30) with the exceptions below:

Parent Sample: SB23_26-28								
Parameter	MS %R Column 1 / 2	MSD %R Column 1 / 2	RPD Col. 1 / 2	Samples Affected	Qualifiers Applied			
delta-BHC	69 / a	a / 164	a/70	SB17_0-2	J, UJ			
				SB17_14-16				
				SB17_30-32				
				SB23_0-2				
				SB23_9-11				
				SB23_26-28				
				SODUP01_073120				

a-acceptable

The results for delta-BHC in SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28, and SODUP01_073120 were qualified as estimated (J, UJ) due to unacceptable MS/MSD recoveries and imprecision between MS/MSD results.

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3. Compound Identification and Quantitation

The relative percent difference (RPD) between the two column measurements was acceptable (≤40 RPD) for compounds detected in each sample. The higher of the two column measurements was reported, as specified by the method.

The concentration of 4,4'-DDT in the undiluted analysis of SODUP01_073120 exceeded the upper limit of the established range. The sample was re-analyzed at a 5-fold dilution, and the concentration of this analyte was within the calibration range in the diluted analysis. The result for 4,4'-DDT was reported from the diluted analysis of SODUP01_073120, and all other results for this sample were reported from the undiluted analysis.

Based on the run logs, preparation logs, method blank summaries, and identification summaries included in the original data package, multiple extractions and analyses of the samples were performed in association with the pesticide analyses. Since no explanations were provided in the data package, the laboratory was contacted. The samples were initially extracted and analyzed on August 5, 2020. According to the laboratory, all of the samples were re-extracted and analyzed on August 7, 2020 because recoveries of most target analytes on both columns in the LCS associated with the initial extraction were high. A third extraction of samples SB17_0-2 and SB17_30-32 was performed on August 7, 2020; the laboratory advised that this was "further dilutions due to matrix and E-flags." Sample SODUP01_073120 was extracted a third time on August 10, 2020 "due to detections for 4,4'-DDD" according to the laboratory. None of these explanations were provided in the initial data package or any subsequent revisions, but they should have been. The laboratory was also asked how it determined which results to report from the multiple sample analyses but did not answer the question.

Raw data were included in the initial data package only for the analyses reported by the laboratory, but two to six analyses of each sample were performed, and identification summaries were provided for most of the additional analyses performed. Discrepancies among analyte results were observed, particularly for 4,4'-DDT, as shown below:

Analysis Data / Time	Dilution	С	Concentration (µg/kg)				
Analysis Date / Time	Factor	4,4'-DDE	4,4'-DDD	4,4'-DDT			
SB17 (0-2)							
8/5/20 at 01:22*	1	ND	ND	ND			
8/6/20 at 20:11	1	7.4	ND	3.9			
8/7/20 at 16:49	20	7.4	ND	260			
8/10/20 at 09:52	1	ND	ND	ND			
SB17_30-32							
8/5/20 at 01:50*	1	ND	ND	ND			
8/6/20at 20:32	1	3.2	2.0	ND			
8/7/20 at 17:03	10	ND	ND	81			
SODUP01_073120							
8/6/20 at 21:36	1	ND	ND	ND			
8/7/20 at 17:17	5	41	22	ND			
8/7/20 at 17:31	200	ND	ND	1300			
8/11/20 at 10:06*	1	1.2	0.75	36 E			
8/11/20 at 11:43*	5	ND	ND	36			

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Results were reported from the analysis designated "*."

In order to verify the summary form results, the laboratory was asked to provide raw data for all of the unreported analyses that were documented on identification summaries. The laboratory declined to do so, instead stating "this data is not required in the data package and has been removed in the latest version" of the data package (Revision 2). It is the validator's opinion that all results initially reported should be considered, especially given the inconsistencies. On that basis, results for 4,4'-DDE in SB17_0-2 and SB17_30-32 and 4,4'-DDD in SB17_30-32 were qualified as estimated (UJ) due to lack of confirmation at low concentrations in subsequent sample analyses. Results for 4,4'-DDT in SB17_0-2 and SB17_30-32 and for 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT in SODUP01_073120 were rejected (R) due to lack of confirmation at significant concentrations in subsequent sample analyses.

4. Field Duplicates

Sample SODUP01_073120 was collected and submitted as a field duplicate of SB23_26-28. No target analytes were detected in the reported analysis of SB23_26-28, but varying concentrations of 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT were detected in SODUP01_073120 (see above). Results for 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT in all of the soil samples were rejected (R) due to lack of confirmation at significant concentrations in the field duplicate analysis.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column							
Sample	TCX/1	TCX/2	DCB/1	DCB/2				
SB17_14-16	57	56	а	а				
SB17_30-32	67	а	а	а				
SB23_0-2	60	56	а	а				
SB23_9-11	62	60	а	а				
SOFB02_073120	57	58	27	25				

a-acceptable

The results for all Aroclors in SOFB02_073120 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

For the soil samples listed above, DCB recoveries were acceptable, as were recoveries of spiked Aroclors on both columns in the associated LCS and MS/MSD analyses. Therefore, based on professional judgment, no action was taken due to the low TCX recoveries.

2. Laboratory Control Sample (LCS)

Results for two solid-matrix LCSs and one aqueous-matrix LCS/LCSD pair associated with the sample analyses were reported in the data package. The percent recoveries of Aroclor 1016 and

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Aroclor 1260 on both columns in the LCSs and LCSD were acceptable (QC 70-130%R), except as noted below:

Analyte	LCS %R Column 1	LCS %R Column 2	LCSD %R Column 1	LCSD %R Column 2	Sample Affected	Qualifier Applied			
LCS/LCSD 410	LCS/LCSD 410-29278/2-A and /3-A								
Aroclor 1016	60	61	65	62	SOFB02_073120	UJ			

The result for Aroclor 1016 in SOFB02_0731120 was qualified as estimated (UJ) due to low LCS and LCSD recoveries.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate / Column				
Sample	DCPAA / 1	DCPAA / 2			
SB17_0-2	58	58			
SB17_14-16	35	38			
SB17_30-32	34	31			
SB23_0-2	49	49			
SB23_9-11	42	45			
SB23_26-28	46	45			
SODUP01_073120	53	52			
SOFB02_073120	48	57			

The results for Silvex in SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28, SODUP01_073120, and SOFB02_0731120 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for two solid-matrix LCSs and one aqueous-matrix LCS/LCSD pair associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCSs and LCSD were below the minimum acceptance limit (QC 70-130%R), as noted below:

Analyte	LCS %R Column 1	LCS %R Column 2	LCSD %R Column 1	LCSD %R Column 2	Samples Affected	Qualifier Applied		
LCS/LCSD	LCS/LCSD 410-29223/2-A and /3-A							
Silvex	а	а	61	62	SOFB02_073120	UJ		
LCS 410-29	LCS 410-29076/2-A							
Silvex	64	69	NA	NA	SB17_0-2	UJ		
					SB17_14-16			

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Analyte	LCS %R Column 1	LCS %R Column 2	LCSD %R Column 1	LCSD %R Column 2	Samples Affected	Qualifier Applied	
					SB17_30-32 SB23_0-2 SB23_26-28		
LCS 410-29	LCS 410-29995/2-A						
Silvex	67	64	NA	NA	SB23_9-11 SODUP01_073120	UJ	

a - acceptable

NA - not applicable

The results for Silvex in SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28, SODUP01_073120, and SOFB02_0731120 were qualified as estimated (UJ) due to low LCSD and/or LCS recoveries.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Sample SB23_26-28 was prepared as an MS/MSD pair in association with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the MS and MSD were below the minimum acceptance limit (QC 70-130%R), as noted below:

Parameter	MS %R Column 1	MS %R Column 2	MSD %R Column 1	MSD %R Column 2	Samples Affected	Qualifier Applied
Parent Sam	ple: SB23_2	26-28				
Silvex	65	65	62	63	SB17_0-2 SB17_14-16 SB17_30-32 SB23_0-2 SB23_26-28 SB23_9-11 SODUP01_073120	UJ

The results for Silvex in SB17_0-2, SB17_14-16, SB17_30-32, SB23_0-2, SB23_9-11, SB23_26-28, and SODUP01_073120 were qualified as estimated (UJ) due to low MS/MSD recoveries.

G. Metals

1. Matrix Spike/Matrix Spike Duplicate/Post Spike (MS/MSD/PS)

The MS/MSD/PS performed on SB23_26-28 and associated with the sample analyses were reported in the data package. Percent recoveries were acceptable (75-125%R) with the following exceptions:

Analyte	MS %R	MSD %R	PS %R	Affected Samples	Qualifiers Applied
Lead	70	71	NC	SB17_0-2	J-
Nickel	а	70	NC	SB17_14-16	
				SB17_30-32	
				SB23_0-2	
				SB23_9-11	

Mr. Joseph Yanowitz December 18, 2020 Page 17 of 18



Analyte	MS %R	MSD %R	PS %R	Affected Samples	Qualifiers Applied
				SB23_26-28 SODUP01_073120	

a – acceptable

NC - Not Calculated

Results for lead and nickel were qualified as estimated (J-) due to low MS and/or MSD recoveries. A post spike was performed but the sample concentration was greater than four times the spike concentration and recovery was not calculated. The MS/MSD recovery limits were not applicable for Barium and Manganese due to sample concentration exceeding the spike added at greater than four times.

H. Per- and Polyfluoroalkyl Substances (PFAS)

1. Surrogates (Extracted Internal Standards/ Labeled Analogs):

All labeled analog recoveries were acceptable (50-150%R) with the following exception:

Sample	Labeled Analog	%R
SB23_9-11	d3-NMeFOSAA	29
	d5-NEtFOSAA	39
EB03_073020	Perfluoro[13C2]tetradecanoic acid	23

The results for NMeFOSAA and NEtFOSAA in SB23_9-11 and PFTeDA in SOFB01_073020 were qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

Where the recovery was high and the compound was not detected in the samples, no qualification of sample results was warranted, and it is not detailed above.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent or trivalent chromium were qualified as a result of the data validation. All reported results for hexavalent and trivalent chromium were determined to be usable as reported.

3. General Chemistry - Quantitation

No duplicate analysis was documented for cyanide, hexavalent chromium, or for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be

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made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-9318-1



EPA Qualifier Definitions

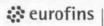
- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. 410-9318-1

Environmental Analy





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les Environmental use only

COC #610555

Lancaster	Laboratories

Environmental	Acc	-							ample	#						_	-		0	00	TT	TO	000
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Project Manager: Paul McMahor	P.O. #							ake	ers	Vocs	SVOC	1, C	metal	cyanida	Mercur	SE				N=HNC S=H ₂ SC			aOH ₃PO₄
Stappenbe Stappenbe	ch Quote	#:				Sediment	ble [ES [3	Containers	/TCL	5	No.	15	27	ZE (dioxan				F=Field	Filtered	0=0	
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SB17-30-32		-	948	\Diamond		X			_	X	X	\times	X	X	X	X	Z						
SB23-0-2			1155	X		X				X	\sim	X	X		\sim	X	X						
SB 23-9-11			1200			X				X	X	\times	X	\times	X	\times	X						
SB23-26-28			1205	X		X				X	X	\times	X.	X	X	X	\times						
EB03-073120			14.00					X	1								\times						
TB04-073120			1.405					X		X						1							
SODUPOI-073120			_	\times		X				X	X	X	X	X		X	X.						
30FB02_073120	1	6	1330					X				X	X	Z	X	X	X						
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NYSDEC Category A or B MA	MCP	CTF	RCP		Sit	te-Sp	ecific QC							1	U		nper					8-	:202

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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-9318-1

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FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9318-1

SDG No.:

Lab Sample ID: ICV 410-27654/10 Calibration Date: 07/29/2020 18:17

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bl29v01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.3351	0.1000	17.9	20.0	-10.6	30.0
Chloromethane	Ave	0.4529	0.4887	0.1000	21.6	20.0	7.9	30.0
1,3-Butadiene	Ave	0.2969	0.3344		22.5	20.0	12.6	30.0
Vinyl chloride	Ave	0.4156	0.4347	0.1000	20.9	20.0	4.6	30.0
Bromomethane	Ave	0.2846	0.3183	0.1000	22.4	20.0	11.8	30.0
Chloroethane	Ave	0.2339	0.2610	0.1000	22.3	20.0	11.6	30.0
Dichlorofluoromethane	Ave	0.5270	0.5675		21.5	20.0	7.7	30.0
Trichlorofluoromethane	Ave	0.3905	0.4655	0.1000	23.8	20.0	19.2	30.0
n-Pentane	Ave	0.4618	0.4579		19.8	20.0	-0.9	30.0
Ethanol	Ave	0.1521	0.1457		958	1000	-4.2	30.0
Freon 123a	Ave	0.3063	0.3283		21.4	20.0	7.2	30.0
Acrolein	Ave	2.690	2.159		120	150	-19.8	30.0
1,1-Dichloroethene	Ave	0.2219	0.2705	0.1000	24.4	20.0	21.9	30.0
Acetone	Ave	1.272	1.143	0.1000	135	150	-10.1	30.0
Freon 113	Ave	0.2425	0.2414	0.1000	19.9	20.0	-0.5	30.0
Methyl iodide	Ave	0.4254	0.4491	···	21.1	20.0	5.6	30.0
2-Propanol	Ave	0.8154	0.7935		146	150	-2.7	30.0
Carbon disulfide	Ave	0.8045	0.8812	0.1000	21.9	20.0	9.5	30.0
Allyl chloride	Ave	0.4553	0.4477		19.7	20.0	-1.7	30.0
Methyl acetate	Ave	0.1942	0.1992	0.1000	20.5	20.0	2.6	30.0
Methylene Chloride	Ave	0.2769	0.3141	0.1000	22.7	20.0	13.4	30.0
t-Butyl alcohol	Ave	1.284	1.286		200	200	0.1	30.0
Acrylonitrile	Ave	0.1015	0.1072		106	100	5.7	30.0
trans-1,2-Dichloroethene	Ave	0.2613	0.3005	0.1000	23.0	20.0	15.0	30.0
Methyl tertiary butyl ether	Ave	0.7155	0.7471	0.1000	20.9	20.0	4.4	30.0
n-Hexane	Ave	0.3864	0.4067	the Particular Control of the Contro	21.0	20.0	5.2	30.0
1,1-Dichloroethane	Ave	0.4804	0.5448	0.2000	22.7	20.0	13.4	30.0
di-Isopropyl ether	Ave	0.9198	0.9708		21.1	20.0	5.5	30.0
2-Chloro-1,3-butadiene	Ave	0.3898	0.4194	war and the same of the same o	21.5	20.0	7.6	30.0
Ethyl t-butyl ether	Ave	0.8018	0.8420		21.0	20.0	5.0	30.0
2-Butanone	Ave	0.1268	0.1357	0.1000	161	150	7.0	30.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3500	0.1000	23.7	20.0	18.7	30.0
2,2-Dichloropropane	Ave	0.3557	0.4156		23.4	20.0	16.9	30.0
Propionitrile	Ave	1.834	1.772		145	150	-3.4	30.0
Methacrylonitrile	Ave	0.1105	0.1200		163	150	8.7	30.0
Bromochloromethane	Ave	0.1474	0.1516		20.6	20.0	2.8	30.0
Tetrahydrofuran	Ave	1.517	1.575		104	100	3.9	30.0
Chloroform	Ave	0.4429	0.5032	0.2000	22.7	20.0	13.6	30.0
1,1,1-Trichloroethane	Ave	0.3691	0.4177	0.1000	22.6	20.0	13.2	30.0
Cyclohexane	Ave	0.4942	0.5202	0.1000	21.0	20.0	5.2	30.0
1,1-Dichloropropene	Ave	0.3654	0.4151		22.7	20.0	13.6	30.0

10/8/8/26

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9318-1

SDG No.:

Lab Sample ID: ICV 410-22126/10 Calibration Date: 07/14/2020 16:05

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YL14V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4845	0.4333	0.1000	17.9	20.0	-10.6	30.0
Chloromethane	Ave	0.5222	0.5202	0.1000	19.9	20.0	-0.4	30.0
1,3-Butadiene	Ave	0.3783	0.3965		21.0	20.0	4.8	30.0
Vinyl chloride	Ave	0.4884	0.5040	0.1000	20.6	20.0	3.2	30.0
Bromomethane	Ave	0,3588	0.3826	0.1000	21.3	20.0	6.6	30.0
Chloroethane	Ave	0.2906	0.3217	0.1000	22.1	20.0	10.7	30.0
Dichlorofluoromethane	Ave	0.6846	0.7143		20.9	20.0	4.3	30.0
Trichlorofluoromethane	Ave	0.5977	0.7172	0.1000	24.0	20.0	20.0	30.0
n-Pentane	Ave	0.5376	0.5306		19.7	20.0	-1.3	30.0
Ethyl ether	Ave	0.3238	0.3856		23.8	20.0	19.1	30.0
Freon 123a	Ave	0.3156	0.3504		22.2	20.0	11.0	30.0
Acrolein	Ave	2.359	2.343		149	150	-0.7	30.0
1,1-Dichloroethene	Ave	0.2235	0.2571	0.1000	23.0	20.0	15.0	30.0
Acetone	Ave	1.022	1.265	0.1000	186	150	23.9	30.0
Freon 113	Ave	0.2374	0.2383	0.1000	20.1	20.0	0.4	30.0
2-Propanol	Ave	0.7171	0.5755		120	150	-19.8	30.0
Methyl iodide	Ave	0.4461	0.4468		20.0	20.0	0.1	30.0
Carbon disulfide	Ave	0.7224	0.7407	0.1000	20.5	20.0	2.5	30.0
Methyl acetate	Ave	0.4441	0.4388	0.1000	19.8	20.0	-1.2	30.0
Allyl chloride	Ave	0.4681	0.4321		18.5	20.0	-7.7	30.0
Methylene Chloride	Ave	0.2773	0.3080	0.1000	22.2	20.0	11.1	30.0
t-Butyl alcohol	Lin2		1.264		199	200	-0.3	30.0
Acrylonitrile	Ave	0.2178	0.2172		99.7	100	-0.3	30.0
Methyl tertiary butyl ether	Ave	0.9101	0.8940	0.1000	19.6	20.0	-1.8	30.0
trans-1,2-Dichloroethene	Ave	0.2707	0.2970	0.1000	21.9	20.0	9.7	30.0
n-Hexane	Ave	0.4028	0.4116		20.4	20.0	2.2	30.0
1,1-Dichloroethane	Ave	0.4809	0.5262	0.2000	21.9	20.0	9.4	30.0
di-Isopropyl ether	Ave	0.9888	0.997		20.2	20.0	0.9	30.0
2-Chloro-1,3-butadiene	Ave	0.4619	0.4787		20.7	20.0	3.6	30.0
Ethyl t-butyl ether	Ave	0.9143	0.9223		20.2	20.0	0.9	30.0
2-Butanone	Ave	0.3251	0.3682	0.1000	170	150	13.3	30.0
cis-1,2-Dichloroethene	Ave	0.3146	0.3592	0.1000	22.8	20.0	14.2	30.0
2,2-Dichloropropane	Ave	0.3919	0.4376		22.3	20.0	11.7	30.0
Propionitrile	Ave	1.552	1.633		158	150	5.2	30.0
Methacrylonitrile	Ave	0.2344	0.2401		154	150	2.4	30.0
Bromochloromethane	Ave	0.1767	0.1699		19.2	20.0	-3.8	30.0
Tetrahydrofuran	Ave	1.623	1.693		104	100	4.3	30.0
Chloroform	Ave	0.4931	0.5485	0.2000	22.2	20.0	11.2	30.0
1,1,1-Trichloroethane	Ave	0.4207	0.4724	0.1000	22.5	20.0	12.3	30.0
Cyclohexane	Ave	0.4787	0.5004	0.1000	20.9	20.0	4.5	30.0
1,1-Dichloropropene	Ave	0.3839	0.4219		22.0	20.0	9.9	30.0

FORM III GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name	e: Eurofins Lancaste	er Laboratories	Job No.: 410-9318-1	
SDG No.	•			
Matrix:	Solid	Level: Low	Lab File ID: Bg04s08.D	
Lab ID:	410-9318-6 MS		Client ID: SB23 26-28 MS	

							1
	SPIKE	SAMPLE	MS	MS	QC		
	ADDED	CONCENTRATION	CONCENTRATION		LIMITS	#	
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC		2
1,1,1-Trichloroethane	18.3	ND	21.3	116			7
1,1-Dichloroethane	18.3	ND	21.1	115	1		
1,1-Dichloroethene	18.3	ND	23.7	130			(8)
1,2,4-Trimethylbenzene	18.3	ND	16.9	93			1
1,2-Dichlorobenzene	18.3	ND	17.4	95			18
1,2-Dichloroethane	18.3	ND	19.3	106			
1,3,5-Trimethylbenzene	18.3	ND	17.1	93			
1,3-Dichlorobenzene	18.3	ND	16.9	93			The state of
1,4-Dichlorobenzene	18.3	ND	16.8	92			3
1,4-Dioxane	457	ND	564	123			
2-Butanone	137	ND	179	131			-
Acetone	137	ND	435	317			
Benzene	18.3	ND	20.2	111			
Carbon tetrachloride	18.3	ND	21.4	117	64-134		
Chlorobenzene	18.3	ND	18.5	101	80-120	i	
Chloroform	18.3	ND	20.5	112	80-120		1
cis-1,2-Dichloroethene	18.3	ND	22.0	120]
Ethylbenzene	18.3	ND	17.8	98	1		
Methyl tertiary butyl ether	18.3	ND	19.4	106	1		
Methylene Chloride	18.3	ND	21.7	119			}
n-Butylbenzene	18.3	ND	15.8	87	71-121		
N-Propylbenzene	18.3	ND	17.2	94			
sec-Butylbenzene	18.3	ND	14.9	82			
tert-Butylbenzene	18.3	ND	17.1	94	68-120]
Tetrachloroethene	18.3	ND	17.4	95			
Toluene	18.3	ND	19.4	106	i		
trans-1,2-Dichloroethene	18.3	ND	21.5	118			
Trichloroethene	18.3	ND	20.0	110			
Vinyl chloride	18.3	ND	19.2	105			
Xylenes, Total	54.9	ND	53.1	97	75-120		

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

10H8 12/8/20

FORM III GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410-9318-1	
SDG No.	:			
Matrix:	Solid	Level: Low	Lab File ID: Bg04s09.D	
Lab ID:	410-9318-6 MSD		Client ID: SB23 26-28 MSD	

	SPIKE ADDED	MSD CONCENTRATION	MSD %	Olo .	QC L1	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	.
1,1,1-Trichloroethane	21.4	24.8	116	15	30	69-123	i
1,1-Dichloroethane	21.4	24.7	115	16	30	79-120	
1,1-Dichloroethene	21.4	27.5	128	15	30	73-129	
1,2,4-Trimethylbenzene	21.4	19.4	91	14	30	73-120	
1,2-Dichlorobenzene	21.4	20.0	93	14	30	76-120	
1,2-Dichloroethane	21.4	22.1	103	13	30	71-128	
1,3,5-Trimethylbenzene	21.4	19.6	92	14	30	73-120	
1,3-Dichlorobenzene	21.4	19.5	91	14	30	75-120	
1,4-Dichlorobenzene	21.4	19.5	91	15	30	80-120	
1,4-Dioxane	536	647	121	14	30	62-131	
2-Butanone	161	190	118	5	30	57-128	
Acetone	161	396	246	9	30	41-150	F1
Benzene	21.4	23.5	110	15	30	80-120	
Carbon tetrachloride	21.4	24.6	115	14	30	64-134	1
Chlorobenzene	21.4	21.3	100	14	30	80-120	
Chloroform	21.4	24.2	113	16	30	80-120	
cis-1,2-Dichloroethene	21.4	25.4	119	14	30	80-123	
Ethylbenzene	21.4	20.4	95	14	30	78-120	
Methyl tertiary butyl ether	21.4	21.5	101	11	30	72-120	
Methylene Chloride	21.4	25.0	117	14	30	76-122	
n-Butylbenzene	21.4	18.2	85	14	30	71-121	
N-Propylbenzene	21.4	19.5	91	12	30	72-123	=
sec-Butylbenzene	21.4	17.0	79	13	30	72-120	
tert-Butylbenzene	21.4	19.6	91	13	30	68-120	
Tetrachloroethene	21.4	19.5	91	11	30	73-120	
Toluene	21.4	22.3	104	14	30	80-120	
trans-1,2-Dichloroethene	21.4	25.0	117	15	30	80-125	
Trichloroethene	21.4	22.8	106	13	30	80-120	
Vinyl chloride	21.4	21.8	102	13	30	52-120	
Xylenes, Total	64.3	60.8	95	14	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM VII GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9318-1

SDG No.:

Lab Sample ID: CCVIS 410-30388/2

Instrument ID: HP19760

Lab File ID: DH0351.D

GC Column: DB-5MS 30m 0.25 ID: 0.25 (mm)

Calibration Date: 08/06/2020 12:52

Calib Start Date: 07/31/2020 16:07

Calib End Date: 07/31/2020 19:41

Conc. Units: ug/mL

AND T SZOP	CHDITT		DD 77		C7.T.C	CDTHE	0.5	
ANALYTE	TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
6-Methylchrysene	Ave	0.8018	0.8144		7.62	7.50	1.6	20.0
Di-n-octyl phthalate	Lin		1.464	0.0100	7.78	7.50	3.7	20.0
Benzo[b]fluoranthene	Lin1		1.304	0.7000	6.94	7.50	-7.4	20.0
7,12-Dimethylbenz(a)anthrace ne	Lin1		0.6144	Annual Control of the	7.06	7.50	-5.9	20.0
Benzo[k]fluoranthene	Ave	1.284	1.385	0.7000	8.09	7.50	7.8	20.0
Benzo[a]pyrene	Lin1		1.230	0.7000	7.03	7.50	-6.2	20.0
3-Methylcholanthrene	Linl		0.5537		6.73	7.50	-10.3	20.0
Dibenz[a,h]acridine	Ave	0.7821	0.6701		6.43	7.50	-14.3	20.0
Dibenz[a,j]acridine	Ave	0.9047	0.7394		6.13	7.50	-18.3	20.0
Indeno[1,2,3-cd]pyrene	Lin1		0.8067	0.5000	5.67	7.50	-24.4*	20.0
Dibenz(a,h)anthracene	Lin1		0.8989	0.4000	5.73	7.50	-23.5*	20.0
Benzo[g,h,i]perylene	Lin1		0.8537	0.5000	5.42	7.50	-27.7*	20.0
2-Fluorophenol (Surr)	Ave	1.565	1.557		14.9	15.0	-0.5	20.0
Pheno1-d5 (Surr)	Ave	1.984	1.967		14.9	15.0	-0.9	20.0
Nitrobenzene-d5 (Surr)	Ave	0.4895	0.5128		15.7	15.0	4.8	20.0
2-Fluorobiphenyl (Surr)	Ave	1.643	1.616		14.8	15.0	-1.6	20.0
2,4,6-Tribromophenol (Surr)	Ave	0.1857	0.1895		15.3	15.0	2.0	20.0
p-Terphenyl-d14 (Surr)	Ave	0.9591	0.9764	~~~	15.3	15.0	1.8	20.0

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-9318-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP #	PHL #	NBZ #	FBP #	TBP #	TPHd14 #
SB17_0-2	410-9318-1	79	82	92	84	94	106
SB17_14-16	410-9318-2	82	87	91	90	87	109
SB17_30-32	410-9318-3	86	92	96	90	81	113
SB23_0-2	410-9318-4	64	69	75	68	66	81
SB23_9-11	410-9318-5	19	51	69	60	45	89
SB23_26-28	410-9318-6	82	87	91	87	101	107
SODUP01_073120	410-9318-9	76	80	84	80	92	102
	MB 410-29097/8-A	81	84	91	86	97	110
AND THE RESERVE OF THE PARTY OF	LCS 410-29097/9-A	78	84	85	81	97	101
SB23_26-28 MS	410-9318-6 MS	74	83	91	84	94	99
SB23_26-28 MSD	410-9318-6 MSD	76	84	88	82	89	101

DAS 12/8/20

		QC LIMITS
2FP =	= 2-Fluorophenol (Surr)	18-115
PHL =	Phenol-d5 (Surr)	21-112
NBZ =	Nitrobenzene-d5 (Surr)	23-115
FBP =	= 2-Fluorobiphenyl (Surr)	34-117
TBP =	= 2,4,6-Tribromophenol (Surr)	10-136
TPHd	4 = p-Terphenyl-d14 (Surr)	35-135

[#] Column to be used to flag recovery values

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories	Job No.: 410-9318-1	l
SDG No.:		
Matrix: Water	Level: Low	

GC Column (1): DB-5MS 30m ID: 0.25(mm)

Client Sample ID	Lab Sample ID	2FP #	PHL	# NBZ	#	FBP	# TBP	# TPHd14 #
SOFB02_073120	410-9318-10	28	26	74		64	18	61 .
	MB 410-29096/1-A	38	30	79		66	83	74
	LCS 410-29096/2-A	47	40	84		75	87	79
	LCSD 410-29096/3-A	46	38	84		73	84	82

DAS 12/8/20

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	10-84
PHL = Phenol-d5 (Surr)	10-67
NBZ = Nitrobenzene-d5 (Surr)	38-113
FBP = 2-Fluorobiphenyl (Surr)	44-102
TBP = 2,4,6-Tribromophenol (Surr)	18-141
TPHd14 = p-Terphenvl-d14 (Surr)	34-128

Column to be used to flag recovery values

FORM II 8270D

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 41	0-9318-1
SDG No.	:			
Matrix:	Water	Level: Low	Lab File ID	: DH0153.D
Lah TD:	TCS /10-29096/2-A		Client ID:	

Acenaphthylene 50.2 48.1 96 56-127 Anthracene 50.1 48.2 96 67-116 Benzo[a]anthracene 50.0 42.4 85 68-123 Benzo[a]pyrene 50.2 41.2 82 71-117 Benzo[b]fluoranthene 50.1 42.5 85 69-121 Benzo[k]fluoranthene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.1 51.7 103 63-122 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 47.8 95 54-131							_
COMPOUND (ug/L) (ug/L) REC REC Acenaphthene 50.1 42.5 85 52-114 Acenaphthylene 50.2 48.1 96 56-127 Anthracene 50.1 48.2 96 67-116 Benzo[a]anthracene 50.0 42.4 85 68-123 Benzo[a]pyrene 50.2 41.2 82 71-117 Benzo[b]fluoranthene 50.1 42.5 85 69-121 Benzo[g,h,i]perylene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-128 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2		SPIKE	LCS	LCS	QC		
Acenaphthene 50.1 42.5 85 52-114 Acenaphthylene 50.2 48.1 96 56-127 Anthracene 50.1 48.2 96 67-116 Benzo[a]anthracene 50.0 42.4 85 68-123 Benzo[a]pyrene 50.2 41.2 82 71-117 Benzo[b]fluoranthene 50.1 42.5 85 69-121 Benzo[g,h,i]perylene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.1 51.7 103 63-122 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Benzo[furan 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Benzo[furan 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Benzo[furan 50.0 47.8 95 54-131		ADDED	CONCENTRATION	ક	LIMITS	#	
Acenaphthylene 50.2 48.1 96 56-127 Anthracene 50.1 48.2 96 67-116 Benzo[a]anthracene 50.0 42.4 85 68-123 Benzo[a]pyrene 50.2 41.2 82 71-117 Benzo[b]fluoranthene 50.1 42.5 85 69-121 Benzo[k]fluoranthene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	COMPOUND	(ug/L)	(ug/L)	REC	REC		
Anthracene 50.1 48.2 96 67-116 Benzo[a]anthracene 50.0 42.4 85 68-123 Benzo[a]pyrene 50.2 41.2 82 71-117 Benzo[b]fluoranthene 50.1 42.5 85 69-121 Benzo[g,h,i]perylene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.1 51.7 103 63-122 Fluoranthene 50.1 51.7 103 63-122 Fluoranthene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Acenaphthene	50.1	42.5	85	52-114		
Benzo[a]anthracene 50.0 42.4 85 68-123 Benzo[a]pyrene 50.2 41.2 82 71-117 Benzo[b]fluoranthene 50.1 42.5 85 69-121 Benzo[g,h,i]perylene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 8	Acenaphthylene	50.2	48.1	96	56-127		1
Benzo[a]pyrene 50.2 41.2 82 71-117 Benzo[b]fluoranthene 50.1 42.5 85 69-121 Benzo[g,h,i]perylene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 47.8 95	Anthracene	50.1	48.2	96	67-116		1
Benzo[b] fluoranthene 50.1 42.5 85 69-121 Benzo[g,h,i]perylene 50.1 37.9 76 60-119 Benzo[k] fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h) anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8	Benzo[a]anthracene	50.0	42.4	85	68-123		1
Benzo[g,h,i]perylene 50.1 37.9 76 60-119 Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Benzo[a]pyrene	50.2	41.2	82	71-117		1
Benzo[k]fluoranthene 50.1 47.0 94 69-122 Chrysene 50.0 45.9 92 65-121 Dibenz(a,h)anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Benzo[b]fluoranthene	50.1	42.5	85	69-121		1
Chrysene 50.0 45.9 92 65-121 Dibenz (a,h) anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Benzo[g,h,i]perylene	50.1	37.9	76	60-119		1
Dibenz (a, h) anthracene 50.2 38.5 77 63-128 Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Benzo[k]fluoranthene	50.1	47.0	94			1
Fluoranthene 50.1 51.7 103 63-122 Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Chrysene	50.0	45.9	92	65-121		1
Fluorene 50.1 47.8 95 56-115 Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Dibenz(a,h)anthracene	50.2	38.5	77	63-128		1
Indeno[1,2,3-cd]pyrene 50.2 37.5 75 59-123 Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Fluoranthene	50.1	51.7	103	63-122		1
Naphthalene 50.4 40.2 80 51-102 2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Fluorene	50.1	47.8	95	56-115		1
2-Methylphenol 50.2 36.8 73 53-107 Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Indeno[1,2,3-cd]pyrene	50.2	37.5	75	59-123		1
Phenanthrene 50.2 47.2 94 65-113 4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Naphthalene	50.4	40.2	80	51-102		1
4-Methylphenol 50.1 33.9 68 49-108 Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	2-Methy1pheno1	50.2	36.8	73	53-107		1
Dibenzofuran 50.0 45.1 90 60-112 Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	Phenanthrene	50.2	47.2	94	65-113		1
Pyrene 50.4 45.0 89 65-115 Hexachlorobenzene 50.1 43.7 87 60-117 Pentachlorophenol 50.4 47.8 95 54-131	4-Methylphenol	50.1	33.9	68	49-108		٦,
Hexach1orobenzene 50.1 43.7 87 60-117 Pentach1orophenol 50.4 47.8 95 54-131	Dibenzofuran	50.0	45.1	90	60-112		1
Pentachlorophenol 50.4 47.8 95 54-131	Pyrene	50.4	45.0	89	65-115		1
+	Hexachlorobenzene	50.1	43.7	87	60-117		1
Phenol 50.2 22.5 45 19-79	Pentachlorophenol	50.4	47.8	95	54-131		1
	Phenol	50.2	22.5	45	19-79		1

DAS 12/8/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $8270\mbox{D}$

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancaste	er Laboratories	Job No.: 410-9318-1
SDG No.			
Matrix:	Water	Level: Low	Lab File ID: DH0154.D
Lab ID:	LCSD 410-29096/3-A		Client ID:

	SPIKE	LCSD	LCSD		QC L	IMITS	
	ADDED	CONCENTRATION	1 1	ફ			#
COMPOUND	(ug/L)	(ug/L)	REC	RPD	RPD	REC	
Acenaphthene	50.1	42.1	84	1	30	52-114	
Acenaphthylene	50.2	47.5	95	1	30	56-127	
Anthracene	50.1	48.7	97	1	30	67-116	
Benzo[a]anthracene	50.0	44.1	88	4	30	68-123	İ
Benzo[a]pyrene	50.2	42.0	84	2	30	71-117	
Benzo[b]fluoranthene	50.1	44.1	88	4	30	69-121	
Benzo[g,h,i]perylene	50.1	39.7	79	5	30	60-119	
Benzo[k]fluoranthene	50.1	48.8	97	4	30	69-122	
Chrysene	50.0	48.4	97	5	30	65-121	
Dibenz(a,h)anthracene	50.2	40.6	81	5	30	63-128	
Fluoranthene	50.1	52.6	105	2	30	63-122	
Fluorene	50.1	46.8	93	2	30	56-115	
Indeno[1,2,3-cd]pyrene	50.2	38.8	77	3	30	59-123	
Naphthalene	50.4	39.2	78	2	30	51-102	
2-Methylphenol	50.2	35.4	71	4	30	53-107	
Phenanthrene	50.2	46.9	93	1	30	65-113	
4-Methylphenol	50.1	32.7	65	4	30	49-108	i
Dibenzofuran	50.0	44.8	90	0	30	60-112	
Pyrene	50.4	46.2	92	3	30	65-115	
Hexachlorobenzene	50.1	43.9	88	1	30	60-117	
Pentachlorophenol	50.4	44.5	88	7	30	54-131	
Phenol	50.2	21.6	43	4	30	19-79	

DAS 12/8/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $8270\mbox{D}$

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	 	Laboratories	Job	No.:	410-9318-1
SDG	No.:					

Matrix: Solid Level: Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SB17_0-2	410-9318-1	65	73	65
SB17_14-16	410-9318-2	71	73	67
SB17_30-32	410-9318-3	69	77	71
SB23_0-2	410-9318-4	66	64	58
SB23_9-11	410-9318-5	71	69	59
SB23_26-28	410-9318-6	65	69	65
SODUP01_073120	410-9318-9	73	76	76
	MB 410-29087/1-A	72	72	74
	LCS 410-29087/2-A	77	83	83
SB23_26-28 MS	410-9318-6 MS	74	84	81
SB23_26-28 MSD	410-9318-6 MSD	81	85	83

DAS 12/8/20

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

Column to be used to flag recovery values

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-9318-1	

SDG No.:

Matrix: Water Level: Low

GC Column (1): DB-5MS 30m ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10	# BAPd12 #		Val. of 1
SOFB02_073120 /	410-9318-10	63	77	62	6-	885/2/8/20
,	MB 410-29099/1-A	61	7 5	66		,,,,,
	LCS 410-29099/2-A	51	80	71		
	LCSD 410-29099/3-A	67	81	71		

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	15-121
FLN10 = Fluoranthene-d10 (Surr)	34-125
BAPd12 = Benzo(a)pyrene-d12 (Surr)	10-138

 $\mbox{\tt\#}$ Column to be used to flag recovery values

FORM II 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster	Laboratories Job	No.: 410-9318-1				
SDG No.:						
Matrix: Solid Le	vel: Low Lab	File ID: CH0054.D				
Lab ID: LCS 410-29087/2-A	Cli	ent ID:				
		-				
	SPIKE	LCS	LCS	QC		
	ADDED	CONCENTRATION	용	LIMITS	#	
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC		
1,4-Dioxane	33.3	10.2	31	21-79		T

31 21-79 DAS 12/8/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster La	boratories Jok	No.: 410-9318-1				İ
SDG No.:				y-10-2-10-10-10-10-10-10-10-10-10-10-10-10-10-		
Matrix: Water Leve	el: Low Lak	File ID: NH0003.D				_
Lab ID: LCS 410-29099/2-A	Cli	ent ID:				
	SPIKE	LCS	LCS	QC	tada da karanta an Albanda ya Maria ya Maria ka	
	ADDED	CONCENTRATION	용	LIMITS	#	ļ
COMPOUND	(ug/L)	(ug/L)	REC	REC		
1,4-Dioxane	1.00	0.358	36	18-91		

DAS 10/8/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name:	Eurofins Lancaste	er Labo	ratories	Job No.: 4	10-93	18-1			+
SDG No.:									
Matrix: Wa	ater	Level:	Low	Lab File I	D: NH	0004.	D		
Lab ID: LC	CSD 410-29099/3-A			Client ID:					
			SPIKE ADDED	LCSD CONCENTRATION	LCSD %	Qio	QC LIMITS	#	

(ug/L)

1.00

COMPOUND

1,4-Dioxane

(ug/L) 0.347

> 1 DHS 12/8/20

REC

18-91

REC RPD

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name	e: Eurofins Lancas	ster Labo	ratories	Job No.: 4	10-9318-1		Marrier Land	6, 11g 18 Ave.
SDG No.	:							
Matrix:	Solid	Level:	Low	Lab File I	D: CH0183.D			
Lab ID:	410-9318-6 MS			Client ID:	SB23_26-28 M	S		
			SPIKE ADDED	SAMPLE CONCENTRATION	MS CONCENTRATION	MS %	QC LIMITS	#

(ug/Kg)

ND

(ug/Kg)

39.8

COMPOUND

1,4-Dioxane

M3 12/8/26

REC

21-79

REC

31

(ug/Kg)

12.4

Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancas	ster Labo	ratories	Job No.: 4	10-93	18-1			j
SDG No.	:								į
Matrix:	Solid	Level:	Low	Lab File I	D: CH	0184.	D		-
Lab ID:	410-9318-6 MSD			Client ID:	SB23	_26-2	8 MSD		
			SPIKE ADDED	MSD CONCENTRATION	MSD %	96	QC LIMITS	#	

(ug/Kg) 16.0

(ug/Kg)

40.2

n

REC RPD

DAS 14/8/20

RPD

30

REC

21-79

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

COMPOUND

1,4-Dioxane

FORM III PESTICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 35PEST20216007.013.D

Lab ID: 410-9318-6 MS Client ID: SB23_26-28 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Aldrin	4.01	ND	3.36	84	60-117	
alpha-BHC	4.06	ND	3.50	86	65-124	
beta-BHC	4.01	ND	3.61	90	68-129	
delta-BHC	4.01	ND	3.12	78	45-151	
Dieldrin	8.02	ND	7.11	89	63-126	
Endosulfan I	4.01	ND	2.82	70	62-119	
Endosulfan II	8.02	ND	5.74	72	65-126	
Endosulfan sulfate	8.02	ND	7.83	98	71-132	
Endrin	8.02	ND	7.67	96	86-135	
gamma-BHC (Lindane)	4.01	ND	3.38	84	68-133	
Heptachlor	4.01	ND	3.33	83	66-118	
p,p'-DDD	8.07	ND	7.46	92	69-138	
p,p'-DDE	8.02	ND	7.19	90	68-146	
p,p'-DDT	8.07	ND	7.64	95	67-135	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 35PEST20216007.014.D

Lab ID: 410-9318-6 MSD Client ID: SB23_26-28 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	olc .	QC LIMITS		#	
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"	
Aldrin	3.98	3.64	91	8	50	60-117		
alpha-BHC	4.03	3.86	96	10	50	65-124		
beta-BHC	3.98	3.79	95	5	50	68-129		
delta-BHC	3.98	3.63	91	15	50	45-151	р	
Dieldrin	7.96	7.76	97	9	50	63-126		
Endosulfan I	3.98	4.33	109	42	50	62-119		
Endosulfan II	7.96	7.84	98	31	50	65-126		
Endosulfan sulfate	7.96	8.42	106	7	50	71-132		
Endrin	7.96	8.28	104	8	50	86-135		
gamma-BHC (Lindane)	3.98	3.75	94	10	50	68-133		
Heptachlor	3.98	5.38	135	47	50	66-118	F1	
p,p'-DDD	8.01	8.41	105	12	50	69-138		
p,p'-DDE	7.96	7.82	98	8	50	68-146		
p,p'-DDT	8.01	8.46	106	10	50	67-135		

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB17_0-2	410-9318-1	103		96		133		130	
SB17_14-16	410-9318-2	84		66		108		121	
SB17_30-32	410-9318-3	95		88		134		130	
SB23_0-2	410-9318-4	128		101		127		156	Х
SB23_9-11	410-9318-5	72		61		98		107	
SB23_26-28	410-9318-6	100		93		103		116	
SODUP01_073120	410-9318-9	40		39		101		100	
SODUP01_073120 DL	410-9318-9 DL	49		45		111		113	
	MB 410-29086/9-A	63		66		102		105	
	MB 410-30194/1-A	95		86		109		131	
	MB 410-30852/1-A	71		61		117		119	
	MB 410-31471/1-A	31		30		91		99	
	LCS 410-29086/10-A	104		102		150		159	Х
	LCS 410-30194/2-A	90		82		105		121	
	LCS 410-30852/2-A	104		95		184	Х	182	Х
	LCS 410-31471/2-A			23				100	
SB23_26-28 MS	410-9318-6 MS	87		79		95		111	
SB23_26-28 MSD	410-9318-6 MSD	93		84		99		117	

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-9318-1	
SDG No.:			
Matrix: <u>Water</u>		Level: Low	
GC Column (1): DB CLP1	TD: 0.32 (mm)	GC Column (2): DB CLP2	TD: 0.32 (mm)

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SOFB02_073120	410-9318-10	90	80	45	51
	MB 410-30094/1-A	87	80	88	99
	LCS 410-30094/2-A	90	82	82	94
	LCSD 410-30094/3-A	90	80	78	92

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8081B

FORM III PESTICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 35PEST20216007.013.D

Lab ID: 410-9318-6 MS Client ID: SB23_26-28 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Aldrin	4.01	ND	3.36	84	60-117	
alpha-BHC	4.06	ND	3.50	86	65-124	
beta-BHC	4.01	ND	3.61	90	68-129	
delta-BHC	4.01	ND	3.12	78	45-151	
Dieldrin	8.02	ND	7.11	89	63-126	
Endosulfan I	4.01	ND	2.82	70	62-119	
Endosulfan II	8.02	ND	5.74	72	65-126	
Endosulfan sulfate	8.02	ND	7.83	98	71-132	
Endrin	8.02	ND	7.67	96	86-135	
gamma-BHC (Lindane)	4.01	ND	3.38	84	68-133	
Heptachlor	4.01	ND	3.33	83	66-118	
p,p'-DDD	8.07	ND	7.46	92	69-138	
p,p'-DDE	8.02	ND	7.19	90	68-146	
p,p'-DDT	8.07	ND	7.64	95	67-135	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 35PEST20216007.014.D

Lab ID: 410-9318-6 MSD Client ID: SB23_26-28 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	olc .	QC L1	#	
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Aldrin	3.98	3.64	91	8	50	60-117	
alpha-BHC	4.03	3.86	96	10	50	65-124	
beta-BHC	3.98	3.79	95	5	50	68-129	
delta-BHC	3.98	3.63	91	15	50	45-151	р
Dieldrin	7.96	7.76	97	9	50	63-126	
Endosulfan I	3.98	4.33	109	42	50	62-119	
Endosulfan II	7.96	7.84	98	31	50	65-126	
Endosulfan sulfate	7.96	8.42	106	7	50	71-132	
Endrin	7.96	8.28	104	8	50	86-135	
gamma-BHC (Lindane)	3.98	3.75	94	10	50	68-133	
Heptachlor	3.98	5.38	135	47	50	66-118	F1
p,p'-DDD	8.01	8.41	105	12	50	69-138	
p,p'-DDE	7.96	7.82	98	8	50	68-146	
p,p'-DDT	8.01	8.46	106	10	50	67-135	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories	Job No.: 410-9318-1							
SDG No.:								
Matrix: Water	Level: Low							
GC Column (1): DB CLP1	GC Column (2): DB CLP2 ID: 0.32(mm)							

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SOFB02_073120	410-9318-10	57		58		27		25	П
	MB 410-29278/1-A	58		60		37		36	П
	LCS 410-29278/2-A	20	Х	20	Х	66		69	
	LCSD 410-29278/3-A	16	Χ	16	Χ	51		52	

QC LIMITS 33-137 DCB = DCB Decachlorobiphenyl (Surr) 10-148

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

TCX = Tetrachloro-m-xylene

FORM III PCBS LAB CONTROL SAMPLE RECOVERY

_	440 000	/-					
Matrix:	Water	Level: Low	Lab	File	ID:	07PCBS20209010.0021.D	
SDG No.	:						
Lab Nam	e: <u>Eurofins</u>	Lancaster Laborator	ries Job	No.:	410-	9318-1	

Lab ID: LCS 410-29278/2-A Client ID:

	SPIKE ADDED	LCS CONCENTRATION	LCS %	QC LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
PCB-1016	5.01	3.24	65	60-117	
PCB-1260	5.01	4.24	85	57-134	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8082A}$

FORM III PCBS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Nar	me: <u>Eurofins</u>	Lancaster Laboratories	Job No.	: 410	-9318-1	
SDG No	.:					
Matrix	: Water	Level: Low	Lab File	e ID:	07PCBS20209010.0022.D	

Lab ID: LCSD 410-29278/3-A Client ID:

			LCSD	o\c	QC LIMITS		#
COMPOUND	(ug/L)	(ug/L)	REC	RPD	RPD	REC	#
PCB-1016	5.01	3.13	63	3	30	60-117	
PCB-1260	5.01	4.05	81	4	30	57-134	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8082A}$

FORM II HERBICIDES SURROGATE RECOVERY

Lab Na	ame: Eurofins Lancaster Laboratories	Job No.: 410-9318-1
SDG No	o.:	
Matri	x: Solid	Level: Low

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB17_0-2	410-9318-1	58	58
SB17_14-16	410-9318-2	35	37
SB17_30-32	410-9318-3	34	31
SB23_0-2	410-9318-4	49	49
SB23_9-11	410-9318-5	42	45
SB23_26-28	410-9318-6	46	45
SODUP01_073120	410-9318-9	53	52
	MB 410-29076/1-A	56	61
	MB 410-29995/1-A	48	49
	LCS 410-29076/2-A	57	59
	LCS 410-29995/2-A	56	59
SB23_26-28 MS	410-9318-6 MS	59	57
SB23 26-28 MSD	410-9318-6 MSD	57	56

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: 410-9318-1						
SDG No.:								
Matrix: Water		Level: Low						
GC Column (1) • 7R-35	TD: 0 32 (mm)	CC Column (2) · 7D_VID	TD: 0 32 (mm)					

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SOFB02_073120	410-9318-10	48	57
	MB 410-29223/1-A	56	60
	MB 410-30623/1-A	50	53
	LCS 410-29223/2-A	68	72
	LCS 410-30623/2-A	58	58
	LCSD 410-29223/3-A	54	56

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{34-142}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

Lab Name	ab Name: Eurofins Lancaster Laboratories		Job	Job No.: 410-9318-1						
SDG No.	:									
Matrix: Solid Level:		Level: Low	Low Lab File		File ID: 36HERB20205007.044.D					
Lab ID:	LCS 410-29076/2-A		Cli	Client ID:						
		SPIKI ADDEI		_	CS TRATION	LCS	QC LIMITS	#		

REC

REC

49-133

(ug/Kg)

COMPOUND

Silvex (2,4,5-TP)

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

Lab Name: Eurofins Lancaster Laboratories			Job	Job No.: 410-9318-1							
SDG No.	:										
Matrix: Water Level		Level: Low	Low Lab		Lab File ID: 36HERB20205007.084.D						
Lab ID: LCS 410-29223/2-A			Clie		Client ID:						
		SPI ADD	ED	CONCEN	CS TRATION	LCS	QC LIMITS	#			
	COMPOUND	(ug,	/ 上)	l (uc	g/L)	REC	REC				

0.250

0.190

81-137

Silvex (2,4,5-TP)

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

Lab Name: Eurofins Lancaster Lab		boratories Job No.		No.: 410	o.: <u>410-9318-1</u>					
SDG No.	:									
Matrix:	Matrix: Solid Level: Low Lab ID: LCS 410-29995/2-A		: Low	Lab	File ID:	36HERB20205007.127.D				
Lab ID:				Cli	ent ID:					
			SPIKE		_	ICS	LCS	QC	ш	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	5.60	67	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

Lab Name	e: Eurofins Lancast	er Laboratories	Job	Job No.: 410-9318-1						
SDG No.:										
Matrix: Water Level: L		Level: Low	Lab File ID: 36HERB20205008.007.D							
Lab ID:	LCS 410-30623/2-A		Cli		Client ID:					
		SPIKE ADDED		LCS CONCENTRATION	LCS	QC LIMITS	#	-		
	COMPOUND	(ug/L)		(ug/L)	REC	REC	π			

0.250

0.155

81-137

Silvex (2,4,5-TP)

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

Lab Name: Eurofins Lancaster Laboratories			Job No.: 410-9318-1							
SDG No.	:									
Matrix: Water Level: Low			Low	Lab File ID: 36HERB20205007.085.D						
Lab ID:	ab ID: LCSD 410-29223/3-A			Client ID:						
			SPIKE	LCSD	LCSD		QC LIMITS			
			ADDED	CONCENTRATION	용	용		#		

(ug/L)

0.156

REC RPD

20

RPD

30

REC

81-137

(ug/L)

0.250

COMPOUND

Silvex (2,4,5-TP)

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20205007.054.D

Lab ID: 410-9318-6 MS Client ID: SB23_26-28 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	10.1	ND	6.59	66	70-130	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20205007.055.D

Lab ID: 410-9318-6 MSD Client ID: SB23_26-28 MSD

	SPIKE	MSD	MSD		QC L1	IMITS	
	ADDED	CONCENTRATION	용	용			#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
Silvex (2,4,5-TP)	10.1	6.57	65	0	50	70-130	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB23 26-28 MS Lab ID: 410-9318-6 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9318-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 82.6

Analyte	SSR	С	Sample Result (SI	R) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	3.24		1.2		2.14	96	75-125		6020B
Barium	141		79		10.7	582	75-125	4	6020B
Beryllium	1.19	J	0.32	J	0.869	100	75-125		6020B
Cadmium	1.12		ND		1.08	104	75-125		6020B
Chromium	18.6		8.1		10.9	97	75-125		6020B
Copper	19.5		8.8		10.8	99	75-125		6020B
Lead	3.77		3.0		1.06	70	75-125	F1	6020B
Manganese	144		120		10.9	189	75-125	4	6020B
Nickel	29.4		20		10.9	88	75-125		6020B
Selenium	2.17		ND		2.16	100	75-125		6020B
Silver	11.2		ND		10.9	103	75-125		6020B
Zinc	121		17	J	109	96	75-125		6020B
Mercury	0.178		ND		0.199	90	80-120		7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: SB23 26-28 MSD Lab ID: 410-9318-6 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9318-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 82.6

Analyte	(SDR)	С	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Arsenic	2.96		1.81	98	75-125	9	20		6020B
Barium	61.5		9.10	-193	75-125	79	20	4 F2	6020B
Beryllium	1.08	J	0.737	103	75-125	10	20		6020B
Cadmium	0.961		0.917	105	75-125	16	20		6020B
Chromium	17.2		9.21	99	75-125	8	20		6020B
Copper	17.8		9.17	98	75-125	9	20		6020B
Lead	3.66		0.903	71	75-125	3	20	F1	6020B
Manganese	135		9.21	129	75-125	6	20	4	6020B
Nickel	26.2		9.21	70	75-125	11	20	F1	6020B
Selenium	1.85		1.83	101	75-125	16	20		6020B
Silver	9.44		9.23	102	75-125	17	20		6020B
Zinc	107		92.1	97	75-125	13	20		6020B
Mercury	0.171		0.199	86	80-120	4	20		7471B

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	C3PFBS #	13С5РНА#	C3PFHS #	C4PFHA #	M262FTS#	C8PFOA #
SB17_0-2	410-9318-1	102	108	108	98	102	103	102	100
SB17_14-16	410-9318-2	113	114	117	108	108	108	121	113
SB17_30-32	410-9318-3	111	110	113	111	114	112	120	115
SB23_0-2	410-9318-4	95	101	98	86	92	87	192 *5	97
SB23_9-11	410-9318-5	69	72	89	74	91	73	73	78
SB23_26-28	410-9318-6	111	113	112	110	109	109	119	111
SODUP01_073120	410-9318-9	112	114	112	115	109	113	121	120 *5
	MB 410-28938/1-B	105	117	112	108	107	109	118	106
	LCS 410-28938/2-B	111	112	114	114	108	109	118	114
SB23_26-28 MS	410-9318-6 MS	111	116	114	107	108	108	113	109
SB23_26-28 MSD	410-9318-6 MSD	116	120 *5	116	113	106	108	114	113

	QC LIMITS
PFBA = 13C4 PFBA	40-117
PFPeA = 13C5 PFPeA	38-118
C3PFBS = 13C3 PFBS	38-120
13C5PHA = 13C5 PFHxA	36-120
C3PFHS = 13C3 PFHxS	38-124
C4PFHA = 13C4 PFHpA	39-120
M262FTS = M2-6:2 FTS	25-154
C8PFOA = 13C8 PFOA	44-115

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 537 (Mod)

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): <u>Gemini C18</u> ID: <u>3</u> (mm)

Client Sample ID	Lab Sample ID	C8PFOS #	C9PFNA #	C6PFDA #	M282FTS#	PFOSA #	d3NMFOS#	13C7PUA#	d5NEFOS #
SB17_0-2	410-9318-1	105	104	106	111	103	88	106	105
SB17_14-16	410-9318-2	115	117	115	126	122	119	119	130
SB17_30-32	410-9318-3	111	113	112	116	121	114	126 *5	129
SB23_0-2	410-9318-4	97	108	93	177 *5	80	102	95	114
SB23_9-11	410-9318-5	91	77	77	82	84	29	83	39
SB23_26-28	410-9318-6	114	115	116	119	115	112	120	128
SODUP01_073120	410-9318-9	115	116	117	112	121	116	128 *5	131
	MB 410-28938/1-B	107	112	107	109	113	110	116	120
	LCS 410-28938/2-B	113	114	105	104	105	107	108	114
SB23_26-28 MS	410-9318-6 MS	114	121	109	108	112	119	119	124
SB23_26-28 MSD	410-9318-6 MSD	112	113	112	104	117	117	121	127

	QC LIMITS
C8PFOS = 13C8 PFOS	45-118
C9PFNA = 13C9 PFNA	39-123
C6PFDA = 13C6 PFDA	43-118
M282FTS = M2-8:2 FTS	26-155
PFOSA = 13C8 FOSA	31-127
d3NMFOS = d3-NMeFOSAA	10-152
13C7PUA = 13C7 PFUnA	34-124
d5NEFOS = d5-NEtFOSAA	10-156

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 537 (Mod)

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Lab Sample ID	PFDoDA #	PFTDA #
410-9318-1	107	107
410-9318-2	117	122
410-9318-3	115	122
410-9318-4	84	87
410-9318-5	79	85
410-9318-6	120	121
410-9318-9	123	126 *5
MB 410-28938/1-B	113	114
LCS 410-28938/2-B	108	108
410-9318-6 MS	122	120
410-9318-6 MSD	117	123
	410-9318-1 410-9318-2 410-9318-3 410-9318-4 410-9318-5 410-9318-6 410-9318-9 MB 410-28938/1-B LCS 410-28938/2-B 410-9318-6 MS	410-9318-1 107 410-9318-2 117 410-9318-3 115 410-9318-4 84 410-9318-5 79 410-9318-6 120 410-9318-9 123 MB 410-28938/1-B 113 LCS 410-28938/2-B 410-9318-6 MS 122

PFDoDA = 13C2-PFDoDA PFTDA = 13C2 PFTeDA QC LIMITS 28-126 26-125

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-9318-1
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SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	C3PFBS #	13С5РНА#	C3PFHS #	C4PFHA #	M262FTS #	C8PFOA #
EB03_073120	410-9318-7	102	105	107	104	102	104	112	106
SOFB02_073120	410-9318-10	101	101	100	104	107	104	112	102
	MB 410-28974/1-A	105	117	115	107	103	110	116	109
	LCS 410-28974/2-A	97	99	98	103	97	97	107	99
	LCSD 410-28974/3-A	106	111	111	106	103	108	116	106

	QC LIMITS
PFBA = 13C4 PFBA	43-130
PFPeA = 13C5 PFPeA	38-150
C3PFBS = 13C3 PFBS	23-175
13C5PHA = 13C5 PFHxA	36-137
C3PFHS = 13C3 PFHxS	35-143
C4PFHA = 13C4 PFHpA	33-140
M262FTS = M2-6:2 FTS	29-182
C8PFOA = 13C8 PFOA	52-124

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 537 (Mod)

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9318	3-1
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SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	C8PFOS #	C9PFNA #	C6PFDA #	M282FTS#	PFOSA #	d3NMFOS#	13C7PUA #	d5NEFOS#
EB03_073120	410-9318-7	103	107	109	134	112	112	93	123
SOFB02_073120	410-9318-10	102	106	102	112	95	96	103	112
	MB 410-28974/1-A	108	112	109	130	103	117	99	119
	LCS 410-28974/2-A	97	103	96	107	95	101	97	103
	LCSD 410-28974/3-A	109	119	105	127	104	112	113	122

	QC LIMITS
C8PFOS = 13C8 PFOS	52-121
C9PFNA = 13C9 PFNA	48-130
C6PFDA = 13C6 PFDA	50-124
M282FTS = M2-8:2 FTS	37-169
PFOSA = 13C8 FOSA	10-134
d3NMFOS = d3-NMeFOSAA	36-143
13C7PUA = 13C7 PFUnA	44-128
d5NEFOS = d5-NEtFOSAA	42-149

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 537 (Mod)

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFDoDA #	PFTDA :
EB03_073120	410-9318-7	66	23
SOFB02_073120	410-9318-10	87	64
	MB 410-28974/1-A	81	38
	LCS 410-28974/2-A	93	62
	LCSD 410-28974/3-A	106	99

PFDoDA = 13C2-PFDoDA PFTDA = 13C2 PFTeDA QC LIMITS 36-127 21-134



December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for seven soil samples, one equipment blank, and one trip blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-9434-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB38_0-2	SB38_6-8	SB38_22-24	SB39_0-2
SB39_8-10	SB39_18-20	SODUP02_080320	TB05-080320
EB04_080320			

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes

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	Data Usability Summary Report	
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data	
	package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

Volatile Organics

- Results for 1,1-dichloroethene in SB38_0-2, SB38_6-8, SB39_0-2, SB39_8-10, SB39_18-20, SODUP02_080320, and SB38_22-24, and for acetone in TB05_080320, were qualified as estimated (UJ) due to unacceptable percent differences (%Ds) between the initial calibration (IC) and the IC verification (ICV) standards.
- Results for vinyl chloride and tetrachloroethene in TB05_080320 were qualified as estimated (UJ) based on high %Ds in the associated continuing calibration (CC) standard.
- Results for acetone and 2-butanone in all of the soil samples in this SDG were qualified as estimated (J, UJ) based on poor precision between field duplicates.
 Results for acetone were also qualified as estimated (J+) with potential high bias due to matrix spike (MS)/MS duplicate (MSD) recoveries; the J qualifier takes precedence.

Semi-Volatile Organics (Full Scan)

- The result for pyrene in SB38_6-8 was corrected to not detected (U) at the reporting limit (RL), based on poor spectral match and/or inadequate signal to noise (S/N) ratio for the masses used for confirmation, and professional judgement.
- Results for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene in all of the soils samples in this SDG were qualified as estimated (J, UJ) based on poor precision in the field duplicate pair.

o <u>Semi-Volatile Organics (Selected Ion Monitoring)</u>

- Results for 1,4-dioxane in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_18-20, and SODUP02_080320 were qualified as estimated (UJ) based on low recoveries for the associated surrogate compound.
- Results for 1,4-dioxane in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (UJ) due to low recoveries in the laboratory control sample (LCS) and MS/MSD.

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o PCBs

- The results for all Aroclors in SB38_22-24 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.
- Total Aroclors is determined by summing the concentrations of any individual Aroclors detected in a sample. When any of the individual Aroclor results is qualified, the result for total Aroclor is likewise qualified.

o Herbicides

The results for Silvex in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (UJ) due to low surrogate, LCS, and MS/MSD recoveries on both analytical columns.

o <u>Metals</u>

- Results for arsenic, beryllium, chromium, copper, and zinc in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (J) due to unacceptable MS and/or MSD recoveries and/or relative percent differences (RPDs) between the MS/MSD. The results for barium in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated biased high (J+) due to elevated MS/MSD recoveries without an acceptable post spike recovery.
- Results for zinc in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (J), due to elevated relative percent difference between the sample and its laboratory duplicate sample.
- Results for lead, manganese and zinc in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (J) due to elevated percent difference between the sample and its serial dilution.

Cyanide

 Results for total cyanide in all of the soil samples in this SDG were qualified as estimated (UJ) based on low recovery in the associated MS.

o Hexavalent and Trivalent Chromium

 Results for trivalent chromium in all of the soil samples were qualified as estimated (J, UJ) due to qualification of the total chromium results from which they are calculated (See Section G. Metals). Mr. Joseph Yanowitz December 18, 2020 Page 4 of 15



All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - o Internal standards
 - o Duplicate
- Instrument related quality control data:
 - o Instrument tunes
 - o Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- Three ICVs were listed on the SVOCs Form V for the IC on HP09910 (7/23/20) and one
 additional ICV on a separate Form V (7/24/20) was also included. Raw data and summary
 forms for only one of the ICVs (7/23/20 @ 19:03) were included and only this ICV was
 evaluated in this validation effort.

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- A "T" flag was present in the EDD for a number of results. This data flag was not present on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for submission to the agency, although this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory responded that these peaks are checked both by the analyst and during a secondary level review of the calibration data.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did not match the responses found in the raw data. According to the laboratory, the discrepancies are because peak heights are reported in the raw data, but peak areas are reported on the summary forms. Corrected documentation was not provided by the time this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening CCVs and CCBs. The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- MDLs for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply.

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It should be noted that a run log with raw data was generated and provided for the field sample analyses.

• No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 3, 2020. The samples were received by the laboratory on the same day as sample collection. All three cooler temperatures on receipt at the laboratory (0.1°C to 0.9°) were slightly below the minimum limit (QC 4°C ±2°C). No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

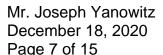
1. Calibration

Two ICs were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable. Second source ICV standards were analyzed following each IC and all %Ds were acceptable, with the exception noted below:

Instrument / Date	Compound	%D	Affected Samples	Qualifiers Applied
9355 7/14/20	Acetone	23.9	TB05_080320	UJ
9953 7/29/20	1,1-Dichloroethene	21.9	SB38_0-2 SB38_6-8 SB39_0-2 SB39_8-10 SB39_18-20 SODUP02_080320 SB38_22-24	UJ

Results for acetone in the aqueous trip blank, TB05_080320, and for 1,1-dichloroethene in all of the soil samples, were qualified as estimated (UJ) as noted above, due to unacceptable percent differences for these compounds in the applicable ICV.

CC standards were analyzed at the appropriate frequency, and all percent differences were acceptable (<20%D) with the following exceptions:





CC: Inst Date	Compound	%D	Affected Samples	Qualifiers Applied
9355 - 8/7/20 @	Vinyl chloride	-23.2	TB05_080320	UJ
09:08	Tetrachloroethene	-20.2		
9953 - 8/5/20 @	1,4-Dioxane	+27.4	SB38_0-2	None
8:38			SB38_6-8	
			SB39_0-2	
			SB39_8-10	
			SB39_18-20	
			SODUP02_080320	
			SB38_22-24	

The percent differences for vinyl chloride and tetrachloroethene represent decreases in instrument response. Sample results were qualified as estimated (UJ) due to the high CC %D. The percent difference for 1,4-dioxane represents an increase in instrument response, and the compound was not detected in the samples, therefore, no qualification of sample results was warranted.

2. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<50) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB38_0-2					
1,4-Dioxane	147	а	а	SB38_0-2	None
Acetone	307	216	а	SB38_6-8	J+
1,1-Dichloroethene	а	131	а	SB39_0-2 SB39-8-10 SB39_18-20 SODUP02_080320 SB38_22-24	None

a-acceptable

Positive results for acetone, in the samples detailed above are qualified as estimated (J+) with the potential for high bias or false positives, based on high MS/MSD recoveries. Recoveries for 1,1-dichloroethene and 1,4-dioxane were also high, however, these compounds were not detected in the associated samples so no action was required.

3. Field Duplicate (FD):

Sample SODUP02_080320 was submitted as a field duplicate of SB38_0-2. 2-Butanone (MEK) was detected in SB38_0-2 at a low, estimated concentration, but was reported as ND in the FD. Precision between results for acetone was unacceptable (>50% RPD). Based on the high variability suggested by the FD precision, results for these two compounds in all of the soil samples were qualified as estimated (J, UJ). Results for acetone were previously qualified as

Mr. Joseph Yanowitz December 18, 2020 Page 8 of 15



estimated (J+) with potential high bias due to MS/MSD recoveries; the J qualifier takes precedence.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

One IC (Instrument HP09910) was reported in support of sample analyses. All RRFs and RSDs, or correlation coefficients (r²) were acceptable. Data and summary forms for one second-source ICV standard analyzed following the IC were provided, and all %Ds were acceptable (<20%D). Two CCs were analyzed, and all percent differences were acceptable (<20%D).

2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable.

3. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS associated with the sample analyses were reported in the data package. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<30) for all target compounds.

4. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair, prepared with parent sample SB38_0-2, were reported in the data package. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<30) for target compounds.

5. Compound Identification

The result for pyrene in SB38_6-8 was corrected by the validator to not detected (U) at the RL, based on poor spectral match and/or inadequate signal to noise (S/N) ratio for the masses used for confirmation, and professional judgment.

6. Field Duplicate (FD)

Sample SODUP02_080320 was submitted as a field duplicate of SB38_0-2. Results for fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene, benzo(g,h,i)perylene, and benzo(k)fluoranthene showed good agreement (<50% RPD). Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene were detected in the FD at low, estimated concentrations, but were reported as ND in SB38_0-2. Based on the high variability suggested at the RL, results for these four compounds in all of the soil samples were qualified as estimated (J, UJ).

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C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Calibration

One IC (Instrument HP19760) was reported in support of sample analyses. The RRFs and RSD for the project target analyte (1,4-dioxane) and associated surrogate were acceptable. One ICV standard was analyzed following the IC and %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) for the target compound.

2. Surrogates:

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane, therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

Sample	%R	Qualifier Applied
SB38_0-2	64	UJ
SB38_6-8	62	
SB38_22-24	61	
SB39_0-2	61	
SB39_18-20	64	
SODUP02_080320	65	

Results for 1,4-dioxane in the samples listed above were qualified as estimated (UJ) with the potential low bias, based on low recovery observed in the associated surrogate compound.

3. LCS

One LCS was prepared and analyzed with the soil samples. The recovery for 1,4-dioxane was unacceptable (70-130% R).

Parameter	LCS %R	Samples Affected	Qualifiers Applied
1,4-Dioxane	39	SB38_0-2	UJ
		SB38_6-8	
		SB38_22-24	
		SB39_0-2	
		SB39_8-10	
		SB39_18-20	
		SODUP02_080320	

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

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4. MS/MSD

One MS/MSD pair was prepared and analyzed with the soil samples. Good precision was observed, however, both recoveries were unacceptable.

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample	SB23_26-2	28			
1,4-Dioxane	40	41	а	SB38_0-2 SB38_6-8 SB38_22-24 SB39_0-2 SB39_8-10 SB39_18-20 SODUP02_080320	υJ

a-acceptable

Sample results, as detailed above, were qualified as estimated (UJ) with potential low bias, based on associated low surrogate recoveries.

5. Field Duplicates

Sample SODUP02_080320 was submitted as a field duplicate of SB38_0-2. 1,4-Dioxane was not detected in either of the paired field duplicate samples.

D. Pesticides

Based on the validation effort, all pesticides results were determined to be valid as reported. No qualifiers were applied to these data by the validator.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Cample	Surrogate / Column					
Sample	TCX/1	TCX/2	DCB/1	DCB/2		
SB38_22-24	а	а	60	62		

a-acceptable

The results for all Aroclors in SB38_22-24 were qualified as estimated (UJ) due to low recoveries of surrogate DCB on both analytical columns.

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F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column				
Sample	DCPAA / 1	DCPAA/2			
SB38_0-2	51	55			
SB38_6-8	52	51			
SB38_22-24	52	50			
SB39_0-2	60	60			
SB39_8-10	65	54			
SB39_18-20	57	63			
SODUP02_080320	60	49			

The results for Silvex in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for one solid-matrix LCS associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCS were below the minimum acceptance limit (QC 70-130%R), as noted below:

Analyte	LCS %R Column 1	LCS %R Column 2	Samples Affected	Qualifier Applied
LCS 410-29995/2	A			
Silvex	67	64	SB38_0-2 SB38_6-8 SB38_22-24 SB39_0-2 SB39_8-10, SB39_18-20 SODUP02_080320	UJ

a - acceptable

NA - not applicable

The results for Silvex in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (UJ) due to low LCS recoveries.

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Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Sample SB38_0-2 was prepared as an MS/MSD pair in association with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the MS and MSD were below the minimum acceptance limit (QC 70-130%R), as noted below:

Analyte	MS %R Column 1	MS %R Column 2	MSD %R Column 1	MSD %R Column 2	Samples Affected	Qualifie r Applied
Parent Sar	nple: SB38	8_0-2				
Silvex	67	63	а	67	SB38_0-2 SB38_6-8 SB38_22-24 SB39_0-2 SB39_8-10, SB39_18-20 SODUP02_08032 0	UJ

a - acceptable

The results for Silvex in SB38_0-2, SB38_6-8, SB38_22-24, SB39_0-2, SB39_8-10, SB39_18-20, and SODUP02_080320 were qualified as estimated (UJ) due to low MS/MSD recoveries.

G. Metals

1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD) / Post Spike (PS)

The MS/MSD/PS performed on SB38_0-2 and associated with the sample analyses were reported in the data package. Percent recoveries and relative percent differences were acceptable (75-125%R; 50% RPD) with the following exceptions:

Analyte	MS %R	MSD %R	MS/MSD RPD	PS %R	Affected Samples	Qualifiers Applied
Arsenic	а	149	а	а	SB38_0-2	J
Barium	129	158	а	NC	SB38_6-8	J+
Beryllium	а	131	а	а	SB38_22-24	J
Chromium	а	160	а	а	SB39_0-2	J
Copper	а	252	52	NC	SB39_8-10 SB39_18-20	J
Zinc	32	261	90	NC	SODUP02_080320	J

a – acceptable

NC - Not Calculated

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Results for arsenic, beryllium and chromium were qualified as estimated (J) due to elevated MSD recoveries and acceptable post spike recoveries and MS/MSD RPDs. Results for copper were qualified as estimated (J) due to elevated MSD recovery and elevated RPD between the MS/MSD. Results for zinc were qualified as estimated (J) due to low and high MS/MSD recoveries and elevated RPD between the MS and MSD. Results for barium were qualified as estimated biased high (J+) due to elevated MS and/or MSD recovery. The PS recoveries were not calculated or assessed for barium, copper and zinc due sample concentrations significantly exceeded the spike concentrations.

2. Laboratory Duplicate

A laboratory duplicate analysis was performed on sample SB38_0-2. All relative percent differences (RPDs) were acceptable (50% limit) except for zinc (84%RPD). The results for zinc in all field samples were qualified as estimated (J) due to elevated RPD between the original sample and its laboratory duplicate.

3. Serial Dilution

A serial dilution was performed on sample SB38_0-2. All percent differences were acceptable (<10%D) with the following exceptions:

Analyte	Serial Dilution %D	Samples Affected	Qualifiers Applied
Lead	26	SB38_0-2 SB38_6-8	J
Manganese	11	SB38_22-24 SB39_0-2 SB39_8-10	J
Zinc	13	SB39_18-20 SODUP02_080320	J

Results for lead, manganese and zinc were qualified as estimated (J) due to elevated percent difference between the sample and serial dilution results.

H. Per- and Polyfluoroalkyl Substances (PFAS)

Based on the validation effort, all PFAS results were determined to be valid as reported by the laboratory.

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I. General Chemistry

1. Total Cyanide

a. Matrix Spike

One matrix spike was prepared from parent sample SB38_0-2. The recovery for cyanide was unacceptable (68%; ddms validation criteria: 75-125%). Based on the low recovery observed for cyanide in the MS, results for cyanide in all of the soil samples in this dataset were qualified as estimated (UJ).

2. Chromium, Hexavalent and Trivalent

No results for hexavalent chromium were qualified as a result of the data validation. All reported results for hexavalent chromium were determined to be usable as reported.

Results for trivalent chromium in all of the soil samples were qualified as estimated (J, UJ). Results for trivalent chromium are calculated from the total chromium and hexavalent chromium results. The results for total chromium were qualified based on high MSD results and improperly performed post-digestion spike, which impacts the results for trivalent chromium in each of the soil samples.

3. General Chemistry - Quantitation

No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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Mr. Joseph Yanowitz December 18, 2020 Page 15 of 15



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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-9434-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. 410-9434-1

Environmental Analysis Re



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Lancaster Laboratories Environmental

Acct. #

410-9434 Chain of Custody

COC #610552

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Sampler Ashley Stappenbed	Quote #:			Sediment	l eld ES [Containers	121	72	hray	3	Z S	Oio				F=Field Filte	red 0 =0 emarks	
State where samples were collected: For Compliance: Yes	No 🗆		site	Sed	Potable NPDES	0	₹	375 MCL	157	FS T	五	7	1	F					
Sample Identification	Co	llected Time	Grab	Soil 🔀	Water	Other:	Total #	t	Aut 3	at 3.	4	Abta	1,4	PP.					
SB38-0-2	8/3/20		X	X				×	X	Z	X	X	×	X			additionaly	sul u	steine to
5838_6-8		950	X	\times				×	X	X	X	X	X	4			7		
SB38-22-24		955	X	X				X	X	>	X	X	X	X					
SB39-0-2		1135	X	X				×	X	X	X	X	X	X					
SB39-8-10		1200	X	X				X	X	X	X	X	X	×					*
SB39-18-20		1145	X	X				X	X	X	X	X	X	X					
5839-22-24		1150	\times	X				×	X	X	X	X	X	X			HO	LD	
SODURUZ-080320			X	X				X	X	X	X	X	X	X					
TB05-080320		1500	X			×		X											
EB04-080320	1	1510	X			X								X					
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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-9434-1

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: ICV 410-27654/10 Calibration Date: 07/29/2020 18:17

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bl29v01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	&D	MAX %D
Dichlorodif1uoromethane	Ave	0,3749	0,3351	0,1000	17,9	20,0	=10,6	30,0
Chloromethane	Ave	0,4529	0.4887	0,1000	21.6	20.0	7.9	30.0
1,3-Butadiene	Ave	0,2969	0,3344		22,5	20,0	12,6	30.0
Vinyl chloride	Ave	0,4156	0,4347	0,1000	20,9	20.0	4.6	30.0
Bromomethane	Ave	0.2846	0.3183	0.1000	22,4	20,0	11.8	30.0
Chloroethane	Ave	0.2339	0,2610	0,1000	22.3	20.0	11,6	30.0
Dich1orofluoromethane	Ave	0,5270	0.5675		21,5	20,0	7.7	30,0
Trichlorofluoromethane	Ave	0.3905	0.4655	0.1000	23.8	20.0	19.2	30.0
n=Pentane	Ave	0,4618	0,4579	and the second of the second o	19.8	20.0	-0.9	30,0
Ethanol	Ave	0.1521	0.1457	The second secon	958	1000	-4.2	30.0
Freon 123a	Ave	0,3063	0,3283	The state of the s	21,4	20.0	7,2	30,0
Acrolein	Ave	2,690	2.159	de Caban ente de mé a manhana de manda de la companya de la compan	120	150	-19.8	30.0
1,1-Dichloroethene	Ave	0.2219	0,2705	0,1000	24.4	20.0	21.9	30.0
Acetone	Ave	1.272	1.143	0.1000	135	150	-10.1	30.0
Freon 113	Ave	0.2425	0,2414	0,1000	19.9	20.0	=0.5	30,0
Methyl iodide	Ave	0.4254	0.4491		21.1	20,0	5,6	30.0
2-Propanol	Ave	0.8154	0,7935		146	150	=2,7	30,0
Carbon disulfide	Ave	0.8045	0,8812	0.1000	21.9	20.0	9,5	30.0
Allyl chloride	Ave	0,4553	0,4477	THE STATE OF	19,7	20,0	-1.7	30.0
Methyl acetate	Ave	0,1942	0.1992	0,1000	20.5	20.0	2,6	30.0
Methylene Chloride	Ave	0,2769	0.3141	0.1000	22.7	20,0	13.4	30.0
t-Butyl alcohol	Ave	1.284	1.286		200	200	0.1	30,0
Acrylonitrile	Ave	0,1015	0,1072		106	100	5,7	30.0
trans-1,2-Dichloroethene	Ave	0.2613	0.3005	0.1000	23.0	20,0	15.0	30.0
Methyl tertiary butyl ether	Ave	0.7155	0.7471	0.1000	20.9	20.0	4,4	30,0
n-Hexane	Ave	0,3864	0,4067	THE PERSON OF TH	21.0	20.0	5.2	30.0
1,1-Dichloroethane	Ave	0.4804	0,5448	0.2000	22.7	20,0	13,4	30.0
di-Isopropyl ether	Ave	0.9198	0.9708		21.1	20.0	5,5	30.0
2-Chloro-1,3-butadiene	Ave	0,3898	0,4194		21.5	20.0	7,6	30,0
Ethyl t-butyl ether	Ave	0.8018	0.8420		21.0	20,0	5.0	30.0
2-Butanone	Ave	0.1268	0,1357	0.1000	161	150	7,0	30,0
cis-1,2-Dichloroethene	Ave	0,2949	0.3500	0.1000	23.7	20.0	18.7	30.0
2,2-Dichloropropane	Ave	0.3557	0,4156		23,4	20.0	16,9	30.0
Propionitrile	Ave	1,834	1.772	Justine to the second of the second second	145	150	-3,4	30.0
Methacrylonitri1e	Ave	0,1105	0.1200		163	150	8,7	30,0
Bromochloromethane	Ave	0.1474	0,1516	COLUMN TO THE STATE OF THE COLUMN	20,6	20.0	2.8	30.0
Tetrahydrofuran	Ave	1.517	1,575	The second secon	104	100	3,9	30,0
Chloroform	Ave	0.4429	0.5032	0.2000	22.7	20.0	13,6	30.0
1,1,1-Trichloroethane	Ave	0.3691	0.4177	0,1000	22.6	20.0	13,2	30.0
Cyclohexane	Ave	0,4942	0,5202	0.1000	21.0	20,0	5.2	30.0
1,1-Dichloropropene	Ave	0,3654	0,4151		22.7	20.0	13,6	30.0

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: ICV 410-22126/10 Calibration Date: 07/14/2020 16:05

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YL14V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

								
ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4845	0.4333	0.1000	17,9	20.0	=10.6	30,0
Chloromethane	Ave	0,5222	0,5202	0.1000	19.9	20.0	-0,4	30.0
1,3-Butadiene	Ave	0.3783	0.3965		21.0	20.0	4.8	30.0
Vinyl chloride	Ave	0,4884	0.5040	0,1000	20,6	20.0	3,2	30,0
Bromomethane	Ave	0.3588	0,3826	0,1000	21.3	20.0	6.6	30.0
Chloroethane	Ave	0,2906	0.3217	0,1000	22.1	20.0	10.7	30.0
Dichlorofluoromethane	Aye	0.6846	0.7143	***************************************	20,9	20.0	4.3	30.0
Trichlorofluoromethane	Ave	0.5977	0,7172	0.1000	24.0	20.0	20.0	30.0
n-Pentane	Ave	0,5376	0.5306		19,7	20.0	=1,3	30.0
Ethyl ether	Ave	0,3238	0.3856	Name and an enterior make at a collection of the control of the Collection Co.	23.8	20.0	19.1	30,0
Freon 123a	Ave	0.3156	0,3504		22,2	20,0	11.0	30.0
Acrolein	Ave	2.359	2.343		149	150	-0.7	30.0
1,1-Dichloroethene	Ave	0,2235	0,2571	0.1000	23.0	20.0	15.0	30.0
Acetone	Ave	1,022	1,265	0,1000	186	150	23,9	30.0
Freon 113	Ave	0,2374	0.2383	0.1000	20,1	20.0	0,4	30.0
2-Propanol	Ave	0,7171	0,5755		120	150	-19,8	30.0
Methyl iodide	Ave	0.4461	0,4468		20.0	20.0	0.1	30.0
Carbon disulfide	Ave	0.7224	0,7407	0,1000	20.5	20.0	2,5	30.0
Methyl acetate	Ave	0,4441	0,4388	0,1000	19,8	20,0	-1,2	30.0
Allyl chloride	Ave	0.4681	0,4321	in an are successive a Large even rese.	18.5	20,0	-7,7	30.0
Methylene Chloride	Ave	0,2773	0.3080	0.1000	22,2	20,0	11,1	30.0
t-Butyl alcohol	Lin2		1,264		199	200	-0.3	30.0
Acrylonitrile	Ave	0.2178	0,2172		99,7	100	-0,3	30.0
Methyl tertiary butyl ether	Ave	0,9101	0.8940	0.1000	19.6	20,0	-1.8	30.0
trans-1,2-Dichloroethene	Ave	0,2707	0,2970	0,1000	21,9	20,0	9,7	30.0
n-Hexane	Ave	0.4028	0.4116		20.4	20.0	2.2	30.0
1,1-Dichloroethane	Ave	0,4809	0.5262	0.2000	21.9	20,0	9,4	30.0
di-Isopropyl ether	Ave	0.9888	0.997		20.2	20.0	0.9	30.0
2-Chloro-1,3-butadiene	Ave	0,4619	0,4787		20,7	20.0	3,6	30.0
Ethyl t-butyl ether	Ave	0.9143	0.9223	tari	20,2	20.0	0.9	30.0
2-Butanone	Ave	0,3251	0,3682	0.1000	170	150	13.3	30.0
cis-1,2-Dichloroethene	Ave	0.3146	0.3592	0.1000	22.8	20.0	14.2	30,0
2,2-Dichloropropane	Ave	0.3919	0,4376		22.3	20,0	11,7	30,0
Propionitrile	Ave	1.552	1.633	tale contract contract to the second second	158	150	5.2	30.0
Methacrylonitrile	Ave	0,2344	0,2401		154	150	2,4	30,0
Bromochloromethane	Ave	0,1767	0,1699		19.2	20.0	-3,8	30.0
Tetrahydrofuran	Ave	1,623	1,693		104	100	4.3	30.0
Chloroform	Ave	0.4931	0.5485	0.2000	22,2	20.0	11.2	30,0
1,1,1-Trichloroethane	Ave	0,4207	0.4724	0.1000	22,5	20.0	12,3	30,0
Cyclohexane	Ave	0.4787	0.5004	0.1000	20.9	20.0	4.5	30,0
1,1-Dichloropropene	Ave	0.3839	0.4219		22.0	20,0	9,9	30.0
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Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: CCVIS 410-30651/3 Calibration Date: 08/07/2020 09:08

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25 (mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YG07C01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4845	0.3312	0.1000	34,2	50.0	-31.6*	20.0
Chloromethane Chloromethane	Ave	0.5222	0,4037	0,1000	38.7	50.0	-22.7*	20.0
1,3-Butadiene	Ave	0,3783	0.3698		48.9	50,0	=2.3	20.0
Vinyl chloride	Ave	0.4884	0.3753	0,1000	38.4	50.0	-23,2*	20.0
Bromomethane	Ave	0,3588	0.2864	0,1000	39,9	50.0	-20,2*	20.0
Chloroethane	Ave	0,2906	0,2415	0.1000	41,6	50.0	-16.9	20.0
Dichlorofluoromethane	Ave	0,6846	0,4623		33,8	50,0	-32.5*	20,0
Trichlorofluoromethane	Ave	0.5977	0.5565	0,1000	46.6	50.0	-6.9	20.0
n-Pentane	Ave	0,5376	0,4541	A	42,2	50.0	-15,5	20.0
Ethyl ether	Ave	0.3238	0.2727	5.7 · · · · · · · · · · · · · · · · · · ·	42,1	50.0	-15.8	20.0
Freon 123a	Ave	0.3156	0,2656		42,1	50.0	=15,9	20.0
Acrolein	Ave	2.359	1.893		401	500	-19.8	20.0
1,1-Dichloroethene	Ave	0.2235	0,2092	0,1000	46,8	50.0	-6,4	20.0
Acetone	Ave	1.022	0.8741	0.1000	85,6	100	-14,4	20,0
Freon 113	Ave	0.2374	0.2140	0,1000	45,1	50,0	-9,9	20,0
2-Propanol	Ave	0.7171	0.6006		209	250	-16.2	20.0
Methyl iodide	Ave	0.4461	0,4028		45.1	50.0	-9,7	20.0
Carbon disulfide	Ave	0.7224	0.6887	0.1000	47,7	50,0	-4.7	20.0
Methyl acetate	Ave	0,4441	0.3627	0,1000	40.8	50,0	-18,3	20.0
Allyl chloride	Ave	0,4681	0.3507		37.5	50.0	-25.1*	20.0
Methylene Chloride	Ave	0,2773	0.2623	0,1000	47,3	50,0	=5,4	20,0
t-Butyl alcoho1	Lin2		1,219		244	250	-2.5	20.0
Acrylonitrile	Ave	0.2178	0.2026	777 - 1774	46,5	50.0	-7.0	20.0
Methyl tertiary butyl ether	Ave	0.9101	0.8263	0.1000	45.4	50.0	-9.2	20.0
trans-1,2-Dichloroethene	Ave	0,2707	0,2558	0.1000	47,2	50,0	-5.5	20.0
n-Hexane	Ave	0.4028	0.3583		44.5	50.0	-11.0	20.0
1,1-Dichloroethane	Ave	0.4809	0.4511	0.2000	46,9	50.0	=6,2	20,0
di-Isopropyl ether	Ave	0,9888	0.8477		42,9	50.0	-14.3	20.0
2-Chloro-1,3-butadiene	Ave	0,4619	0.3839		41,6	50,0	-16.9	20,0
Ethyl t-butyl ether	Ave	0,9143	0.7946	D. 1897-12	43.5	50,0	-13.1	20.0
2-Butanone	Ave	0,3251	0,2853	0,1000	87,8	100	-12,2	20,0
cis-1,2-Dichloroethene	Ave	0,3146	0.3041	0.1000	48.3	50,0	-3.3	20,0
2,2-Dichloropropane	Ave	0.3919	0,3739		47,7	50.0	-4.6	20,0
Propionitri1e	Āve	1.552	1.620	-	261	250	4.4	20.0
Methacrylonitrile	Ave	0,2344	0.2240		119	125	-4,4	20.0
Bromochloromethane	Ave	0,1767	0.1600		45,3	50.0	-9,4	20.0
Tetrahydrofuran	Ave	1.623	1,477		91.0	100	-9.0	20,0
Chloroform	Ave	0.4931	0.4813	0,2000	48.8	50.0	-2.4	20.0
1,1,1-Trichloroethane	Ave	0.4207	0.3968	0,1000	47,2	50,0	=5.7	20,0
Cyclohexane	Ave	0.4787	0.4105	0.1000	42.9	50.0	-14.2	20.0
1,1-Dichloropropene	Ave	0.3839	0.3608		47.0	50.0	-6.0	20.0

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: CCVIS 410-30651/3 Calibration Date: 08/07/2020 09:08

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YG07C01.D Conc. Units: ug/L Heated Purge: (Y/N) N

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ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Carbon tetrachloride	Ave	0,3553	0,3364	0,1000	47.3	50.0	-5.3	20,0
Isobutyl alcohol	Ave	0,4522	0.4542		628	625	0.4	20.0
Benzene	Ave	1,153	1.122	0,5000	48.7	50.0	=2.6	20.0
1,2-Dichloroethane	Ave	0.4319	0.4157	0,1000	48.1	50.0	-3.8	20.0
t-Amyl methyl ether	Ave	0.9266	0,8436	27 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	45.5	50,0	-9.0	20.0
n-Heptane	Ave	0.4795	0,4401		45.9	50.0	-8,2	20.0
n-Butanol	Lin		0.4192	··· · · · · · · · · · · · · · · · · ·	1210	1250	-2,8	20.0
Trichloroethene	Ave	0,3046	0,2906	0.2000	47,7	50.0	-4.6	20.0
Methylcyclohexane	Ave	0,5469	0,4677	0.1000	42.8	50.0	-14.5	20.0
1,2-Dichloropropane	Ave	0.3118	0.3095	0,1000	49.6	50.0	-0.7	20,0
t-Amyl ethyl ether	Ave	0.4930	0.4463	2.7.4.4	45.3	50.0	-9,5	20.0
Methyl methacrylate	Ave	0.3543	0.3409		48.1	50.0	-3,8	20,0
1,4-Dioxane	Ave	0.1007	0.1109	0.0050	688	625	10,1	20.0
Dibromomethane	Ave	0.2064	0,2144	Y C	51.9	50.0	3,8	20.0
Bromodichloromethane	Ave	0.3612	0,3742	0.2000	51.8	50,0	3,6	20.0
2-Nitropropane	Ave	3,177	2,875		90.5	100	-9.5	20.0
2-Chloroethy1 viny1 ether	Ave	0,2740	0,2736		49.9	50.0	-0.2	20.0
cis-1,3-Dichloropropene	Ave	0.4600	0,4844	0.2000	52,7	50.0	5.3	20.0
4-Methyl-2-pentanone	Ave	0.6366	0.6219	0,1000	97.7	100	-2.3	20.0
Toluene	Ave	0.9537	0.9281	0.4000	48.7	50.0	-2.7	20.0
trans-1,3-Dichloropropene	Ave	0.5640	0.5898	0.1000	52.3	50.0	4,6	20.0
Ethyl methacrylate	Ave	0,7046	0.6853		48,6	50,0	-2,7	20.0
1,1,2-Trichloroethane	Ave	0.3731	0,3907	0,1000	52.4	50.0	4.7	20.0
Tetrachloroethene	Ave	0.4848	0.3866	0,2000	39,9	50,0	-20,2*	20.0
1,3-Dichloropropane	Ave	0,6381	0,6546	The second secon	51.3	50.0	2.6	20,0
2-Hexanone	Ave	0,6623	0.6601	0,1000	99.7	100	-0,3	20,0
Dibromochloromethane	Ave	0.3678	0.3987	Francisco de la companya del companya del companya de la compa	54.2	50,0	8,4	20,0
1,2-Dibromoethane	Ave	0,4187	0,4369	0.1000	52.2	50.0	4.4	20.0
1-Chlorohexane	Ave	0.5515	0,5083		46.1	50,0	-7,8	20.0
Chlorobenzene	Ave	1,091	1.097	0,5000	50.3	50.0	0.5	20.0
1,1,1,2-Tetrachloroethane	Ave	0,3702	0,3869		52.3	50.0	4,5	20,0
Ethylbenzene	Ave	1,890	1,850	0.1000	48.9	50,0	-2.1	20,0
m&p-Xylene	Ave	0.7460	0.7284	0,1000	97,6	100	-2,4	20,0
o-Xylene	Ave	0,7312	0,7121	0.3000	48.7	50.0	-2,6	20.0
Styrene	Ave	1,221	1.262	0,3000	51.7	50,0	3.4	20.0
Bromoform	Ave	0.2892	0.3219	0.1000	55.7	50.0	11.3	20.0
Isopropylbenzene	Ave	1,831	1,809	0.1000	49.4	50.0	-1.2	20.0
Cyclohexanone	Ave	0.4737	0.4114		543	625	-13.2	20.0
1,1,2,2-Tetrachloroethane	Ave	1,221	1,310	0,3000	53,6	50,0	7,3	20,0
Bromobenzene	Ave	0.9950	0.9877		49,6	50.0	-0.7	20,0
trans-1,4-Dichloro-2-butene	Ave	0.5011	0.3410		85.1	125	-31.9*	20,0

FORM III GC/MS VOA MATRIX SPIKE RECOVERY

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.: 410-9434-1
SDG No.	•		
Matrix:	Solid	Level: Low	Lab File ID: Bg04s04.D
Lab ID:	410-9434-1 MS	-	Client ID: SB38 0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
COMPONIE	ADDED	1	CONCENTRATION	8	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	19.0	ND	22,3	117	69-123	
1,1-Dichloroethane	19.0	ND	22.0	116		
1,1-Dichloroethene	19.0	ND	24.6	129		
1,2,4-Trimethylbenzene	19.0	ND	19.8	104	73-120	
1,2-Dichlorobenzene	19.0	ND	19.1	101	76-120	
1,2-Dichloroethane	19.0	ND	20,2	106		
1,3,5-Trimethylbenzene	19.0	ND	20.2	107	73-120	
1,3-Dichlorobenzene	19,0	ND	19.4	102	75=120	
1,4-Dichlorobenzene	19.0	ND	19.0	100	80-120	
1,4-Dioxane	475	ND	696	147	62-131	F1
2-Butanone	142	1.9 J	175	121	57-128	
Acetone	142	49	486	307	41-150	F1
Benzene	19.0	ND	21.4	112	80-120	
Carbon tetrachloride	19,0	ND	22,3	118	64-134	
Chlorobenzene	19,0	ND	20.5	108	80-120	
Chloroform	19.0	ND	21,7	114	80-120	The second second
cis-1,2-Dichloroethene	19.0	ND	22.9	121	80-123	***************************************
Ethylbenzene	19,0	ND	20.3	107	78-120	
Methyl tertiary butyl ether	19.0	ND	19.6	103	72-120	and the second second
Methylene Chloride	19.0	ND	22.8	120	76-122	
n-Butylbenzene	19.0	ND	20.5	108	71-121	
N-Propylbenzene	19,0	ND	20,9	110	72-123	The second secon
sec-Butylbenzene	19.0	ND	18,5	97	72=120	
tert-Butylbenzene	19,0	ND	20.3	107	68-120	
Tetrachloroethene	19.0	ND	21.1	111	73-120	
Toluene	19.0	ND	21,1	111	80-120	
trans-1,2-Dichloroethene	19.0	ND	22.8	120	80-125	
Trichloroethene	19,0	ND	21.4	113	80-120	
Vinyl chloride	19.0	ND	19.6	103	52-120	
Xylenes, Total	57.0	ND	60.8	107	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancasto	er Laboratories	Job No.: 410-9434-1
SDG No.	:		
Matrix:	Solid	Level: Low	Lab File ID: Bg04s05.D
Lab ID:	410-9434-1 MSD		Client ID: SB38 0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD %	90	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	п
1,1,1-Trichloroethane	19.0	22.3	118	0	30	69-123	**************************************
1,1-Dichloroethane	19.0	21.9	116	0	30	79-120	***************************************
1,1-Dichloroethene	19.0	24,7	131	1	30	73-129	F1
1,2,4-Trimethylbenzene	19,0	19,3	102	3	30	73=120	
1,2-Dichlorobenzene	19.0	18.8	99	2	30	76-120	
1,2-Dichloroethane	19.0	20,4	108	1	30	71=128	
1,3,5-Trimethylbenzene	19.0	19,8	104	2	30	73-120	
1,3-Dichlorobenzene	19.0	19.1	101	1	30	75-120	
1,4-Dichlorobenzene	19,0	18,8	99	1	30	80-120	
1,4-Dioxane	474	618	130	12	30	62-131	
2-Butanone	142	179	125	2	30	57-128	
Acetone	142	356	216	31	30	41=150	F1 F2
Benzene	19.0	21.5	114	1	30	80-120	.,
Carbon tetrachloride	19.0	22,6	119	1	30	64-134	
Chlorobenzene	19.0	20.4	108	0	30	80-120	
Chloroform	19.0	21.9	115	1	30	80-120	
cis-1,2-Dichloroethene	19.0	23.3	123	2	30	80-123	
Ethylbenzene	19.0	20.2	107	0	30	78-120	A
Methyl tertiary butyl ether	19.0	19.9	105	1	30	72-120	C-107 20 20 20 20 12 12 12 12 12 12 12 12 12 12 12 12 12
Methylene Chloride	19.0	22.4	118	2	30	76-122	
n-Butylbenzene	19,0	19.9	105	3	30	71-121	
N-Propylbenzene	19.0	20.3	107	3	30	72-123	
sec-Butylbenzene	19.0	17.9	94	3	30	72-120	
tert-Butylbenzene	19.0	19.7	104	3	30	68-120	
Tetrachloroethene	19.0	20.5	108	3	30	73=120	
Toluene	19.0	21.0	111	0	30	80-120	
trans-1,2-Dichloroethene	19.0	22.7	120	0	30	80-125	
Trichloroethene	19.0	21.6	114	1	30	80-120	
Vinyl chloride	19.0	19.9	105	1	30	52-120	
Xylenes, Total	56.9	60.1	106	1	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

Report Date: 06-Aug-2020 21:40:07 Chrom Revision: 2.3 30-Jun-2020 12:05:54

Eurofins Lancaster Laboratories Env. LLC

Data File:

\\chromfs\Lancaster\ChromData\HP09910\20200806-7390.b\OH0272.D

Injection Date:

06-Aug-2020 19:23:30

Instrument ID:

HP09910

Lims ID:

410-9434-I-2-B

Lab Sample ID:

410-9434-2

Client ID:

SB38 6-8

Operator ID:

kel10217

ALS Bottle#:

20

Worklist Smp#:

22

Injection Vol:

1.0 ul

Dil. Factor:

1.0000

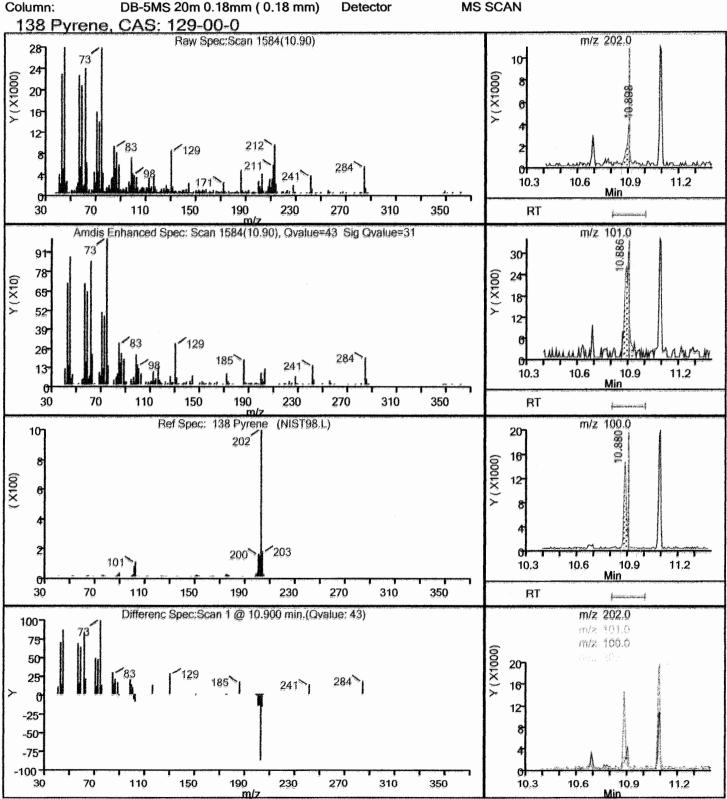
Method:

MSSemi HP09910

Limit Group:

MSSV - 8270D E

MS SCAN DB-5MS 20m 0.18mm (0.18 mm) Detector



FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	 	Laboratories	Job	No.:	410-9434-1
SDG	No.:	 				

Matrix: Solid Level: Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #	
SB38_0-2 🗸	410-9434-1	64	78	77	<
SB38_6-8 J	410-9434-2	62	71	72	-
SB38_22-24 V	410-9434-3	61	70	65	-
SB39_0-2 🗸	410-9434-4	61	71	64	
SB39_8-10	410-9434-5	70	83	74	
SB39_18-20 /	410-9434-6	64	74	72	-
SODUP02_080320 /	410-9434-8	65	71	71	<
	MB 410-29544/1-A	70	79	80	1
	LCS 410-29544/2-A	76	84	86	7
SB38_0-2 MS	410-9434-1 MS	79	92	91	1
SB38_0-2 MSD	410-9434-1 MSD	78	90	90	1

DAS 12/7/20

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

Column to be used to flag recovery values

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster	Laboratories Jo	b No.: 410-9434-1			
SDG No.:					
Matrix: Solid Le	vel: Low La	b File ID: IH0172.D			
Lab ID: LCS 410-29544/2-A	Cl	ient ID:			
					p
	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	33.3	12.9	39	21-79	

1 DAS 12/7/20

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: IH0260.D

Lab ID: 410-9434-1 MS Client ID: SB38_0-2 MS

SPIKE SAMPLE MS MS QC
ADDED CONCENTRATION % LIMITS #

| SPIKE | SAMPLE | MS | MS | QC |
| ADDED | CONCENTRATION CONCENTRATION % LIMITS #
| COMPOUND | (ug/Kg) | (ug/Kg) | (ug/Kg) | REC | REC |
| 1,4-Dioxane | 34.2 | ND | 13.8 | 40 | 21-79 |

DAS 12/7/20

Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancas	ster Labo	ratories	Job No.: 4	10-94	34-1			
SDG No.:								
Matrix: Solid	Level:	Low	Lab File I	D: IH	0261.	D		
Lab ID: 410-9434-1 MSD		*******	Client ID:	SB38	0-2	MSD		
•	<u> </u>	SPIKE	MSD	MSD		QC LI	MITS	
COMPOUND		ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	% REC	% RPD	RPD	REC	#
1.4-Dioxane		34.4	14.0	41	1	30	21-79	

DAS 12/2/20

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-9434-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): DB CLP1	ID: 0.32 (mm)	GC Column (2): DB CLP2	ID: 0.32(mm)

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SB38_0-2	410-9434-1	78	84	84	89
SB38_6-8	410-9434-2	70	78	81	87
SB38_22-24	410-9434-3	73	79	60	62
SB39_0-2	410-9434-4	70	72	79	96
SB39_8-10	410-9434-5	69	72	72	83
SB39_18-20	410-9434-6	80	86	82	88
SODUP02_080320	410-9434-8	85	90	87	96
	MB 410-29536/1-A	85	93	90	94
	LCS 410-29536/2-A	88	95	94	100
SB38_0-2 MS	410-9434-1 MS	79	84	84	92
SB38_0-2 MSD	410-9434-1 MSD	81	90	90	93

QC LIMITS 53-140 45-143

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: 410-9434-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB38_0-2	410-9434-1	51	55
SB38_6-8	410-9434-2	52	51
SB38_22-24	410-9434-3	52	50
SB39_0-2	410-9434-4	60	60
SB39_8-10	410-9434-5	65	60
SB39_18-20	410-9434-6	57	54
SODUP02_080320	410-9434-8	60	63
	MB 410-29995/1-A	48	49
	LCS 410-29995/2-A	56	59
SB38_0-2 MS	410-9434-1 MS	58	56
SB38_0-2 MSD	410-9434-1 MSD	62	63

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name	e: <u>Eurofins Lancast</u>	er Lab	oratories	Job	No.: 410	-9434-1			
SDG No.	:								
Matrix:	Solid	Level	: Low	Lab	File ID:	36HERB2020	5007.	127.D	
Lab ID:	LCS 410-29995/2-A			Cli	ent ID:				
			SPIKE		_	ICS	LCS	QC	ш

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	왕	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	5.60	67	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20205007.147.D

Lab ID: 410-9434-1 MS Client ID: SB38_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.55	ND	5.72	67	70-130	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20205007.148.D

Lab ID: 410-9434-1 MSD Client ID: SB38_0-2 MSD

	SPIKE	MSD	MSD		QC L	IMITS	
	ADDED	CONCENTRATION	%	용		I	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
Silvex (2,4,5-TP)	8.54	6.08	71	6	50	70-130	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

6-IN DUPLICATES METALS

Client ID: SB38_0-2 DU Lab ID: 410-9434-1 DU

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

% Solids for Sample: 96.8 % Solids for Duplicate: 96.8

Matrix: Solid Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	С	Duplicate (D) C	RPD	Q	Method
Arsenic	0.77	0.73	J	0.896		21	F5	6020B
Barium	0.77	8.3		8.17		2		6020B
Beryllium	1.9	0.14	J	0.121	J	12		6020B
Cadmium	0.19	ND		ND		NC		6020B
Chromium	0.77	2.6		2.71		6		6020B
Copper	0.77	13		13.2		0.7		6020B
Lead	0.38	12		7.59		47	F3	6020B
Manganese	0.77	62		71.5		14		6020B
Nickel	0.77	3.6		3.29		8		6020B
Selenium	0.77	ND		ND		NC		6020B
Silver	0.19	ND		ND		NC		6020B
Zinc	57	82		33.2	J	84	F5	6020B
Mercury	0.059	0.11		0.108		0.5		7471B

Calculations are performed before rounding to avoid round-off errors in calculated results.

4A-IN INTERFERENCE CHECK STANDARD METALS

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

Lab Sample ID: ICSAB 410-31982/8 Instrument ID: E08 - 30647

Lab File ID: 026ICSB.d ICS Source: MT_MH_ICSAB_00013

Concentration Units: ug/L

	True	Found	und		
			Percent		
Analyte	Solution AB	Solution AB	Recovery		
Barium	0.800	1.16			
Lead	0.400	0.147			
Zinc	101	99.1	98		
Aluminum	100000	95035	95		
Antimony	0.400	0.351			
Arsenic	100	104	104		
Beryllium		-0.0020			
Cadmium	100	100	100		
Calcium	300000	281643	94		
Chromium	201	189	94		
Cobalt	201	186	92		
Copper	201	188	94		
Iron	250000	229251	92		
Magnesium	100000	93236	93		
Manganese	203	196	97		
Molybdenum	2000	2085	104		
Nickel	201	190	95		
Potassium	100000	95872	96		
Selenium	100	106	106		
Silver	50.0	50.4	101		
Sodium	250000	231398	93		
Strontium	9.00	8.53	95		
Thallium		-0.0060			
Tin		-0.129			
Titanium	2000	1879	94		
Uranium		0.0180			
Vanadium	200	195	97		

Calculations are performed before rounding to avoid round-off errors in calculated results.

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB38 0-2 MS Lab ID: 410-9434-1 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-9434-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 96.8

Analyte	SSR	С	Sample Result (SF	₹) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	2.64		0.73	J	1.93	99	75-125		6020B
Barium	20.8		8.3		9.67	129	75-125	F1	6020B
Beryllium	0.775	J	0.14	J	0.784	82	75-125		6020B
Cadmium	1.14		ND		0.975	117	75-125		6020B
Chromium	13.0		2.6		9.78	107	75-125		6020B
Copper	21.2		13		9.75	81	75-125		6020B
Lead	7.25		12		0.959	-519	75-125	4	6020B
Manganese	122		62		9.78	614	75-125	4	6020B
Nickel	14.2		3.6		9.78	108	75-125		6020B
Selenium	2.03		ND		1.95	104	75-125		6020B
Silver	10.6		ND		9.80	108	75-125		6020B
Zinc	113		82		97.8	32	75-125	F1	6020B
Mercury	0.278		0.11		0.159	106	80-120		7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 410-9434-1

SDG No:

Lab Name: Eurofins Lancaster Laboratories Job No: 410-9434-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Samp Result (I)		Serial Dilution Result (S)	С	% Difference	Q	Method
Arsenic	0.73	J	ND		NC		6020B
Barium	8.3		9.38		NC		6020B
Beryllium	0.14	J	ND		NC		6020B
Cadmium	ND		ND		NC		6020B
Chromium	2.6		2.89	J	NC		6020B
Copper	13		18.6		NC		6020B
Lead	12		15.4		26	V	6020B
Manganese	62		69.3		11	V	6020B
Nickel	3.6		4.02		NC		6020B
Selenium	ND		ND		NC		6020B
Silver	ND		ND		NC		6020B
Zinc	82		92.5	J	13	V	6020B

Calculations are performed before rounding to avoid round-off errors in calculated results.

5-IN MATRIX SPIKE SAMPLE RECOVERY GENERAL CHEMISTRY

Lab	Name	: Eurofin	ns Lancaster	Laboratories	En	Job	No.:	410-9434-1	
SDG	No.:								
Matı	cix:	Solid							

Method	Lab Sample ID Analyte	Result C Unit	Spike Pct. RPD Amount Rec. Limits RPD Limit Q
Batch	ID: 31588 Date: 08/10/2020 19:50	Prep Batch: 31070	Date: 08/09/2020 12:31
9012B	410-9434-1 Cyanide, Total	ND mg/Kg	
9012B	410-9434-1 MS Cyanide, Total	3.58 mg/Kg	5.28 68 45-145

1 DAS 12/7/20

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

pr Cr +3

Client ID: SB38_0-2 MSD	Lab ID: 410-9434-1 MSD
Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-9434-1

SDG No.: ________Matrix: Solid

Concentration Units: mg/Kg

% Solids: 96.8

Analyte	(SDR)	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Ď	Method	
Arsenic	3,37	1.78	149	75-125	24	20	F1 F2	6020B	
Barium	22.5	8.91	158	75-125	7	20	F1	6020B	
Beryllium	1.08 J	0,722	131	75-125	33	20	F1 F2	6020B	
Cadmium	1.01	0.898	113	75-125	12	20		6020B	
Chromium 🗸	17.0	9.02	160	75-125	27	20	F1 F2	6020B	
Copper	35.9	8.98	252	75-125	52	20	F1 F2	6020B	Tite Japan
Lead	23,5	0.884	1276	75-125	106	20	4 F2	6020B	
Manganese	108	9.02	503	75-125	13	20	4	6020B	
Nickel	14.4	9,02	120	75-125	2	20		6020B	
Selenium	1.83	1.80	102	75-125	11	20		6020B	a. Secolar
Silver	9.46	9.04	105	75-125	11	20		6020B	
Zinc	299	90.2	241	75-125	90	20	E F1 F2	6020B	
Mercury	0,246	0,161	85	80-120	12	20		7471В	

SDR = Sample Duplicate Result

MS 12/7/20

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.



December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report - Eurofins Lancaster Laboratories - Soil Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for seven soil samples from the 250 Water Street site, which were reported in a single data package under Job No. 410-10955-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB29_0-2	SB29_2-4	SB29_13-15	SB29_7-9
SB36_2-4	SB26_0-2	SB26_4-6	

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

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Based on the data review effort, the results are usable, with the following qualifications:

o Volatile Organics

- Results for 1,1-dichloroethene in SB29_0-2, SB29_7-9, SB26_0-2, SB29_13-15, SB29_7-9 RA, and SB26_0-2 RA, were qualified as estimated (UJ) due to an unacceptable percent difference (%Ds) in the second source initial calibration verification (ICV) standard.
- Results for trichloroethene, 1,4-dioxane, toluene, and tetrachloroethene in SB36_2-4 and for n-propylbenzene, n-butylbenzene, 1,3,5-trimethylbenzene, tertbutylbenzene, 1,2,4-trimethylbenzene, and sec-butylbenzene in SB26_0-2 reanalysis (RA) were qualified as estimated (J-, UJ) based on low recovery for the associated surrogate compound.
- Results for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and tert-butylbenzene in SB29_7-9, SB26_0-2, SB29_7-9 RA, and SB26_0-2 RA were qualified as estimated (J, UJ) based on unacceptable responses for the associated internal standard (IS) compound.
- Results for 1,1,1-trichloroethane, 1,2-dichlorobenzene, and 1,4-dichlorobenzene in SB36_2-4 were corrected by the validator to not detected (U) at the reporting limit (RL,) based on low signal to noise (S/N) ratio and/or poor spectral match, and professional judgment

Semi-Volatile Organics (Full Scan)

- Results for all target analytes in SB29_2-4, SB36_2-4, and SB26_0-2 were qualified as estimated (J-, UJ) based on low surrogate recoveries.
- Results for pentachlorophenol in SB29_13-15, and for pentachlorophenol, hexachlorobenzene, and naphthalene in SB29_7-9, were qualified as estimated (J-, UJ) based on low surrogate recoveries.
- The result for dibenz(a,h)anthracene in SB29_0-2 was corrected to not detected (U) at the RL, based on poor spectral match and/or inadequate signal to noise (S/N) ratio for the masses used for confirmation and professional judgement.

Semi-Volatile Organics (Selected Ion Monitoring)

- Results for 1,4-dioxane in SB29_2-4, SB36_2-4, and SB26_0-2 were qualified as estimated (UJ) based on low recoveries for the associated surrogate compound.
- Results for 1,4-dioxane in SB29_0-2, SB29_2-4, SB29_13-15, SB36_2-4, and SB26_0-2, were qualified as estimated (UJ) due to low recoveries in the laboratory control sample (LCS).

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o Pesticides

- The results for aldrin, alpha-chlordane, dieldrin, 4,4'-DDD, and 4,4'-DDT in SB29_0-2, 4,4'-DDE in SB29_0-2 RA, and alpha-chlordane and 4,4'-DDD in SB26_0-2, were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns.
- The result for 4,4'-DDE in SB29_0-2 was qualified as estimated (J+) due to high LCS recoveries on both columns.
- Results for aldrin in SB29_0-2, alpha-chlordane in SB29_2-4 and SB29_13-15, and aldrin, alpha-chlordane, dieldrin, and 4,4'-DDD in SB36_2-4 were qualified as estimated (J) due to lack of agreement between the two column measurements.

o PCBs

 The results for all Aroclors in SB29_0-2, SB29_13-15, and SB26_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns.

o <u>Herbicides</u>

- The results for Silvex in SB29_0-2, SB29_2-4, SB29_13-15, and SB26_0-2 were qualified as estimated (UJ) due to unacceptable surrogate recoveries on both analytical columns.
- The results for Silvex in SB29_0-2, SB29_2-4, SB29_13-15, SB36_2-4, and SB26_0-2 were qualified as estimated (UJ) due to low LCS recoveries.

Per- and Polyfluoroalkyl Substances (PFAS)

 The results for N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) in SB29_2-4 and SB_29_13-15 were qualified as not detected (U) at the reporting limit (RL) or reported value, whichever is higher, due to associated initial calibration blank (ICB) contamination.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists

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- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - o MS/MSD recoveries
 - Internal standards
 - Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the semi-volatile organics (SVOCs) analyses are recommended for use.
- A "T" flag was present in the electronic data deliverable (EDD) for a number of results.
 This data flag was not present on the Form 1s in the data package, nor was it listed in the
 definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for
 submission to the agency, although this qualifier format is not reflected in the data
 package.
- Four ICVs were listed on the SVOC Form V for the IC on HP09910 (8/13/20). Raw data
 and summary forms for only one of the ICVs (8/13/20 @ 13:54) were included and only
 this ICV was evaluated in this validation effort. The laboratory was contacted and will
 issue a revised data package to correct this issue.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory responded that these peaks are checked both by the analyst and during a secondary level review of the calibration data.

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- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did not match the responses found in the raw data. According to the laboratory, the discrepancies are because peak heights are reported in the raw data, but peak areas are reported on the summary forms. Corrected documentation was not provided by the time this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.
- The result for 4,4'-DDE in SB29_0-2 was reported by the laboratory from the sample reanalysis, but all other results for this samples were reported from the initial analysis. In response to the validator's inquiry, the laboratory indicated that the 4,4'-DDT result was reported from a subsequent analysis because 4,4'-DDE was not acceptable in an associated continuing calibration standard. The reason for taking this approach should have been provided in the data package.
- The laboratory reported the lower concentrations for target analytes in several samples and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration. This policy should have been noted in the case narrative.
- A run log is included in the data package for trivalent chromium (Cr III). It should be noted that Cr III is a calculation only, performed by subtracting any hexavalent chromium (Cr VI) detected in the sample from the total chromium result. There is no analysis performed specifically to determine Cr III. The laboratory responded to a question on this issue stating that "a batch is created as a place to hold the calculations."
- Run logs for hexavalent chromium do not include opening continuing calibration verification (CCV) standards and continuing calibraton blanks (CCBs). The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the method blank (MB) and LCS take the place of the CCB and CCV for this manual wet chem method.
- Method detection limits (MDLs) for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. The laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the initial calibration (IC) summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the standards analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this

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issue, that because hexavalent chromium is a manual wet chem method, such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.

• No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 17, 2020. The samples were received by the laboratory on the same day as sample collection. One of the temperatures on receipt at the laboratory was acceptable (3.9°C; QC 4°C ±2°C). The second cooler temperature (0.1°C) was slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

1. Calibration

Two ICs were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable. Second source ICV standards were analyzed following each IC and all %Ds were acceptable, with the exception noted below:

Instrument / Date	Compound	%D	Affected Samples	Qualifiers Applied
9953 7/29/20	1,1-Dichloroethene	21.9	SB29_0-2	UJ
			SB29_7-9	
			SB26_0-2	
			SB29_13-15	
			SB29_7-9 RA	
			SB26 0-2 RA	

Sample results for 1,1-dichloroethene were qualified as estimated (UJ) as noted above, due to an unacceptable percent difference in the ICV.

CC standards were analyzed at the appropriate frequency, and all percent differences were acceptable (<20%D) with the following exceptions:

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CC: Inst Date	Compound	%D	Affected Samples	Qualifiers Applied
9953 - 8/19/20 @	1,4-Dioxane	+35.9	SB29_0-2	None
18:38			SB29_7-9	
9953 - 8/20/20 @	1,4-Dioxane	+30.7	SB26_0-2	
9:47			SB29_13-15	
			SB29_7-9 RA	
			SB26 0-2 RA	

The percent differences represent an increase in instrument response. 1,4-Dioxane was not detected in any of the field samples, therefore, no action was necessary.

2. Surrogates

Surrogate compounds dibromofluoromethane, 1,2-dichloroethane-d₄, toluene-d₈, and bromofluorobenzene were added to all field and QC samples prior to analysis. Recoveries for these surrogates were acceptable (70-130 %R) with the following exceptions:

Sample	Surrogate	%R	Target Analytes	Qualifiers Applied
SB36_2-4	Toluene-d ₈	66	Trichloroethene 1,4-Dioxane Toluene Tetrachloroethene	Ĵ-, UJ
SB26_0-2 RA	Bromofluorobenzene	67	n-Propylbenzene n-Butylbenzene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene	

Sample results for compounds associated with the unacceptable surrogate recovery, as detailed above, were qualified as estimated (J-, UJ) with the potential for low bias or false negatives, on this basis.

3. Internal Standards

Unacceptably low (<50% of the applicable standard) internal standard responses for 1,4-dichlorobenzene-d₄ were observed for SB29_7-9 and SB26_0-2. Both samples were re-analyzed with similar responses. Results for the compounds 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and tert-butylbenzene, calculated with this IS, were qualified as estimated (J, UJ) in SB29_7-9, SB26_0-2, SB29_7-9 RA, and SB26_0-2 RA, on this basis.

4. Compound Identification and Confirmation

Results for 1,1,1-trichloroethane, 1,2-dichlorobenzene, and 1,4-dichlorobenzene in SB36_2-4 were corrected by the validator to not detected (U) at the reporting limit based on low signal to noise ratio and/or poor spectral match.

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5. Quantitation

Samples SB29_2-4 and SB36_2-4 were analyzed at 50-times dilutions. The laboratory adjusted the reporting limits accordingly.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

One IC (Instrument HP09910) was reported in support of sample analyses. All RRFs and RSDs, or correlation coefficients (r²) were acceptable. Data and summary forms for one second-source ICV standard, analyzed following the IC, were provided; all %Ds were acceptable (<20%D). One CC was analyzed in support of the samples, and all percent differences were acceptable (<20%D).

2. Surrogates

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable, with the following exceptions:

Sample	Surrogate	%R	Target Analytes	Qualifiers Applied
SB29_2-4	2-Fluorophenol	51	All target analytes	J-, UJ
	Phenol-d₅	57		
	2,4,6-Tribromophenol	44		
	Nitrobenzene-d ₅	54		
	2-Fluorobiphenyl	57		
	Terphenyl-d ₁₄	59		
SB29_13-15	2,4,6-Tribromophenol	58	Pentachlorophenol	
SB29_7-9	Nitrobenzene-d₅	69	Hexachlorobenzene Naphthalene	
	2,4,6-Tribromophenol	69	Pentachlorophenol	
SB36_2-4	2-Fluorophenol	15	All target analytes	
	Phenol-d₅	17		
	2,4,6-Tribromophenol	13		
	Nitrobenzene-d₅	13		
	2-Fluorobiphenyl	17		
	Terphenyl-d ₁₄	21		
SB26_0-2	2-Fluorophenol	63	All target analytes	
	2,4,6-Tribromophenol	63		
	Nitrobenzene-d ₅	61		
	2-Fluorobiphenyl	68		

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3. Laboratory Control Sample (LCS)

Results for one LCS associated with the sample analyses were reported in the data package. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R) for all target compounds.

4. Compound Identification

The result for dibenz(a,h)anthracene in SB29_0-2 was corrected by the validator to not detected (U) at the RL, based on poor spectral match and/or inadequate signal to noise (S/N) ratio for the masses used for confirmation, and the validator's professional judgement.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Calibration

One IC (Instrument HP19760) was reported in support of sample analyses. The RRFs and RSDs for the project target analyte (1,4-dioxane) and associated surrogate were acceptable. One ICV standard was analyzed following the IC and %Ds were acceptable.

Two CC standards were analyzed in support of the sample analyses, 8/20/20 @ 18:43 for the batch LCS and MB, and 8/21/20 @ 6:48 for all of the soil samples. All percent differences were acceptable (<20%D).

2. Surrogates:

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane, therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

Sample	%R	Qualifier Applied
SB29_2-4	44	UJ
SB36_2-4	16	
SB26_0-2	65	

Result for 1,4-dioxane in the samples listed above were qualified as estimated (UJ) with potential low bias, based on low recovery observed in the associated surrogate compound.

3. *LCS*

One LCS was prepared and analyzed with the soil samples. The recovery for 1,4-dioxane was unacceptable (70-130% R).

Parameter	LCS %R	Samples Affected	Qualifiers Applied
1,4-Dioxane	25	SB29_0-2 SB29_2-4	UJ



Parameter	LCS %R	Samples Affected	Qualifiers Applied
		SB29_13-15	
		SB36_2-4	
		SB26_0-2	

Sample results, as detailed above, were qualified as estimated (UJ) with potential low bias, based on associated low surrogate recoveries.

4. Quantitation

All five of the soil samples were analyzed at 10-times dilutions. Reporting limits were adjusted by the laboratory to account for the dilutions.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column			
Sample	TCX/1	TCX/2	DCB/1	DCB/2
SB29_0-2	172	а	173	183
SB29_0-2 RA	а	135	186	206
SB29_2-4	1671	а	430	172
SB29_13-15	27	230	433	226
SB36_2-4	1822	157	307	273
SB26 0-2	а	а	399	388

a-acceptable

The results for aldrin, alpha-chlordane, dieldrin, 4,4'-DDD, and 4,4'-DDT in SB29_0-2, 4,4'-DDE in SB29_0-2RA, and alpha-chlordane and 4,4'-DDD in SB26_0-2 were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns. Samples SB29_2-4, SB29_13-15, and SB36_2-4 were analyzed at 100-fold or 500-fold dilutions, which reduced the surrogate concentration to below the lower limit of the calibration range. Accurate surrogate recoveries would not be expected in this situation, and no additional action was taken on this basis.

2. Laboratory Control Sample (LCS)

Results for two LCS analyses associated with the sample analyses were reported in the data package. Percent recoveries were acceptable (70-130%R) with the exceptions below:

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Parameter	LCS %R	LCS %R	Samples	Qualifiers
	Column 1	Column 2	Affected	Applied
4,4'-DDE	144	152	SB29_0-2	J+

a-acceptable

The result for 4,4'-DDE in SB29_0-2 was qualified as estimated (J+) due to high LCS recoveries on both columns. Since 4,4'-DDE was not detected in any other site sample, no additional qualifiers were required on this basis.

3. Compound Identification and Quantitation

The relative percent difference (RPD) between the two column measurements was acceptable (≤40 RPD) for compounds detected in each sample, with the exceptions noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB29_0-2	Aldrin	4.0 J	10	89
SB29_2-4	alpha-Chlordane	320	140	79
SB29_13-15	alpha-Chlordane	94	61 J	42
SB36_2-4	Aldrin	950	240 J	121
	alpha-Chlordane	2000	870 J	80
	Dieldrin	780 J	3500	127
	4,4'-DDT	330 J	1800	139

Results for aldrin in SB29_0-2, alpha-chlordane in SB29_2-4 and SB29_13-15, and aldrin, alpha-chlordane, dieldrin, and 4,4'-DDD in SB36_2-4 were qualified as estimated (J) due to lack of agreement between the two column measurements.

The laboratory reported the lower concentrations for aldrin in SB29_0-2, alpha-chlordane in SB29_2-4 and SB29_13-15, aldrin, alpha-chlordane, dieldrin, and 4,4'-DDD in SB36_2-4, and 4,4'-DD in SB26_0-2 and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

The result for 4,4'-DDE was reported from the re-analysis of SB29_0-2 (SB29_0-2 RA); all other results for this sample were reported from the initial analysis. The laboratory was contacted and explained that the 4,4'-DDE result for this sample was reported from a subsequent analysis because 4,4'-DDE was unacceptable in an associated continuing calibration analysis. The reason for taking this approach should have been provided in the data package.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:



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Sample	Surrogate / Column			
Sample	TCX/1	TCX/2	DCB/1	DCB/2
SB29_0-2	59	61	64	а
SB29_2-4	59	59	213	а
SB29_13-15	61	59	159	а
SB36_2-4	13	59	194	142
SB26_0-2	62	64	а	151

a-acceptable

The results for all Aroclors in SB29_0-2, SB29_13-15, and SB26_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns. Samples SB29_2-4 and SB36_2-4 were analyzed at dilutions (50 times for SB29_2-4 and 200 times for SB36_2-4), which reduced the surrogate concentration to below the lower limit of the calibration range. Accurate surrogate recoveries would not be expected in this situation, and no additional action was taken on this basis.

2. Identification

In the original data package, Aroclor 1242 was reported in SB29_0-2 at 97 μ g/kg. However, results for this Aroclor were not included on the identification summary, two of the peaks on the DB CLP1 column were outside the established retention time windows for this Aroclor, concentrations of two of the peaks on the DB CLP2 column were below the method detection limit, and there is no evidence of a pattern representative of Aroclor 1242 in the chromatogram on either column. The laboratory was contacted, and after review, determined that this Aroclor should not have been reported in the sample. In the revised data package [Rev(1)], results for Aroclor 1242 in SB29_0-2 on the detect summary on page 12 and the client sample results form on page 21 have been revised to not detected. This result has also been corrected on the EDD to not detected. The data user is cautioned, however, that the Form I for the sample found on page 1277 of the data package has not been corrected and still erroneously shows a result of 97 μ g/kg.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate	Surrogate / Column		
Sample	DCPAA / 1	DCPAA / 2		
SB29_0-2	50	47		
SB29_2-4	46	205		
SB29_13-15	54	54		
SB36_2-4	157	141		
SB26 0-2	41	39		

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The results for Silvex in SB29_0-2, SB29_2-4, SB29_13-15, and SB26_0-2 were qualified as estimated (UJ) due to unacceptable surrogate recoveries on both analytical columns.

Since the surrogate recoveries were high and Silvex was not detected in SB36_2-4, this result did not warrant qualification on this basis.

2. Laboratory Control Sample (LCS)

Results for one solid-matrix LCS associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCS were below the minimum acceptance limit (QC 70-130%R), as noted below:

Parameter	LCS %R Column 1	LCS %R Column 2	Samples Affected	Qualifier Applied
LCS 410-34715/2	A			
Silvex	54	52	SB29_0-2 SB29_2-4 SB29_13-15 SB36_2-4 SB26_0-2	UJ

a - acceptableNA - not applicable

The results for Silvex in SB29_0-2, SB29_2-4, SB29_13-15, SB36_2-4, and SB26_0-2 were qualified as estimated (UJ) due to low LCS recoveries.

G. Metals

Based on the validation effort, all metals results were determined to be valid as reported. No qualifiers were applied to these data by the validator.

H. Per- and Polyfluoroalkyl Substances (PFAS)

1. Blanks

An ICB was analyzed after each IC, and two method blanks (MBs) were prepared and analyzed with the samples. The following target analytes were detected in associated blanks:

Blank	Analyte	Concentration (ng/mL)	Affected Samples	Qualifiers Applied
ICB 08/17/20	NEtFOSAA	0.171	SB29_2-4 SB29_13-15	U

Results for NEtFOSAA in SB29_2-4 and SB_29_13-15 were qualified as not detected (U) at the RL or reported value, whichever is higher, due to associated ICB contamination.



I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent or trivalent chromium were qualified as a result of the data validation. All reported results for hexavalent and trivalent chromium were determined to be usable as reported.

3. General Chemistry - Quantitation

No duplicate analysis was documented for cyanide, hexavalent chromium, or for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-10955-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. 410-10955-1

Environmental Analysis Re



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use only

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Lancaster Laboratories Environmental

Acct. #

410-9434 Chain of Custody

COC #610552

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Paul McMahon				1		#	ers	3	SVO	nic t	anic	3	3	6			S=H ₂ SO ₄	P=H	H ₃ PO ₄
Sampler Ashley Stappenbed	Quote #:			Sediment	l eld ES [Containers	121	72	hray	3	Z S	Oio				F=Field Filte	red 0 =0 emarks	
State where samples were collected: For Compliance: Yes	No 🗆		site	Sed	Potable NPDES	0	₹	375 MCL	157	FS T	五	7	1	F					
Sample Identification	Co	llected Time	Grab	Soil 🔀	Water	Other:	Total #	t	Aut 3	at 3.	4	Abta	1,4	PP.					
SB38-0-2	8/3/20		X	X				×	X	Z	X	X	X	X			additionaly	sul u	steine to
5838_6-8		950	X	\times				×	X	X	X	X	X	4			7		
SB38-22-24		955	X	X				×	X	>	X	X	X	X					
SB39-0-2		1135	X	X				×	X	X	X	X	X	X					
SB39-8-10		1200	X	X				X	X	X	X	X	X	×					*
SB39-18-20		1145	7	X				X	X	X	X	X	X	X					
5839-22-24		1150	\times	X				×	X	X	X	X	X	X			HO	LD	
SODURUZ-080320			X	X				X	X	X	X	X	X	X					
TB05-080320		1500	X			×		X											
EB04-080320	1	1510	X			X								X					
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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-10955-1

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: ICV 410-27654/10 Calibration Date: 07/29/2020 18:17

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bl29v01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	&D	MAX %D
Dichlorodif1uoromethane	Ave	0,3749	0,3351	0,1000	17,9	20,0	=10,6	30,0
Chloromethane	Ave	0,4529	0.4887	0,1000	21.6	20.0	7.9	30.0
1,3-Butadiene	Ave	0,2969	0,3344		22,5	20,0	12,6	30.0
Vinyl chloride	Ave	0,4156	0,4347	0,1000	20,9	20.0	4.6	30.0
Bromomethane	Ave	0.2846	0.3183	0.1000	22,4	20,0	11.8	30.0
Chloroethane	Ave	0.2339	0,2610	0,1000	22.3	20.0	11,6	30.0
Dich1orofluoromethane	Ave	0,5270	0.5675		21.5	20,0	7.7	30,0
Trichlorofluoromethane	Ave	0.3905	0.4655	0.1000	23.8	20.0	19.2	30.0
n=Pentane	Ave	0,4618	0,4579	and the second of the second o	19.8	20.0	-0.9	30,0
Ethanol	Ave	0.1521	0.1457	The second secon	958	1000	-4.2	30.0
Freon 123a	Ave	0,3063	0,3283	The state of the s	21,4	20.0	7,2	30,0
Acrolein	Ave	2,690	2.159	de Caban ente de més a serbera des ser al la cabana	120	150	-19.8	30.0
1,1-Dichloroethene	Ave	0.2219	0,2705	0,1000	24.4	20.0	21.9	30.0
Acetone	Ave	1.272	1.143	0.1000	135	150	-10.1	30.0
Freon 113	Ave	0.2425	0,2414	0,1000	19.9	20.0	=0.5	30,0
Methyl iodide	Ave	0.4254	0.4491		21.1	20,0	5,6	30.0
2-Propanol	Ave	0.8154	0,7935		146	150	=2,7	30,0
Carbon disulfide	Ave	0.8045	0,8812	0.1000	21.9	20.0	9,5	30.0
Allyl chloride	Ave	0,4553	0,4477	THE STATE OF	19,7	20,0	-1.7	30.0
Methyl acetate	Ave	0,1942	0.1992	0,1000	20.5	20.0	2,6	30.0
Methylene Chloride	Ave	0,2769	0.3141	0.1000	22.7	20,0	13.4	30.0
t-Butyl alcohol	Ave	1.284	1.286		200	200	0.1	30,0
Acrylonitrile	Ave	0,1015	0,1072		106	100	5,7	30.0
trans-1,2-Dichloroethene	Ave	0.2613	0.3005	0.1000	23.0	20,0	15.0	30.0
Methyl tertiary butyl ether	Ave	0.7155	0.7471	0.1000	20.9	20.0	4,4	30,0
n-Hexane	Ave	0,3864	0,4067	THE PERSON OF TH	21.0	20.0	5.2	30.0
1,1-Dichloroethane	Ave	0.4804	0,5448	0.2000	22.7	20,0	13,4	30.0
di-Isopropyl ether	Ave	0.9198	0.9708		21.1	20.0	5,5	30.0
2-Chloro-1,3-butadiene	Ave	0,3898	0,4194		21.5	20.0	7,6	30,0
Ethyl t-butyl ether	Ave	0.8018	0.8420		21.0	20,0	5.0	30.0
2-Butanone	Ave	0.1268	0,1357	0.1000	161	150	7,0	30,0
cis-1,2-Dichloroethene	Ave	0,2949	0.3500	0.1000	23.7	20.0	18.7	30.0
2,2-Dichloropropane	Ave	0.3557	0,4156		23,4	20.0	16,9	30.0
Propionitrile	Ave	1,834	1.772	Justine to the second of the second second	145	150	-3,4	30.0
Methacrylonitri1e	Ave	0,1105	0.1200		163	150	8,7	30,0
Bromochloromethane	Ave	0.1474	0,1516	COLUMN TO THE STATE OF THE COLUMN	20,6	20.0	2.8	30.0
Tetrahydrofuran	Ave	1.517	1,575	The second secon	104	100	3,9	30,0
Chloroform	Ave	0.4429	0.5032	0.2000	22.7	20.0	13,6	30.0
1,1,1-Trichloroethane	Ave	0.3691	0.4177	0,1000	22.6	20.0	13,2	30.0
Cyclohexane	Ave	0,4942	0,5202	0.1000	21.0	20,0	5.2	30.0
1,1-Dichloropropene	Ave	0,3654	0,4151		22.7	20.0	13,6	30.0

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: ICV 410-22126/10 Calibration Date: 07/14/2020 16:05

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YL14V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

								
ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4845	0.4333	0.1000	17,9	20.0	=10.6	30,0
Chloromethane	Ave	0,5222	0,5202	0.1000	19.9	20.0	-0,4	30.0
1,3-Butadiene	Ave	0.3783	0.3965		21.0	20.0	4.8	30.0
Vinyl chloride	Ave	0,4884	0.5040	0,1000	20,6	20.0	3,2	30,0
Bromomethane	Ave	0.3588	0,3826	0,1000	21.3	20.0	6.6	30.0
Chloroethane	Ave	0,2906	0.3217	0,1000	22.1	20.0	10.7	30.0
Dichlorofluoromethane	Aye	0.6846	0.7143	***************************************	20,9	20.0	4.3	30.0
Trichlorofluoromethane	Ave	0.5977	0,7172	0.1000	24.0	20.0	20.0	30.0
n-Pentane	Ave	0,5376	0.5306		19,7	20.0	=1,3	30.0
Ethyl ether	Ave	0,3238	0.3856	Name and an experimental of a calculation of the contract of Police (NAME)	23.8	20.0	19.1	30,0
Freon 123a	Ave	0.3156	0,3504		22,2	20,0	11.0	30.0
Acrolein	Ave	2.359	2.343		149	150	-0.7	30.0
1,1-Dichloroethene	Ave	0,2235	0,2571	0.1000	23.0	20.0	15.0	30.0
Acetone	Ave	1,022	1,265	0,1000	186	150	23,9	30.0
Freon 113	Ave	0,2374	0.2383	0.1000	20,1	20.0	0,4	30.0
2-Propanol	Ave	0,7171	0,5755		120	150	-19,8	30.0
Methyl iodide	Ave	0.4461	0,4468		20.0	20.0	0.1	30.0
Carbon disulfide	Ave	0.7224	0,7407	0,1000	20.5	20.0	2,5	30.0
Methyl acetate	Ave	0,4441	0,4388	0,1000	19,8	20,0	-1,2	30.0
Allyl chloride	Ave	0.4681	0,4321	in an are successive a Large event to the	18.5	20,0	-7,7	30.0
Methylene Chloride	Ave	0,2773	0.3080	0.1000	22,2	20,0	11,1	30.0
t-Butyl alcohol	Lin2		1,264		199	200	-0.3	30.0
Acrylonitrile	Ave	0.2178	0,2172		99,7	100	-0,3	30.0
Methyl tertiary butyl ether	Ave	0,9101	0.8940	0.1000	19.6	20,0	-1.8	30.0
trans-1,2-Dichloroethene	Ave	0,2707	0,2970	0,1000	21,9	20,0	9,7	30.0
n-Hexane	Ave	0.4028	0.4116		20.4	20.0	2.2	30.0
1,1-Dichloroethane	Ave	0,4809	0.5262	0.2000	21.9	20,0	9,4	30.0
di-Isopropyl ether	Ave	0.9888	0.997		20.2	20.0	0.9	30.0
2-Chloro-1,3-butadiene	Ave	0,4619	0,4787		20,7	20.0	3,6	30.0
Ethyl t-butyl ether	Ave	0.9143	0.9223	tari	20,2	20.0	0.9	30.0
2-Butanone	Ave	0,3251	0,3682	0.1000	170	150	13.3	30.0
cis-1,2-Dichloroethene	Ave	0.3146	0.3592	0.1000	22.8	20.0	14.2	30,0
2,2-Dichloropropane	Ave	0.3919	0,4376		22.3	20,0	11,7	30,0
Propionitrile	Ave	1.552	1.633	tale contra a contra a contra	158	150	5.2	30.0
Methacrylonitrile	Ave	0,2344	0,2401		154	150	2,4	30,0
Bromochloromethane	Ave	0,1767	0,1699		19.2	20.0	-3,8	30.0
Tetrahydrofuran	Ave	1,623	1,693		104	100	4.3	30.0
Chloroform	Ave	0.4931	0.5485	0.2000	22,2	20.0	11.2	30,0
1,1,1-Trichloroethane	Ave	0,4207	0.4724	0.1000	22,5	20.0	12,3	30,0
Cyclohexane	Ave	0.4787	0.5004	0.1000	20.9	20.0	4.5	30,0
1,1-Dichloropropene	Ave	0.3839	0.4219		22.0	20,0	9,9	30.0
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Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: CCVIS 410-30651/3 Calibration Date: 08/07/2020 09:08

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25 (mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YG07C01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4845	0.3312	0.1000	34,2	50.0	-31.6*	20.0
Chloromethane Chloromethane	Ave	0.5222	0,4037	0,1000	38.7	50.0	-22.7*	20.0
1,3-Butadiene	Ave	0,3783	0.3698		48.9	50,0	=2.3	20.0
Vinyl chloride	Ave	0.4884	0.3753	0,1000	38.4	50.0	-23,2*	20.0
Bromomethane	Ave	0,3588	0.2864	0,1000	39,9	50.0	-20,2*	20.0
Chloroethane	Ave	0,2906	0,2415	0.1000	41,6	50.0	-16.9	20.0
Dichlorofluoromethane	Ave	0,6846	0,4623		33,8	50,0	-32.5*	20,0
Trichlorofluoromethane	Ave	0.5977	0.5565	0,1000	46.6	50.0	-6.9	20.0
n-Pentane	Ave	0,5376	0,4541	A	42,2	50.0	-15,5	20.0
Ethyl ether	Ave	0.3238	0.2727	5.0° • • • • • • • • • • • • • • • • • • •	42,1	50.0	-15.8	20.0
Freon 123a	Ave	0.3156	0,2656		42,1	50.0	=15,9	20.0
Acrolein	Ave	2.359	1.893		401	500	-19.8	20.0
1,1-Dichloroethene	Ave	0.2235	0,2092	0,1000	46,8	50.0	-6,4	20.0
Acetone	Ave	1.022	0.8741	0.1000	85,6	100	-14,4	20,0
Freon 113	Ave	0.2374	0.2140	0,1000	45,1	50,0	-9,9	20,0
2-Propanol	Ave	0.7171	0.6006		209	250	-16.2	20.0
Methyl iodide	Ave	0.4461	0,4028		45.1	50.0	-9,7	20.0
Carbon disulfide	Ave	0.7224	0.6887	0.1000	47,7	50,0	-4.7	20.0
Methyl acetate	Ave	0,4441	0.3627	0,1000	40.8	50,0	-18,3	20.0
Allyl chloride	Ave	0,4681	0.3507		37.5	50.0	-25.1*	20.0
Methylene Chloride	Ave	0,2773	0.2623	0,1000	47,3	50,0	=5,4	20,0
t-Butyl alcoho1	Lin2		1,219		244	250	-2.5	20.0
Acrylonitrile	Ave	0.2178	0.2026	777 - 1774	46,5	50.0	-7.0	20.0
Methyl tertiary butyl ether	Ave	0.9101	0.8263	0.1000	45.4	50.0	-9.2	20.0
trans-1,2-Dichloroethene	Ave	0,2707	0,2558	0.1000	47,2	50,0	-5.5	20.0
n-Hexane	Ave	0.4028	0.3583		44.5	50.0	-11.0	20.0
1,1-Dichloroethane	Ave	0.4809	0.4511	0.2000	46,9	50.0	=6,2	20,0
di-Isopropyl ether	Ave	0,9888	0.8477		42,9	50.0	-14.3	20.0
2-Chloro-1,3-butadiene	Ave	0,4619	0.3839		41,6	50,0	-16.9	20,0
Ethyl t-butyl ether	Ave	0,9143	0.7946	D. 1897-12	43.5	50,0	-13.1	20.0
2-Butanone	Ave	0,3251	0,2853	0,1000	87,8	100	-12,2	20,0
cis-1,2-Dichloroethene	Ave	0,3146	0.3041	0.1000	48.3	50,0	-3.3	20,0
2,2-Dichloropropane	Ave	0.3919	0.3739		47,7	50.0	-4.6	20,0
Propionitri1e	Āve	1.552	1.620	-	261	250	4.4	20.0
Methacrylonitrile	Ave	0,2344	0.2240		119	125	-4,4	20.0
Bromochloromethane	Ave	0,1767	0.1600		45,3	50.0	-9,4	20.0
Tetrahydrofuran	Ave	1.623	1,477		91.0	100	-9.0	20,0
Chloroform	Ave	0.4931	0.4813	0,2000	48.8	50.0	-2.4	20.0
1,1,1-Trichloroethane	Ave	0.4207	0.3968	0,1000	47,2	50,0	=5.7	20,0
Cyclohexane	Ave	0.4787	0.4105	0.1000	42.9	50.0	-14.2	20.0
1,1-Dichloropropene	Ave	0.3839	0.3608		47.0	50.0	-6.0	20.0

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-9434-1

SDG No.:

Lab Sample ID: CCVIS 410-30651/3 Calibration Date: 08/07/2020 09:08

Instrument ID: 9355 Calib Start Date: 07/14/2020 13:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/14/2020 15:43

Lab File ID: YG07C01.D Conc. Units: ug/L Heated Purge: (Y/N) N

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ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Carbon tetrachloride	Ave	0,3553	0,3364	0,1000	47.3	50.0	-5.3	20,0
Isobutyl alcohol	Ave	0,4522	0.4542		628	625	0.4	20.0
Benzene	Ave	1,153	1.122	0,5000	48.7	50.0	=2.6	20.0
1,2-Dichloroethane	Ave	0.4319	0.4157	0,1000	48.1	50.0	-3.8	20.0
t-Amyl methyl ether	Ave	0.9266	0,8436	27 C. C. C. C. C. C. C. C. C. C. C. C. C.	45.5	50,0	-9.0	20.0
n-Heptane	Ave	0.4795	0,4401		45.9	50.0	-8,2	20.0
n-Butanol	Lin		0.4192	··· >- x ⁰ /Me/sz 'r is the hill or againing o	1210	1250	-2,8	20.0
Trichloroethene	Ave	0,3046	0,2906	0.2000	47,7	50.0	-4.6	20.0
Methylcyclohexane	Ave	0,5469	0,4677	0.1000	42.8	50.0	-14.5	20.0
1,2-Dichloropropane	Ave	0.3118	0.3095	0,1000	49.6	50.0	-0.7	20,0
t-Amyl ethyl ether	Ave	0.4930	0.4463		45.3	50.0	-9,5	20.0
Methyl methacrylate	Ave	0.3543	0.3409		48.1	50.0	-3,8	20,0
1,4-Dioxane	Ave	0.1007	0.1109	0.0050	688	625	10,1	20.0
Dibromomethane	Ave	0.2064	0,2144	Y C	51.9	50.0	3,8	20.0
Bromodichloromethane	Ave	0.3612	0,3742	0.2000	51.8	50,0	3,6	20.0
2-Nitropropane	Ave	3,177	2,875		90.5	100	-9.5	20.0
2-Chloroethy1 viny1 ether	Ave	0,2740	0,2736		49.9	50.0	-0.2	20.0
cis-1,3-Dichloropropene	Ave	0.4600	0,4844	0.2000	52,7	50.0	5.3	20.0
4-Methyl-2-pentanone	Ave	0.6366	0.6219	0,1000	97.7	100	-2.3	20.0
Toluene	Ave	0.9537	0.9281	0.4000	48.7	50.0	-2.7	20.0
trans-1,3-Dichloropropene	Ave	0.5640	0.5898	0.1000	52.3	50.0	4,6	20.0
Ethyl methacrylate	Ave	0,7046	0.6853		48,6	50,0	-2,7	20.0
1,1,2-Trichloroethane	Ave	0.3731	0,3907	0,1000	52.4	50.0	4.7	20.0
Tetrachloroethene	Ave	0.4848	0.3866	0,2000	39,9	50,0	-20,2*	20.0
1,3-Dichloropropane	Ave	0,6381	0,6546	The second secon	51.3	50.0	2.6	20,0
2-Hexanone	Ave	0,6623	0.6601	0,1000	99.7	100	-0,3	20,0
Dibromochloromethane	Ave	0.3678	0.3987	Francisco de la companya del companya del companya de la compa	54.2	50,0	8,4	20,0
1,2-Dibromoethane	Ave	0,4187	0,4369	0.1000	52.2	50.0	4.4	20.0
1-Chlorohexane	Ave	0.5515	0,5083		46.1	50,0	-7,8	20.0
Chlorobenzene	Ave	1,091	1.097	0,5000	50.3	50.0	0.5	20.0
1,1,1,2-Tetrachloroethane	Ave	0,3702	0,3869		52.3	50.0	4,5	20,0
Ethylbenzene	Ave	1,890	1,850	0.1000	48.9	50,0	-2.1	20,0
m&p-Xylene	Ave	0.7460	0.7284	0,1000	97,6	100	-2,4	20,0
o-Xylene	Ave	0,7312	0,7121	0.3000	48.7	50.0	-2,6	20.0
Styrene	Ave	1,221	1.262	0,3000	51.7	50,0	3.4	20.0
Bromoform	Ave	0.2892	0.3219	0.1000	55.7	50.0	11.3	20.0
Isopropylbenzene	Ave	1,831	1,809	0.1000	49.4	50.0	-1.2	20.0
Cyclohexanone	Ave	0.4737	0.4114		543	625	-13.2	20.0
1,1,2,2-Tetrachloroethane	Ave	1,221	1,310	0,3000	53,6	50,0	7,3	20,0
Bromobenzene	Ave	0.9950	0.9877		49,6	50.0	-0.7	20,0
trans-1,4-Dichloro-2-butene	Ave	0.5011	0.3410		85.1	125	-31.9*	20,0

FORM III GC/MS VOA MATRIX SPIKE RECOVERY

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.: 410-9434-1
SDG No.	•		
Matrix:	Solid	Level: Low	Lab File ID: Bg04s04.D
Lab ID:	410-9434-1 MS	-	Client ID: SB38 0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
COMPONIE	ADDED	1	CONCENTRATION	8	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	19.0	ND	22,3	117	69-123	
1,1-Dichloroethane	19.0	ND	22.0	116		
1,1-Dichloroethene	19.0	ND	24.6	129		
1,2,4-Trimethylbenzene	19.0	ND	19.8	104	73-120	
1,2-Dichlorobenzene	19.0	ND	19.1	101	76-120	
1,2-Dichloroethane	19.0	ND	20,2	106		
1,3,5-Trimethylbenzene	19.0	ND	20.2	107	73-120	
1,3-Dichlorobenzene	19,0	ND	19.4	102	75=120	
1,4-Dichlorobenzene	19.0	ND	19.0	100	80-120	
1,4-Dioxane	475	ND	696	147	62-131	F1
2-Butanone	142	1.9 J	175	121	57-128	
Acetone	142	49	486	307	41-150	F1
Benzene	19.0	ND	21.4	112	80-120	
Carbon tetrachloride	19,0	ND	22,3	118	64-134	
Chlorobenzene	19,0	ND	20.5	108	80-120	
Chloroform	19.0	ND	21,7	114	80-120	The second second
cis-1,2-Dichloroethene	19.0	ND	22.9	121	80-123	***************************************
Ethylbenzene	19,0	ND	20.3	107	78-120	
Methyl tertiary butyl ether	19.0	ND	19.6	103	72-120	and the second second
Methylene Chloride	19.0	ND	22.8	120	76-122	
n-Butylbenzene	19.0	ND	20.5	108	71-121	
N-Propylbenzene	19,0	ND	20,9	110	72-123	The second secon
sec-Butylbenzene	19.0	ND	18,5	97	72=120	
tert-Butylbenzene	19,0	ND	20.3	107	68-120	
Tetrachloroethene	19.0	ND	21.1	111	73-120	
Toluene	19.0	ND	21,1	111	80-120	
trans-1,2-Dichloroethene	19.0	ND	22.8	120	80-125	
Trichloroethene	19,0	ND	21.4	113	80-120	
Vinyl chloride	19.0	ND	19.6	103	52-120	
Xylenes, Total	57.0	ND	60.8	107	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancasto	er Laboratories	Job No.: 410-9434-1
SDG No.	:		
Matrix:	Solid	Level: Low	Lab File ID: Bg04s05.D
Lab ID:	410-9434-1 MSD		Client ID: SB38 0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD %	90	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	п
1,1,1-Trichloroethane	19.0	22.3	118	0	30	69-123	**************************************
1,1-Dichloroethane	19.0	21.9	116	0	30	79-120	***************************************
1,1-Dichloroethene	19.0	24,7	131	1	30	73-129	F1
1,2,4-Trimethylbenzene	19,0	19,3	102	3	30	73=120	
1,2-Dichlorobenzene	19.0	18.8	99	2	30	76-120	
1,2-Dichloroethane	19.0	20,4	108	1	30	71=128	
1,3,5-Trimethylbenzene	19.0	19,8	104	2	30	73-120	
1,3-Dichlorobenzene	19.0	19.1	101	1	30	75-120	
1,4-Dichlorobenzene	19,0	18,8	99	1	30	80-120	
1,4-Dioxane	474	618	130	12	30	62-131	
2-Butanone	142	179	125	2	30	57-128	
Acetone	142	356	216	31	30	41=150	F1 F2
Benzene	19.0	21.5	114	1	30	80-120	.,
Carbon tetrachloride	19.0	22,6	119	1	30	64-134	
Chlorobenzene	19.0	20.4	108	0	30	80-120	
Chloroform	19.0	21.9	115	1	30	80-120	
cis-1,2-Dichloroethene	19.0	23.3	123	2	30	80-123	
Ethylbenzene	19.0	20.2	107	0	30	78-120	A
Methyl tertiary butyl ether	19.0	19.9	105	1	30	72-120	C-107 20 20 20 20 12 12 12 12 12 12 12 12 12 12 12 12 12
Methylene Chloride	19.0	22.4	118	2	30	76-122	
n-Butylbenzene	19,0	19.9	105	3	30	71-121	
N-Propylbenzene	19.0	20.3	107	3	30	72-123	
sec-Butylbenzene	19.0	17.9	94	3	30	72-120	
tert-Butylbenzene	19.0	19.7	104	3	30	68-120	
Tetrachloroethene	19.0	20.5	108	3	30	73=120	
Toluene	19.0	21.0	111	0	30	80-120	
trans-1,2-Dichloroethene	19.0	22.7	120	0	30	80-125	
Trichloroethene	19.0	21.6	114	1	30	80-120	
Vinyl chloride	19.0	19.9	105	1	30	52-120	
Xylenes, Total	56.9	60.1	106	1	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

Report Date: 06-Aug-2020 21:40:07 Chrom Revision: 2.3 30-Jun-2020 12:05:54

Eurofins Lancaster Laboratories Env. LLC

Data File:

\\chromfs\Lancaster\ChromData\HP09910\20200806-7390.b\OH0272.D

Injection Date:

06-Aug-2020 19:23:30

Instrument ID:

HP09910

Lims ID:

410-9434-I-2-B

Lab Sample ID:

410-9434-2

Client ID:

SB38 6-8

Operator ID:

kel10217

ALS Bottle#:

20

Worklist Smp#:

22

Injection Vol:

1.0 ul

Dil. Factor:

1.0000

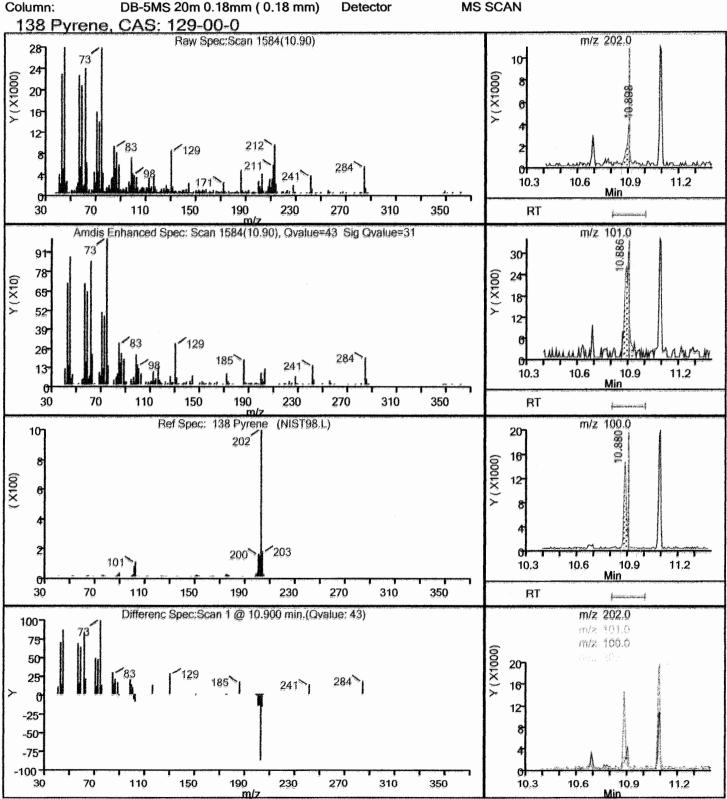
Method:

MSSemi HP09910

Limit Group:

MSSV - 8270D E

MS SCAN DB-5MS 20m 0.18mm (0.18 mm) Detector



FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	 	Laboratories	Job	No.:	410-9434-1
SDG	No.:	 				

Matrix: Solid Level: Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #	
SB38_0-2 🗸	410-9434-1	64	78	77	<
SB38_6-8 J	410-9434-2	62	71	72	-
SB38_22-24 V	410-9434-3	61	70	65	-
SB39_0-2 🗸	410-9434-4	61	71	64	
SB39_8-10	410-9434-5	70	83	74	
SB39_18-20 /	410-9434-6	64	74	72	-
SODUP02_080320 /	410-9434-8	65	71	71	<
	MB 410-29544/1-A	70	79	80	1
	LCS 410-29544/2-A	76	84	86	7
SB38_0-2 MS	410-9434-1 MS	79	92	91	1
SB38_0-2 MSD	410-9434-1 MSD	78	90	90	1

DAS 12/7/20

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

Column to be used to flag recovery values

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster	Laboratories Jo	b No.: 410-9434-1			
SDG No.:					
Matrix: Solid Le	vel: Low La	b File ID: IH0172.D			
Lab ID: LCS 410-29544/2-A	Cl	ient ID:			
					p
	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	33.3	12.9	39	21-79	

1 DAS 12/7/20

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: IH0260.D

Lab ID: 410-9434-1 MS Client ID: SB38_0-2 MS

SPIKE SAMPLE MS MS QC
ADDED CONCENTRATION % LIMITS #

DAS 12/7/20

Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancas	ster Labo	ratories	Job No.: 4	10-94	34-1			
SDG No.:								
Matrix: Solid	Level:	Low	Lab File I	D: IH	0261.	D		
Lab ID: 410-9434-1 MSD		Client ID: SB38_0-2 MSD						
•	<u> </u>	SPIKE	MSD	MSD		QC LI	MITS	
COMPOUND		ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	% REC	% RPD	RPD	REC	#
1.4-Dioxane		34.4	14.0	41	1	30	21-79	

DAS 12/2/20

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-9434-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): DB CLP1	ID: 0.32(mm)	GC Column (2): DB CLP2	ID: 0.32(mm)

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SB38_0-2	410-9434-1	78	84	84	89
SB38_6-8	410-9434-2	70	78	81	87
SB38_22-24	410-9434-3	73	79	60	62
SB39_0-2	410-9434-4	70	72	79	96
SB39_8-10	410-9434-5	69	72	72	83
SB39_18-20	410-9434-6	80	86	82	88
SODUP02_080320	410-9434-8	85	90	87	96
	MB 410-29536/1-A	85	93	90	94
	LCS 410-29536/2-A	88	95	94	100
SB38_0-2 MS	410-9434-1 MS	79	84	84	92
SB38_0-2 MSD	410-9434-1 MSD	81	90	90	93

QC LIMITS 53-140 45-143

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: 410-9434-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB38_0-2	410-9434-1	51	55
SB38_6-8	410-9434-2	52	51
SB38_22-24	410-9434-3	52	50
SB39_0-2	410-9434-4	60	60
SB39_8-10	410-9434-5	65	60
SB39_18-20	410-9434-6	57	54
SODUP02_080320	410-9434-8	60	63
	MB 410-29995/1-A	48	49
	LCS 410-29995/2-A	56	59
SB38_0-2 MS	410-9434-1 MS	58	56
SB38_0-2 MSD	410-9434-1 MSD	62	63

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name	e: <u>Eurofins Lancast</u>	er Lab	oratories	Job	No.: 410	-9434-1			
SDG No.	:								
Matrix:	Solid	Level	: Low	Lab	File ID:	36HERB2020	5007.	127.D	
Lab ID:	LCS 410-29995/2-A			Cli	ent ID:				
			SPIKE		_	ICS	LCS	QC	ш

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	왕	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	5.60	67	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20205007.147.D

Lab ID: 410-9434-1 MS Client ID: SB38_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.55	ND	5.72	67	70-130	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-9434-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20205007.148.D

Lab ID: 410-9434-1 MSD Client ID: SB38_0-2 MSD

	SPIKE	MSD	MSD		QC LIMITS		
	ADDED	CONCENTRATION	%	용		I	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
Silvex (2,4,5-TP)	8.54	6.08	71	6	50	70-130	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

5-IN MATRIX SPIKE SAMPLE RECOVERY GENERAL CHEMISTRY

Lab	Name	: Eurofi	ns Lancaster	Laboratories	En	Job	No.:	410-9434-1	
SDG	No.:								
Matı	cix:	Solid							

Method	Lab Sample ID Analyte	Result C Unit	Spike Pct. RPD Amount Rec. Limits RPD Limit Q
Batch	ID: 31588 Date: 08/10/2020 19:50	Prep Batch: 31070	Date: 08/09/2020 12:31
9012B	410-9434-1 Cyanide, Total	ND mg/Kg	
9012B	410-9434-1 MS Cyanide, Total	3.58 mg/Kg	5.28 68 45-145

1 DAS 12/7/20

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

pr Cr +3

Client ID: SB38_0-2 MSD	Lab ID: 410-9434-1 MSD
Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-9434-1

SDG No.: ________Matrix: Solid

Concentration Units: mg/Kg

% Solids: 96.8

Analyte	(SDR)	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method	
Arsenic	3,37	1.78	149	75-125	24	20	F1 F2	6020B	
Barium	22.5	8.91	158	75-125	7	20	F1	6020B	
Beryllium	1.08 J	0,722	131	75-125	33	20	F1 F2	6020B	
Cadmium	1.01	0.898	113	75-125	12	20		6020B	
Chromium 🗸	17.0	9.02	160	75-125	27	20	F1 F2	6020B	
Copper	35,9	8.98	252	75=125	52	20	F1 F2	6020B	
Lead	23,5	0.884	1276	75-125	106	20	4 F2	6020B	
Manganese	108	9.02	503	75-125	13	20	4	6020B	
Nickel	14.4	9,02	120	75-125	2	20		6020B	
Selenium	1.83	1.80	102	75-125	11	20		6020B	a. Samulas
Silver	9.46	9,04	105	75-125	11	20		6020B	
Zinc	299	90.2	241	75-125	90	20	E F1 F2	6020B	
Mercury	0,246	0,161	85	80-120	12	20		7471B	

SDR = Sample Duplicate Result

MS 12/7/20

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.



December 17, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for 16 soil samples, two equipment blanks, one field blank, and one trip blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-11057-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB16_0-2	SB16_6-8	SB16_10-12	SB13_0-2
SB13_4-6	SB13_12-14	SODUP03_081820	EB01_081720
EB01_081820	SB28_0-2	SB28_4-6	SB28_12-14
SB22_0-2	SB22_4-6	SB22_8-10	SB21_0-2
SB21_6-8	SB21_9-11	SOFB03_081820	TB01_081820

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected lon Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes

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Data Usability Summary Report	
7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

o Volatile Organics

- Results for 1,1-dichloroethene in all of the soil samples, except SB21_6-8 and SB21_9-11, were qualified as estimated (UJ) due to an unacceptable percent difference (%Ds) in the second source initial calibration verification (ICV) standard.
- Results for 2-butanone in SB21_6-8, SB13_0-2 RA, SB28_0-2 RA, SB28_12-14 RA, SB22_0-2 RA, SB22_4-6, and SB22_8-10 were qualified as estimated (UJ) due decreased sensitivity observed in the associated continuing calibration (CC) standards.
- Results for n-propylbenzene, n-butylbenzene, tert-butylbenzene, sec-butylbenzene, 1,2-dichlorobezene, 1,3-dichlorobenzene, 1,4-dichlorobezene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene in SB22_0-2 and SB28_0-2 were qualified as estimated (J-, UJ) based on low recoveries for the associated surrogate compound.
- Results for all target analytes in SB28_12-14, and for 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, and n-propylbenzene in SB13_0-2, SB28_0-2, and SB22_0-2, were qualified as estimated (J, UJ) based on low response for the internal standard (IS) with which these compound results are calculated.
- Results for 2-butanone and acetone in SB21_6-8 were qualified as estimated (UJ) based on low laboratory control sample (LCS) recoveries for these compounds.
- Results for acetone in SB13_0-2 RA, SB28_0-2 RA, SB28_12-14 RA, SB22_0-2 RA, SB22_4-6, and SB22_8-10 were qualified as estimated (J+) with potential high bias based on high recoveries in the matrix spike (MS) and matrix spike duplicate (MSD).
- Results for acetone and tetrachloroethene in all of the soil samples in this SDG were qualified as estimated (J, UJ) based on poor precision in the field duplicates.

o Semi-Volatile Organics (Full Scan)

Results for all acid-extractable target compounds in SB16_0-2, SB16_6-8, SB16_10-12, SB13_4-6, SB13_4-6 DL, SB13_12-14, SODUP03_081820, SODUP03_081820 DL, SB28_0-2, SB28_12-14, SB22_4-6, SB22_4-6 DL, SB22_8-10 DL, SB21_0-2, SB21_9-11, and the aqueous field blank,

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SOFB03_081820, were qualified as estimated (J-, UJ) with potential low bias based on low recoveries for the associated surrogate compounds.

- Results for naphthalene in SB13_4-6 DL, SODUP03_081820, SODUP03_081820
 DL, SB28_0-2, SB22_4-6, SB22_4-6 DL, SB22_8-10 DL, SB21_0-2, and SB21_9-11 were qualified as estimated (J-, UJ) with potential low bias based on low recoveries for the associated surrogate compound.
- Results for phenol, 2-methylphenol, and 4-methylphenol in SB16_10-12 DL, SB13_0-2, SB28_4-6, SB22_0-2, and SB22_8-10 were qualified as estimated (J-, UJ) with potential low bias based on low recoveries for the associated surrogate compound.
- All target compounds in SB21_6-8 were qualified as estimated (J-, UJ) with potential low bias based on low recoveries for the associated surrogate compounds.
- The result for phenol in SOFB03_081820 was qualified as estimated (UJ) based on low recovery in the aqueous LCS.
- Results for benzo(k)fluoranthene in all of the soil samples in this SDG were qualified as estimated (J, UJ) based on low recovery in the MSD and high RPD between the paired spiked samples. Positive results for phenanthrene in all of the soil samples were qualified as estimated (J+) with potential for high bias, based on high recovery in the MSD.
- The result for chrysene in SB13_12-14, results for fluoranthene and pyrene in SB28_12-14, and for fluorene and dibenzofuran in SB21_9-11 were corrected to not detected (U) based on poor spectral match, low signal-to-noise (S/N) ratio, and professional judgment.
- Results for acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene in all of the soil samples in this SDG were qualified as estimated (J, UJ) based on poor precision in the field duplicate pair.

Semi-Volatile Organics (Selected Ion Monitoring)

- o Results for 1,4-dioxane in SB16_10-12, SB16_10-12 RA, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, SB21_9-11, and SOFB03_08182020 were qualified as estimated (UJ) based on low recoveries for the associated surrogate compound.
- Results for 1,4-dioxane in all of the soil samples, as well as the aqueous field blank, were qualified as estimated (UJ) due to low recoveries in the LCS, and/or MS and MSD.

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The result for 1,4-dioxane in SB13_12-14 was qualified as tentatively identified (N) based on ion abundances observed in the sample raw data that do not match the abundances exhibited in the reference spectrum.

o Pesticides

- The results for alpha-chlordane and 4,4'-DDE in SB16_0-2 and gamma-BHC, alpha-chlordane, dieldrin, and endrin in SB16_6-8 were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns.
- The results for all target pesticide compounds except 4,4'-DDT in SB13_0-2, SB13_4-6, and SB21_9-11 and for all target compounds in SODUP03_081820 and SB22_8-10 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns.
- The result for aldrin in SOFB03_081820 was qualified as estimated (UJ) due to low LCS recoveries.
- The results for alpha-BHC in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (UJ) due to low MSD recoveries.
- The results for alpha-chlordane, beta-BHC, delta-BHC, endosulfan sulfate, endrin, gamma-BHC, heptachlor, 4,4'-DDE, and 4,4'-DDT in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to high MSD recoveries and imprecision between MS/MSD results.
- Nondetect results for aldrin, dieldrin, and endosulfan I in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were rejected (R) and positive results were qualified as estimated (J) because these analytes were not recovered in the MSD.
- The result for endosulfan II in SODUP03_081820 was qualified as estimated (J-) due to the low MSD recovery on the column from which this analyte was reported.
- Results for alpha-chlordane in SB16_0-2, alpha-chlordane, dieldrin, and endrin in SB16_6-8, dieldrin in SB16_10-12, heptachlor, dieldrin, and endosulfan sulfate in SB13_0-2, heptachlor, alpha-chlordane, endosulfan I, 4,4'-DDE, dieldrin, endrin, and endosulfan sulfate in SB13_4-6, endosulfan I and dieldrin in SB13_12-14, alpha-chlordane, 4,4'-DDE, dieldrin, and endrin in SODUP03-081820, aldrin and dieldrin in SB22_8-10, dieldrin in SB21_0-2, and gamma-BHC, alpha-chlordane, endrin, and endosulfan sulfate in SB21_9-11 were qualified as estimated (J) due to lack of agreement between the two column measurements.

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Results for endosulfan II and endosulfan sulfate in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

o <u>PCBs</u>

- The results for Aroclor 260 in SB16_0-2 and SB22_4-6 were qualified as estimated (J+) due to the high surrogate recovery on the column from which the result was reported.
- The results for all Aroclors in SB16_10-12, SB13_0-2, SB13_4-6, SODUP03_081820, SB28_12-14, SB22_8-10, SB21_6-8, SB21_9-11, and SOFB03_081820 were qualified as estimated (J-, UJ) due to low surrogate recoveries on both analytical columns.
- The results for all Aroclors in SB28_0-2 and SB21_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both columns.
- The results for Aroclor 1260 in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J-, UJ) due to low MS recoveries.
- The results for Aroclor 1260 in SB22_8-10 and SB21_9-11 were qualified as estimated (J) due to lack of agreement between the two column measurements.
- Results for Aroclor 1254 in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

Herbicides

The results for Silvex in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, SB21_9-11, and SOFB03_081820 were qualified as estimated (UJ) due to unacceptable surrogate recoveries on both analytical columns.

Metals

Results for arsenic, barium, beryllium and cadmium in samples SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 and cadmium in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SODUP03_081820, SB28_0-2, SB28_4-6, SB22_0-2,

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SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J) due to elevated relative percent difference (RPD) between the MS and MSD. Results for copper and nickel in samples SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J) due to low MS and/or MSD recoveries and elected RPD between the MS and MSD. Results for chromium in samples SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated biased high (J+) due to elevates MS/MSD/post spike (PS) recoveries.

- Results for barium, lead. manganese and nickel in samples SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated biased high (J) due to elevated percent difference between the sample and serial dilution results.
- Results for lead in samples SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J) due to the elevated relative percent difference between the field duplicates.

Per- and Polyfluoroalkyl Substances (PFAS)

- The results for NMeFOSAA and NEtFOSAA in SB16_0-2 and perfluorododecanoic acid (PFDoDA) in EB01_081720 and EB01_081820 were qualified as estimated (UJ) due to the low recovery of the associated labeled analog.
- Results for perfluorooctanesulfonic acid (PFOS) in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

Hexavalent and Trivalent Chromium

Results for trivalent chromium in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, and SODUP03_081820 were qualified as estimated (J+) with potential high bias, based on quality control excursion affecting the total chromium results from with the trivalent chromium results are calculated.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

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The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - o MS/MSD recoveries
 - o Internal standards
 - o Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- A "T" flag was present in the electronic data deliverable (EDD) for a number of results.
 This data flag was not present on the Form 1s in the data package, nor was it listed in the
 definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for
 submission to the agency, although this qualifier format is not reflected in the data
 package.
- The Form 5 for the volatile organic compound (VOC) IC on instrument 26285 established on 8/5/20 showed an ICV analyzed in the middle of the sequence, with two additional initial calibration (IC) standards analyzed three to four hours later. According to the file IDs and

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the run log, six additional IC standards and ICV were analyzed between and after the reported IC and ICV. The laboratory was requested to provide an explanation for this incongruity. The laboratory responded that calibration for a second set of compounds, not requested for this project, had been performed with the IC used for the samples in this dataset.

- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Results for an initial calibration run on August 19, 2020 for the pesticide target analytes on August 19, 2020 on instrument 9191 and a toxaphene ICV standard run on August 19, 2020 on instrument 9191 were reported in the data package. These data are not relevant to the site samples and were not reviewed.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did
 not match the responses found in the raw data. According to the laboratory, the
 discrepancies are because peak heights are reported in the raw data, but peak areas are
 reported on the summary forms. Corrected documentation was not provided by the time
 this report was issued; however, the data can be reassessed if corrections are
 subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown
 was less than the maximum acceptance limit of 15% in every case.
- The result for 4,4'-DDT in SB16_0-2 was reported from the more diluted sample analysis.
 Responses for this analyte in the reported analysis were not included on the identification
 summary form included in the data package for this analysis, but the result could be
 verified using the available raw data.
- The results for 4,4'-DDT in several samples were reported by the laboratory from more diluted analyses or re-analyses, but all other results for these samples were reported from the initial analyses. In response to the validator's inquiry, the laboratory indicated that these results were reported from subsequent analyses because 4,4'-DDT was not acceptable in an associated continuing calibration standard. The reason for taking this approach should have been provided in the data package.
- The laboratory reported the lower concentrations for target analytes in several samples and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration. This policy should have been noted in the case narrative.
- Documentation in the ICPMS raw data of the 2x dilution of SB21_6-8 analyzed on 8/25/20
 25/20
 14:17 was incorrectly labeled as SB21
 14:17 was incorrectly labeled as SB21
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The

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laboratory responded to a question on this issue stating that "a batch is created as a place to hold the calculations."

- Run logs for hexavalent chromium do not include opening continuing calibration verifications (CCVs) and continuing calibration blanks (CCBs). The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the method blank (MB) and LCS take the place of the CCB and CCV for this manual wet chem method.
- Method detection limits (MDLs) for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.
- No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 18, 2020. The samples were received by the laboratory on the same day as sample collection. Three of the temperatures on receipt at the laboratory were acceptable (3.2°C to 5.5°C; QC 4°C ±2°C). The other two cooler temperatures (0.1°C and 1.7°C) were slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

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A. Volatile Organics

1. Calibration

Four ICs were reported in support of sample analyses (one on Instrument 23313 – waters; 1 each on Instruments 9953, 26285, and 7566 – soils). All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable.

Second source ICV standards were analyzed in association with each. All ICV responses were acceptable (<20 %D) with the exception of 1,1-dichloroethene (21.9 %D) in the ICV associated with the IC performed on instrument 9953 on 7/29/20. Results for 1,1-dichloroethene in all of the soil samples, except SB21_6-8 and SB21_9-11, were qualified as estimated (UJ) on this basis.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied	
7566 – 8/20/20 @ 18:26	2-butanone	-21.1	SB21_6-8	J-, UJ	
9953 – 8/20/20 @ 9:47	1,4-dioxane	+30.7	SB16_0-2	None	
			SB16_6-8		
			SB16_10-12		
			SB13_0-2		
			SB13_4-6		
			SB13_12-14		
			SODUP03_081820		
			SB28_0-2		
			SB28_4-6		
			SB28_12-14		
			SB22_0-2		
			SB21_0-2		
9953 – 8/23/20 @ 12:03	1,4-dioxane	+29.3	SB13_0-2 RA	None	
	2-butanone	-25.0	SB28_0-2 RA	UJ	
			SB28_12-14 RA		
			SB22_0-2 RA		
			SB22_4-6		
			SB22_8-10		

Where the %Ds for 1,4-dioxane represent an increase in instrument sensitivity and 1,4-dioxane was not detected in the associated samples, no action was necessary. A decrease in sensitivity was indicated by the high %D for 2-butanone; therefore, results for 2-butanone in associated samples were qualified as estimated (UJ).

2. Field and Laboratory Blanks

No target analytes were detected in the field blank submitted with the samples. Acetone was detected at a low concentration (0.77 J μ g/L) in the trip blank associated with the samples, TB01_081820. It is not ddms practice to qualify soil samples based on aqueous blank results,

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however, the data user is cautioned that low concentrations in the soil samples may not be authentic sample components, but, rather, laboratory or field-associated artifacts instead.

3. Surrogates

The laboratory added dibromofluoromethane, 1,2-dichloroethane- d_4 , toluene- d_8 , and bromofluorobenzene to all analyses to assess recovery. Recoveries were acceptable (70-130 %R) with the following exceptions:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB28_0-2	Bromofluorobenzene	65	n-Propylbenzene	UJ
SB22_0-2	Bromofluorobenzene	69	n-Butylbenzene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,2-Dichlorobezene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	

Low surrogate recovery suggests the potential for low bias or false negatives; therefore, associated results were qualified as estimated (UJ). Both samples also exhibited unacceptable internal standard recoveries for 1,4-dichlorobenzene-d₄. Both samples were re-analyzed, with acceptable surrogate recoveries; however, results for these compounds in the re-analyses, SB28_0-2 RA and SB22_0-2 RA, were qualified as well (UJ) based on unacceptable IS responses for 1,4-dichlorobenzene-d₄.

4. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD)

One LCS/LCSD pair was prepared and analyzed with each analytical batch. Recoveries (70-130%) and precision (<30%) were acceptable, with the exceptions noted below:

Analyte	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS 35520					
2-butanone	69	а	а	SB21_6-8	UJ
acetone	68	а	а		
LCS 35567		•			
1,4-dioxane	131	а	а	SB13_0-2 RA SB28_0-2 RA SB28_12-14 RA SB22_0-2 RA SB22_4-6 SB22 8-10	None

Results for acetone and 2-butanone in SB21_6-8 were qualified as estimated (UJ) with the potential for low bias. 1,4-Dioxane was not detected in the samples detailed above; therefore, no qualification was necessary.

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5. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported in the project-related data package for SDG 11359. Percent recoveries and RPDs were acceptable (70-130%R. RPD<50) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB13_12-1	14				
1,4-Dioxane	135	а	а	SB13_0-2 RA	None
Acetone	159	181	а	SB28_0-2 RA SB28_12-14 RA SB22_0-2 RA SB22_4-6 SB22_8-10	J+, UJ

a-acceptable

Results for acetone in the samples detailed above are qualified as estimated (J+, UJ) with the potential for high bias or false positives, based on low MS/MSD recoveries. Since the MS recovery was high and 1,4-dioxane was not detected in any of the associated samples, no action was necessary on this basis.

6. Internal Standards

The initial analyses of SB28_12-14, SB13_0-2, SB28_0-2, and SB22_0-2 exhibited unacceptable internal standard responses. In all cases responses were low (<50 % of the associated standard). These samples were re-analyzed and again exhibited the same low unacceptable responses. For SB28_12-14, all four IS compounds were low in both analyses and all target analyte results were qualified as estimated on this basis. For SB13_0-2, SB28_0-2, and SB22_0-2, only 1,4-dichlorobenzene-d4 showed unacceptably low response, in both the initial and re-analyses. For these three samples 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, n-butylbenzene, sec-butylbenzene, tert-butylbenzene, and n-propylbenzene were qualified as estimated (UJ) based on low response for the IS with which these compound results are calculated.

7. Field Duplicates

Sample SODUP03_081820 was collected and submitted as a field duplicate of SB21_9-11. Sample SB21_9-11 was analyzed at a fifty-times dilution; the field duplicate was analyzed undiluted. Acetone (20 μ g/kg) and tetrachloroethene (2.5 J μ g/kg) were detected in the field duplicate at low concentrations but were not found in the diluted sample. The chromatograms for the two analyses are very different. The laboratory was requested to double check that there are no errors in the report for these paired samples.

Based on poor precision observed for acetone and tetrachloroethene, results for these compounds in all of the soil samples in the data set were qualified as estimated (J, UJ). For positive results previously qualified with directional bias, the J qualifier takes precedence.

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SB21_9-11 was analyzed undiluted; SODUP03_081820 was analyzed from the methanol extract at a 50-times dilution. The data user is cautioned that, based on the discrepancies seen between the dilutions and the sample chromatograms the data user is cautioned that high variability in the site matrix is indicated.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

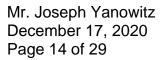
Two ICs (Instrument HP23296 - soils and HP20296 - waters) were reported in support of sample analyses. All RRFs and RSDs or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard was analyzed following each IC and all %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D).

2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB16_0-2	2-Fluorophenol	63	All acid-extractable	J-, UJ
	Phenol-d₅	69	target compounds	
SB16_6-8	2-Fluorophenol	62		
	2,4,6-Tribromophenol	67		
SB16_10-12	2-Fluorophenol	60		
	Phenol-d₅	68		
SB16_10-12 DL	2-Fluorophenol	62	List 1*	
SB13_0-2	2-Fluorophenol	65		
SB13_4-6	2-Fluorophenol	61	All acid-extractable	
	Phenol-d₅	69	target compounds	
SB13_4-6 DL	2-Fluorophenol	60		
	2,4,6-Tribromophenol	65		
	Nitrobenzene-d ₅	67	List 2**	
SB13_12-14	2-Fluorophenol	62	All acid-extractable	
	Phenol-d₅	69	target compounds	
SODUP03_081820	2-Fluorophenol	48		
	Phenol-d₅	52		
	Nitrobenzene-d ₅	56	List 2**	





Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SODUP03_081820	2-Fluorophenol	47	All acid-extractable	• •
DL	Phenol-d₅	52	target compounds	
	Nitrobenzene-d ₅	56	List 2**	
SB28_0-2	2-Fluorophenol	61	All acid-extractable	
	Phenol-d₅	68	target compounds	
	Nitrobenzene-d ₅	67	List 2**	
SB28_4-6	2-Fluorophenol	67	List 1*	
SB28_12-14	2-Fluorophenol	65	All acid-extractable	
	Phenol-d₅	68	target compounds	
SB22_0-2	2-Fluorophenol	67	List 1*	
SB22_4-6	2-Fluorophenol	49	All acid-extractable	
	Phenol-d₅	57	target compounds	
	2,4,6-Tribromophenol	60		
	Nitrobenzene-d ₅	58	List 2**	
SB22_4-6 DL	2-Fluorophenol	48	All acid-extractable	
	Phenol-d₅	51	target compounds	
	2,4,6-Tribromophenol	62		
	Nitrobenzene-d ₅	62	List 2**	
SB22_8-10	2-Fluorophenol	66	List 1*	
SB22_8-10 DL	2-Fluorophenol	65	All acid-extractable	
	2,4,6-Tribromophenol	68	target compounds	
	Nitrobenzene-d ₅	69	List 2**	
SB21_0-2	2-Fluorophenol	58	All acid-extractable	
	Phenol-d₅	64	target compounds	
	Nitrobenzene-d ₅	68	List 2**	
SB21_6-8	2-Fluorophenol	49	All target compounds	
	Phenol-d₅	56		
	2,4,6-Tribromophenol	41		
	Nitrobenzene-d ₅	60		
	2-Fluorobiphenyl	42		
SB21_9-11	2-Fluorophenol	58	All acid-extractable	
	Phenol-d ₅	63	target compounds	
	Nitrobenzene-d ₅	65	List 2**	
SOFB03_081820	2-Fluorophenol	43	All acid-extractable	
	Phenol-d ₅	32	target compounds	

^{*}List 1: phenol, 2-methylphenol, and 4-methylphenol
**List 2: naphthalene

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential for low bias, based on associated low surrogate recoveries.

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3. LCS/LCSD

Results for two LCSs, one for each of two extraction batches (water and soil), were reported in the data package. Percent recoveries for all analytes in the soil LCS were acceptable (70-130%R). For the aqueous LCS, all were acceptable except:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
Phenol	53	SOFB03_081820	UJ

The result for phenol in SOFB03_081820 was qualified as estimated (UJ) based on low recovery for this compound in the LCS.

4. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported in the data package. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<50) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied	
Parent Sample SB13_12-14						
Benzo(k)fluoranthene	а	36	88	All of the soil samples in	J-, UJ	
Phenanthrene	а	149	а	the SDG	J+	

a-acceptable

Results for benzo(k)fluoranthene in the samples detailed above were qualified as estimated (J-, UJ) with the potential for low bias or false negatives, based on low MS and/or MSD recoveries and precision. Results for phenanthrene where detected in samples, were qualified as estimated (J+) with the potential for high bias.

5. Internal Standards

Retention times for three of the CC standards analyzed in association with the soil samples were early for all six of the IS compounds and bear laboratory flagging "*" as a result. As the shifts appear similar for these IS in applicable CCs, it is assumed that the column was trimmed, or other minor maintenance was performed, giving rise to the shift(s). All IS RTs in the analyses associated with the CCs were acceptable and matched the applicable CC standard well. Identification and quantitation of the target compounds associated with each IS in the applicable CC were unaffected by the shift(s), and the shift(s) were reflected in the associated sample analysis; therefore, no action was warranted on this basis.

6. Target Compound Identification

The validator corrected results for chrysene in SB13_12-14, fluoranthene and pyrene in SB28_12-14, and fluorene and dibenzofuran in SB21_9-11 to not detected at the reporting limit (RL), based on low S/N ratio and/or poor spectral match.

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7. Quantitation

Samples were diluted by factors of five, 10, and 25 times; RLs were appropriately adjusted.

8. Field Duplicates

Sample SODUP03_081820 was collected and submitted as a field duplicate of SB21_9-11. Based on poor precision (>50% RPD) observed between the FD results for the compounds detailed below, results for these compounds in all of the soil samples in the data set were qualified as estimated (J, UJ).

Compound	Sample (µg/kg)	Sample Field Duplicate (μg/kg) (μg/kg)	
Acenaphthene	260	980	Applied J, UJ
Benzo(a)anthracene	3800	13000	
Benzo(a)pyrene	4000	11000	
Benzo(b)fluoranthene	4100	12000	
Benzo(k)fluoranthene	1600	5200	
Chrysene	3900	13000	
Dibenz(a,h)anthracene	880	1800	
Dibenzofuran	180 J	670	
Fluoranthene	7200	26000*	
Fluorene	280	980	
Naphthalene	350	940	
Phenanthrene	3800	11000	
Pyrene	6600	22000	

^{*}Result taken from a 25-times dilution

Results for the compounds listed above were qualified as estimated (J, UJ) in all of the soil samples in this data set, based on poor precision demonstrated between the field duplicates.

9. Documentation

No spectra were provided for anthracene, benzo(a)anthracene, benzo(g,h,i)perylene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, pyrene, and dibenzofuran for reported sample results in SB22_0-2. These missing spectra were requested from the laboratory.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Surrogate

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane; therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:



Sample	%R	Qualifier Applied
SB16_10-12	66	UJ
SB16_10-12 RA	67	
SB22_4-6	65	
SB22_8-10	35	
SB21_0-2	69	
SB21_6-8	68	
SB21_9-11	35	
SOFB03_081820	62	

Results for 1,4-dioxane in the samples detailed above were qualified as estimated (UJ) with the potential low bias, based on low recovery observed in the associated surrogate compound.

2. LCS/LCSD

One LCS was prepared each of the three preparation batches (two soil and one water batch). Recoveries for 1,4-dioxane were unacceptable (70-130%) in all three LCSs.

Parameter	LCS %R	Samples Affected	Qualifiers Applied
LCS 35213/2			
1,4-Dioxane	60	SOFB03_08182020	UJ
LCS 35965/2			
1,4-Dioxane	28	SB13_12-14 SB16_0-2 SB16_6-8 SB16_10-12 SB13_0-2 SB13_4-6 SODUP03_081820 SB28_0-2 SB28_4-6 SB28_12-14 SB22_0-2	UJ
LCS 36337/2		_	•
1,4-Dioxane	25	SB22_4-6 SB22_8-10 SB21_0-2 SB21_6-8 SB21_9-11	UJ

3. MS/MSD

One MS/MSD pair was prepared and analyzed with the soil samples. Precision between the results was acceptable, however, recoveries in both spikes were unacceptable.



Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent SB13_	_12-14				
1,4-Dioxane	25	24	а	B13_12-14	UJ
				SB16_0-2	
				SB16_6-8	
				SB16_10-12	
				SB13_0-2	
				SB13_4-6	
				SODUP03_081820	
				SB28_0-2	
				SB28_4-6	
				SB28_12-14	
				SB22_0-2	
				SB22_4-6	
				SB22_8-10	
				SB21_0-2	
				SB21_6-8	
				SB21_9-11	

Results for 1,4-dioxane in of the soil samples, as detailed above, were qualified as estimated (UJ) with potential low bias.

4. Analyte Identification

The ratio between the primary and secondary ions as displayed in the spectral raw data for 1,4-dioxane in sample SB13_12-14 showed very poor agreement with the ratio of the same masses in the reference spectrum. Based on poor agreement with the reference spectra, the result for 1,4-dioxane in SB13_12-14 was qualified as tentatively present (N) by the validator. The lab replied to a request for documentation of ion abundances from the standards analyzed on the instruments used for sample analysis, that for two of the applicable CCs, ratios of the secondary ion to primary are 88% or 77%.

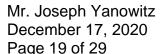
5. Field Duplicates

Sample SODUP03_081820 was collected and submitted as a field duplicate of SB21_9-11. 1,4-Dioxane was not detected in either of the field duplicates.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:





Sample	Surrogate / Column						
Sample	TCX/1	TCX/2	DCB/1	DCB/2			
SB16_0-2	а	а	218	322			
SB16_6-8	а	а	152	373			
SB13_0-2	370	54	а	201			
SB13_4-6	а	55	207	529			
SODUP03_081820	63	53	258	302			
SB22_8-10	48	61	240	159			
SB21_9-11	35	56	188	499			

a-acceptable

The results for alpha-chlordane and 4,4'-DDE in SB16_0-2 and gamma-BHC, alpha-chlordane, dieldrin, and endrin in SB16_6-8 were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns.

The results for all target pesticide compounds except 4,4'-DDT in SB13_0-2, SB13_4-6, and SB21_9-11 and for all target compounds in SODUP03_081820 and SB22_8-10 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns.

Several samples were analyzed or re-analyzed at 20-fold to 100-fold dilutions, which reduced the surrogate concentration to near or below the lower limit of the calibration range. Accurate surrogate recoveries would not be expected in this situation, and no action was taken on this basis.

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for four LCS analyses associated with the sample analyses were reported in the data package. Percent recoveries were acceptable (70-130%R) with the exceptions below:

Parameter	LCS %R Column 1	LCS %R Column 2	Sample Affected	Qualifier Applied
LCS 410-37097/2-A				
Aldrin	59	64	SOFB03_081820	UJ
Heptachlor	66	а	None	None

a-acceptable

The result for aldrin in SOFB03_081820 was qualified as estimated (UJ) due to low LCS recoveries. Since the second column recovery was acceptable and heptachlor was not detected in SOFB03_081820, no action was taken based on the low column 1 recovery for this analyte.

3. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB13_12-14 was prepared as an MS/MSD pair with this data set. Percent recoveries and RPDs were acceptable (70-130%R, RPD<30) with the exceptions below:



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Parent Sample:	Parent Sample: SB13_12-14						
Parameter	MS %R Column 1 / 2	MSD %R Column 1 / 2	RPD Col. 1 / 2	Samples Affected	Qualifiers Applied		
alpha-BHC	a/a	58 / 60	a/a	SB16_0-2	UJ		
alpha- Chlordane	a/a	a / 3030	a / 189	SB16_6-8 SB16_10-12	J, UJ		
beta-BHC	a/a	49 / 38	a / 66	SB13_0-2			
delta-BHC	a/a	a / 256	a / 102	SB13_4-6 SB13_12-14			
Endosulfan sulfate	a/a	242 / 330	91 / 115	SODUP03_081820 SB28 0-2			
Endrin	a/a	273 / 233	105 / 89	SB28_0-2 SB28_4-6			
gamma-BHC	a/a	1049 / 28	173 / 96	SB28 12-14			
Heptachlor	a/a	17800 / 137	198 / 56	SB22_0-2			
4,4'-DDE	a/a	651 / a	153 / a	SB22_4-6			
4,4'-DDT	a/a	141 / 268	a / 100	SB22_8-10			
Aldrin	a/a	0/0	NC	SB21_0-2 SB21 6-8	J, R		
Dieldrin	a / 56	0/0	NC	SB21_0-0 SB21_9-11			
Endosulfan I	57 / 56	0/0	NC	1			
Endosulfan II	a/a	65 / a	a/a	SODUP03_081820	J-		

a-acceptable

NC - not calculated

The results for alpha-BHC in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (UJ) due to low MSD recoveries.

The results for alpha-chlordane, beta-BHC, delta-BHC, endosulfan sulfate, endrin, gamma-BHC, heptachlor, 4,4'-DDE, and 4,4'-DDT in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to high MSD recoveries and imprecision between MS/MSD results.

Nondetect results for aldrin, dieldrin, and endosulfan I in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were rejected (R) and positive results were qualified as estimated (J-) because these analytes were not recovered in the MSD.

The result for endosulfan II in SODUP03_081820 was qualified as estimated (J-) due to the low MSD recovery on the column from which this analyte was reported. Since three of four MS/MSD recoveries were acceptable for endosulfan II and it was not detected in any other sample, no additional action was taken based on the low MSD recovery.

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4. Compound Identification and Quantitation

The relative percent difference (RPD) between the two column measurements columns was acceptable (≤40 RPD) for compounds detected in each sample, with the exceptions noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB16_0-2	alpha-Chlordane	2.4 J	4.2 J	53
SB16_6-8	alpha-Chlordane	1.0 J	1.8 J	52
	Dieldrin	24	4.5 J	138
	Endrin	4.1 J	7.7 J	61
SB16_10-12	Dieldrin	45	7.3 J	145
SB13_0-2	Heptachlor	10	1.7 J	142
	Dieldrin	17	2.2 J	153
	Endosulfan sulfate	4.9 J	2.0 J	82
SB13_4-6	Heptachlor	2.4 J	9.4	118
	alpha-Chlordane	1.8 J	6.8	116
	Endosulfan I	2.3 J	4.9	71
	4,4'-DDE	6.7 J	3.5 J	63
	Dieldrin	45	9.4 J	131
	Endrin	6.1 J	15	84
	Endosulfan sulfate	21	3.6 J	141
SB13_12-14	Endosulfan I	1.3	0.38 J	108
	Dieldrin	0.57 J	1.9 J	109
SODUP03_	alpha-Chlordane	1.2 J	3.7 J	99
081820	4,4'-DDE	5.0 J	3.2 J	53
	Dieldrin	32	6.0 J	137
	Endrin	6.2 J	18	100
SB22_8-10	Aldrin	1.2 J	2.8 J	81
	Dieldrin	15	3.7 J	120
SB21_0-2	Dieldrin	23 J	7.6 J	101
SB21_9-11	gamma-BHC	18	11	52
	alpha-Chlordane	1.7 J	26	176
	Endrin	4.9 J	10 J	71
	Endosulfan sulfate	6.9 J	4.3 J	47

Results for alpha-chlordane in SB16_0-2, alpha-chlordane, dieldrin, and endrin in SB16_6-8, dieldrin in SB16_10-12, heptachlor, dieldrin, and endosulfan sulfate in SB13_0-2, heptachlor, alpha-chlordane, endosulfan I, 4,4'-DDE, dieldrin, endrin, and endosulfan sulfate in SB13_4-6, endosulfan I and dieldrin in SB13_12-14, alpha-chlordane, 4,4'-DDE, dieldrin, and endrin in SODUP03-081820, aldrin and dieldrin in SB22_8-10, dieldrin in SB21_0-2, and gamma-BHC, alpha-chlordane, endrin, and endosulfan sulfate in SB21_9-11 were qualified as estimated (J) due to lack of agreement between the two column measurements.

Results for 4,4'-DDT in SB16_10-12 and SB13_12-14 were reported by the laboratory from the sample re-analyses, and all other results for these samples were reported from the initial analyses. The results for 4,4'-DDT in SB16_0-2, SB16_6-8, SB13_0-2, and SB21_9-11 were reported by the laboratory from the 20-fold dilutions, and all other results for these samples were

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reported from the 5-fold dilutions. Results for 4,4'-DDT in SB16_0-2 and SB13_0-2 were less than the lower limit of the established instrument calibration range in the 20-fold dilutions, and results for 4,4'-DDT were appropriately qualified as estimated (J) by the laboratory on this basis. 4,4'-DDT was not detected in either analysis of SB16_6-8 or SB21_9-11. The laboratory was contacted and explained that the 4,4'-DDT results for these four samples were reported from subsequent analyses because 4,4'-DDT was unacceptable in an associated continuing calibration analysis. The reason for taking this approach should have been provided in the data package.

The concentration of gamma-BHC in the 5-fold diluted analysis of SB13_4-6 exceeded the upper limit of the established calibration range. This sample was re-analyzed at a dilution, and the concentration of gamma-BHC in the more diluted analysis was within the calibration range. The result for gamma-BHC in SB13_4-6 was reported from the 20-fold dilution, and all other results for this sample were reported from the 5-fold dilution.

The laboratory reported the lower concentration for alpha-chlordane in SB16_0-2, alpha-chlordane, dieldrin, and endrin in SB16_6-8, dieldrin in SB16_10-12, heptachlor, dieldrin, and endosulfan sulfate in SB13_0-2, heptachlor, alpha-chlordane, endosulfan I, 4,4'-DDE, dieldrin, endrin, and endosulfan sulfate in SB13_4-6, endosulfan I and dieldrin in SB13_12-14, alpha-chlordane, 4,4'-DDE, dieldrin, and endrin in SODUP03_081820, aldrin and dieldrin in SB22_8-10, dieldrin in SB21_0-2, gamma-BHC, alpha-chlordane, endrin, and endosulfan sulfate in SB21_9-11 and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

5. Field Duplicate

Sample SODUP03_081820 was submitted as a field duplicate of SB21_9-11. Agreement between paired results was acceptable for all target analytes that were detected in both samples (12-34 RPD; QC ≤50 RPD).

Endosulfan sulfate was reported at a low concentration in SB21_9-11 (4.3 J μ g/kg) but was not detected in SODUP03_081820 (9.4 U μ g/kg), and endosulfan II was reported at a low concentration in SODUP03_081820 (16 μ g/kg) but was not detected in SB21_9-11 (15 U μ g/kg). Results for endosulfan II and endosulfan sulfate in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:



Cample	Surrogate / Column				
Sample	TCX/1	TCX/2	DCB/1	DCB/2	
SB16_0-2	а	а	а	174	
SB16_10-12	61	55	а	а	
SB13_0-2	56	51	64	a	
SB13_4-6	67	61	а	а	
SODUP03_081820	57	54	а	a	
SB28_0-2	66	63	а	149	
SB28_4-6	а	а	60	a	
SB28_12-14	а	а	66	65	
SB22_0-2	а	69	а	153	
SB22_4-6	а	а	229	286	
SB22_8-10	69	64	а	а	
SB21_0-2	а	67	155	200	
SB21_6-8	46	47	а	а	
SB21_9-11	57	58	а	а	
SOFB03_081820	51	48	29	30	

a-acceptable

The results for Aroclor 1260 in SB16_0-2 and SB22_4-6 were qualified as estimated (J+) due to the high recovery of surrogate DCB on the column from which the result was reported.

The results for all Aroclors in SB16_10-12, SB13_0-2, SB13_4-6, SODUP03_081820, SB28_12-14, SB22_8-10, SB21_6-8, SB21_9-11, and SOFB03_081820 were qualified as estimated (J-, UJ) due to low surrogate recoveries on both analytical columns.

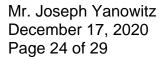
The results for all Aroclors in SB28_0-2 and SB21_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both columns.

Since both recoveries on one analytical column for SB28_4-6 and SB22_0-2 were acceptable and no target Aroclors were detected in the sample, no action was taken based on the unacceptable recoveries.

2. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB13_12-14 was prepared as an MS/MSD pair in association with the soil sample analyses were reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R, RPD<50) with the exceptions below:

Analyte	MS %R Col 1 / Col 2	MSD %R Col 1 / Col 2	Samples Affected	Qualifiers Applied
Aroclor 1260	62 / 69	a/a	SB16_0-2	J-, UJ
			SB16_6-8	
			SB16_10-12	
			SB13_0-2	
			SB13_4-6	
			SB13_12-14	





Analyte	MS %R Col 1 / Col 2	MSD %R Col 1 / Col 2	Samples Affected	Qualifiers Applied
			SODUP03_081820	
			SB28_0-2	
			SB28_4-6	
			SB28_12-14	
			SB22_0-2	
			SB22_4-6	
			SB22_8-10	
			SB21_0-2	
			SB21_6-8	
			SB21_9-11	

a-acceptable

The results for Aroclor 1260 in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J-, UJ) due to low MS recoveries.

3. Compound Quantitation

Detected Aroclor concentrations were correctly calculated and reported. All positive results were reported by the laboratory from the DB CLP2 column, although the method specifies that the higher of the two column measurements be reported. RPDs between the two column concentrations were acceptable (QC ≤40 RPD), except for Aroclor 1260 in SB22_8-10 (50 RPD) and SB21_9-11 (49 RPD). The results for Aroclor 1260 in SB22_8-10 and SB21_9-11 were qualified as estimated (J) due to lack of agreement between the two column measurements.

4. Field Duplicates

Sample SODUP03_081820 was submitted as a field duplicate of SB21_9-11. Precision between paired results for Aroclor 1260 was acceptable (difference less than the two times the RL for sample results less than five times the RL). Aroclor 1254 was reported at a low concentration in SB21_9-11 (18 J μ g/kg) but was not detected in SODUP03_081820 (19 U μ g/kg). Results for Aroclor 1254 in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:



Comple	Surrogate .	/ Column
Sample	DCPAA / 1	DCPAA / 2
SB16_0-2	61	57
SB16_6-8	56	54
SB16_10-12	62	53
SB13_0-2	62	56
SB13_4-6	59	54
SB13_12-14	57	57
SODUP03_081820	61	57
SB28_0-2	62	59
SB28_4-6	68	65
SB28_12-14	63	65
SB22_4-6	67	60
SB22_8-10	69	60
SB21_0-2	63	60
SB21_6-8	67	45
SB21_9-11	58	53
SOFB03_081820	63	63

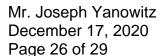
The results for Silvex in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, SB21_9-11, and SOFB03_081820 were qualified as estimated (UJ) due to unacceptable surrogate recoveries on both analytical columns.

G. Metals

1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD) / Post Spike (PS)

Sample SB13_12-14 was prepared as an MS/MSD/PS in association with the soil sample analyses reported in the data package. Percent recoveries and RPDs were acceptable (75-125%R, RPD<50) with the exceptions below:

Analyte	MS %R	MSD %R	PS %R	MS/MSD RPD	Samples Affected	Qualifiers Applied
Arsenic	а	а	а	85	SB16_0-2	J
Barium	а	а	а	76	SB16_6-8	J
Beryllium	а	а	а	86	SB16_10-12	J
Copper	59	а	а	94	SB13_0-2	J
Nickel	27	41	а	75	SB13_4-6 SB13_12 SODUP03_081820 SB28_0-2 SB28_4-6 SB28_12-14 SB22_0-2	J





Analyte	MS %R	MSD %R	PS %R	MS/MSD RPD	Samples Affected	Qualifiers Applied
Analyte	7011	7013	7011	IXI D	Campies Affected	Арріїса
					SB22_4-6	
					SB22_8-10 SB21_0-2	
					SB21_0-2 SB21_6-8	
					SB21_9-11	
Cadmium	а	а	а	95	SB16_0-2	J
					SB16_6-8	
					SB16_10-12 SB13_0-2	
					SB13_4-6	
					SODUP03_081820	
					SB28_0-2	
					SB28_4-6	
					SB22_0-2	
					SB22_4-6	
					SB22_8-10 SB21_0-2	
					SB21_0-2 SB21_6-8	
					SB21_9-11	
Chromium	227	210	2953	а	SB16_0-2	J+
					SB16_6-8	
					SB16_10-12	
					SB13_0-2 SB13_4-6	
					SODUP03_081820	
					SB28_0-2	
					SB28_4-6	
					SB28_12-14	
					SB22_0-2	
					SB22_4-6	
					SB22_8-10 SB21_0-2	
					SB21_0-2 SB21_6-8	
					SB21_9-11	

a-acceptable

The results for arsenic, barium, beryllium, and cadmium in all field samples were qualified as estimated (J) due to elevated RPD between the MS and MSD. The results for copper and nickel were qualified as estimated (J) due to low MS and/or MSD recoveries and elevated RPD between the MS and MSD. The results for chromium in all field samples were qualified as estimated biased high (J+) due to elevated MS, MSD and post spike recoveries.

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2. Serial Dilution (SD)

Serial dilution analysis was performed on sample SB13_12-14 in association with the soil sample analyses were reported in the data package. Percent recoveries were acceptable (<10%D) with the exceptions below:

Analyte	% Difference	Samples Affected	Qualifiers Applied
Barium	80	SB16_0-2 SB16_6-8 SB16_10-12 SB13_0-2	J
Lead	88	SB13_4-6 SB13_12-14 SODUP03_081820 SB28_0-2	
Manganese	93	SB28_4-6 SB28_12-14 SB22_0-2 SB22_4-6	
Nickel	80	SB22_8-10 SB21_0-2 SB21_6-8 SB21_9-11	

The results for barium, lead, manganese and nickel in all field samples were qualified as estimated (J) due to elevated percent difference between the sample concentration and the serial dilution results.

3. Field Duplicate (FD)

SODUP03_081820 was submitted as a field duplicate of SB21_9-11. The relative percent difference between all analytes was acceptable (<50%) for all analytes except lead (RPD 88). The results for lead in all field samples were qualified as estimated (J) due to the elevated relative percent difference.

H. Per- and Polyfluoroalkyl Substances (PFAS)

1. Surrogates (Extracted Internal Standards/ Labeled Analogs):

All labeled analog recoveries were acceptable (50-150%R) with the following exceptions:

Sample	Labeled Analog	%R
SB16_0-2	d3-NMeFOSAA	27
	d5-NEtFOSAA	31
EB01-081720	Perfluoro[13C2]dodecanoic acid	28
EB01-081820	Perfluoro[13C2]dodecanoic acid	39

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The results for NMeFOSAA and NEtFOSAA in SB16_0-2 and PFDoDA in EB01_081720 and EB01_081820 were qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

2. Field Duplicates

Sample SODUP03_081820 was submitted as a field duplicate of SB21_9-11. PFOS was reported at a low concentration in SODUP03_081820 (1.2 J ng/g) but was not detected in SB21_9-11 (0.80 U ng/g). Results for PFOS in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB13_12-14, SODUP03_081820, SB28_0-2, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, SB21_0-2, SB21_6-8, and SB21_9-11 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent chromium were qualified as a result of the data validation. All reported results for hexavalent chromium were determined to be usable as reported.

Results for trivalent chromium in SB16_0-2, SB16_6-8, SB16_10-12, SB13_0-2, SB13_4-6, SB28_4-6, SB28_12-14, SB22_0-2, SB22_4-6, SB22_8-10, and SODUP03_081820 were qualified as estimated (J+) with potential high bias, based on quality control excursion affecting the total chromium results from which the trivalent chromium results are calculated.

3. General Chemistry - Quantitation

No duplicate analysis was documented for cyanide, hexavalent chromium, or for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

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Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-11057-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-11057-1

Environmental Analysis

eurofins :



410-11057 Chain of Custody

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unuan		

Lancaster Laboratories Environmental

Acct. #_

ronmental use only

Custody

COC #611574

Client Info	ormation			Matrix				Analysis Requested						For Lab Use Only		
Client:	Acct. #;				T	1		P	reser	vatio	n and	Filtration C	odes	FSC:		
Langan Project Name/			9			1								SCR#:		
Project Name/W	PWSID #:		Tissue	Ground		1	500	20	3					Pres	servation	Codes
250 Water Street / 17038	2021		F	Ground		1	33	3						H=HCI	T=	Thiosulfate
Project Manager:	P.O. #:			a a		(n)	25	三	-					N=HNO ₃		:NaOH
Joseph Yanowitz	Quote #:		- =		1	Je.	23	37					1 1	S=H ₂ SO ₄		:H₃PO₄
Thomas Schiefer(TS) and Tyler Z			Sediment	0 V		Containers	1 8	\$t	2				1 1	r=Field F	Remark	
State where samples were collected: I For Co	mpliance:		┪┋	Potable		1 6	53	45	×		5	,			nemark	.5
New York	Yes No 🗷	Grab	Se	Potable NPDES	11	of C	nt	153	Dioxone	0	Mercery					
	Collected			6	1 ::	550	ha	15		544	2					
Sample Identification		Grab	Soil	Water	Other:	Total	Fa	Parts 3	1,4	1	9					
	Date Time		N N	>	ŏ	유	至	द ह	-	0	3					
5BZ1-4-6	02/18/20 1130	X	×			1					X			on	hold	
SB16-0-Z	08/18/20 1155	X	×			6	X	×	×	×						
5816-6-8	08/18/20 1205	×	×			6	X	×		×						
SB16-10-12	08/18/20 1200	×	×			6	X			×						
5813-0-2	25/18/20 1345		X			6	X	_	1	×						
5813-4-6	8/18/20 1340	X	X			6	×	×	X	×			++	-	_	_
SB13-12-14	03/18/20 1222		1			18		×	-	×				010	ms/m	00
2010693 - 521850	25/18/20	x	X			6	×	×		×			1	Tion	1417/141	7 D
EB01-081720	08/14/20 1500		-	×		2	-	-	^	x	_		++	+	_	_
EB01-081870	DE11820 1315		-	X		2				X			++	+	-	
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E-mail address: jyanowitz@	langar-com	Relinquish	ed by		_			Date		Time		Received by			Date	Time
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Environmental Analysis Request/Chain of Custody

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Environmental Analysis Request/Chain of Custody

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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-11057-1

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11057-1

SDG No.:

Lab Sample ID: ICV 410-27654/10 Calibration Date: 07/29/2020 18:17

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bl29v01.D Conc. Units: ug/L Heated Purge: (Y/N) N

								-
ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.3351	0.1000	17.9	20.0	-10.6	30.0
Chloromethane	Ave	0.4529	0.4887	0.1000	21.6	20.0	7.9	30.0
1,3-Butadiene	Ave	0.2969	0.3344		22.5	20.0	12.6	30.0
Vinyl chloride	Ave	0.4156	0.4347	0.1000	20.9	20.0	4.6	30.0
Bromomethane	Ave	0.2846	0.3183	0.1000	22.4	20.0	11.8	30.0
Chloroethane	Ave	0.2339	0.2610	0.1000	22.3	20.0	11.6	30.0
Dichlorofluoromethane	Ave	0.5270	0.5675		21.5	20.0	7.7	30.0
Trich1orofluoromethane	Ave	0.3905	0.4655	0.1000	23.8	20.0	19.2	30.0
n-Pentane	Ave	0.4618	0.4579		19.8	20.0	-0.9	30.0
Ethanol	Ave	0.1521	0.1457		958	1000	-4.2	30.0
Freon 123a	Ave	0.3063	0.3283		21.4	20.0	7.2	30.0
Acrolein	Ave	2.690	2.159		120	150	-19.8	30.0
1,1-Dichloroethene	Ave	0.2219	0.2705	0.1000	24.4	20.0	21.9	30.0
Acetone	Ave	1.272	1.143	0.1000	135	150	-10.1	30.0
Freon 113	Ave	0.2425	0.2414	0.1000	19.9	20.0	-0.5	30.0
Methyl iodide	Ave	0.4254	0.4491		21.1	20.0	5.6	30.0
2-Propanol	Ave	0.8154	0.7935		146	150	-2.7	30.0
Carbon disulfide	Ave	0.8045	0.8812	0.1000	21.9	20.0	9.5	30.0
Allyl chloride	Ave	0.4553	0.4477		19.7	20.0	-1.7	30.0
Methyl acetate	Ave	0.1942	0.1992	0.1000	20.5	20.0	2.6	30.0
Methylene Chloride	Ave	0.2769	0.3141	0.1000	22.7	20.0	13.4	30.0
t-Butyl alcohol	Ave	1.284	1.286		200	200	0.1	30.0
Acrylonitrile	Ave	0.1015	0.1072		106	100	5.7	30.0
trans-1,2-Dichloroethene	Ave	0.2613	0.3005	0.1000	23.0	20.0	15.0	30.0
Methyl tertiary butyl ether	Ave	0.7155	0.7471	0.1000	20.9	20.0	4.4	30.0
n-Hexane	Ave	0.3864	0.4067		21.0	20.0	5.2	30.0
1,1-Dichloroethane	Ave	0.4804	0.5448	0.2000	22.7	20.0	13.4	30.0
di-Isopropyl ether	Ave	0.9198	0.9708		21.1	20.0	5.5	30.0
2-Chloro-1,3-butadiene	Ave	0.3898	0.4194		21.5	20.0	7.6	30.0
Ethyl t-butyl ether	Ave	0.8018	0.8420		21.0	20.0	5.0	30.0
2-Butanone	Ave	0.1268	0.1357	0.1000	161	150	7.0	30.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3500	0.1000	23.7	20.0	18.7	30.0
2,2-Dichloropropane	Ave	0.3557	0.4156		23.4	20.0	16.9	30.0
Propionitrile	Ave	1.834	1.772		145	150	-3.4	30.0
Methacrylonitrile	Ave	0.1105	0.1200		163	150	8.7	30.0
Bromochloromethane	Ave	0.1474	0.1516		20.6	20.0	2.8	30.0
Tetrahydrofuran	Ave	1.517	1.575		104	100	3.9	30.0
Chloroform	Ave	0.4429	0.5032	0.2000	22.7	20.0	13.6	30.0
1,1,1-Trichloroethane	Ave	0.3691	0.4177	0.1000	22.6	20.0	13.2	30.0
Cyclohexane	Ave	0.4942	0.5202	0.1000	21.0	20.0	5.2	30.0
1,1-Dichloropropene	Ave	0.3654	0.4151		22.7	20.0	13.6	30.0

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11057-1

SDG No.:

Lab Sample ID: CCVIS 410-35520/3 Calibration Date: 08/20/2020 18:26

Instrument ID: 7566 Calib Start Date: 08/06/2020 19:31

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 08/06/2020 21:34

Lab File ID: rg20c10.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dich1orodifluoromethane	Ave	0.1971	0.1670	0.1000	42.4	50.0	-15.3	20.0
Chloromethane	Ave	0.3725	0.3259	0.1000	43.7	50.0	-12.5	20.0
1,3-Butadiene	Ave	0.2630	0.2309		43.9	50.0	-12.2	20.0
Vinyl chloride	Ave	0.3100	0.2810	0.1000	45.3	50.0	-9.4	20.0
Bromomethane	Ave	7.642	7.057	0.1000	46.2	50.0	-7.7	20.0
Chloroethane	Ave	7.986	6.358	0.1000	39.8	50.0	-20.4*	20.0
Trichlorofluoromethane	Ave	0.3205	0.2896	0.1000	45.2	50.0	-9.7	20.0
n-Pentane	Ave	0.3005	0.3195		53.2	50.0	6.3	20.0
Ethano1	Ave	0.1024	0.1059		2590	2500	3.4	20.0
Freon 123a	Ave	0.2768	0.2760		49.9	50.0	-0.3	20.0
Acrolein	Ave	3.552	3.273		461	500	-7.9	20.0
1,1-Dichloroethene	Ave	0.1873	0.1856	0.1000	49.6	50.0	-0.9	20.0
Freon 113	Ave	0.1514	0.1531	0.1000	50.6	50.0	1.1	20.0
Acetone	Ave	1,241	1.046	0.1000	84.3	100	-15.7	20.0
2-Propanol	Ave	0.6450	0.4937		191	250	-23.5*	20.0
Methyl iodide	Ave	0.3264	0.3340	- J.J	51.2	50.0	2.3	20.0
Carbon disulfide	Ave	0.6084	0.6459	0.1000	53.1	50.0	6.2	20.0
Methyl acetate	Ave	0.2333	0.2112	0.1000	45.3	50.0	-9.4	20.0
Allyl chloride	Ave	0.3943	0.4309		54.6	50.0	9.3	20.0
Methylene Chloride	Ave	0.2329	0.2255	0.1000	48.4	50.0	-3.2	20.0
t-Butyl alcohol	Ave	1.004	1.173		292	250	16.8	20.0
Acrylonitrile	Ave	0.1189	0.1120		47.1	50.0	-5.8	20.0
Methyl tertiary butyl ether	Ave	0.6199	0.6118	0.1000	49.3	50.0	-1.3	20.0
trans-1,2-Dichloroethene	Ave	0.2186	0.2212	0.1000	50.6	50.0	1.2	20.0
n-Hexane	Ave	0.2351	0.2557		54.4	50.0	8.8	20.0
1,1-Dichloroethane	Ave	0.4559	0.4692	0.2000	51.5	50.0	2.9	20.0
di-Isopropyl ether	Ave	0.8926	0.9064		50.8	50.0	1.5	20.0
2-Chloro-1,3-butadiene	Ave	0.4013	0.4146		51.7	50.0	3.3	20.0
Ethyl t-butyl ether	Ave	0.7223	0.7352		50.9	50.0	1.8	20.0
2-Butanone	Ave	0.1844	0.1456	0.1000	78.9	100	-21.1*	20.0
cis-1,2-Dichloroethene	Ave	0.2492	0.2511	0.1000	50.4	50.0	0.8	20.0
2,2-Dichloropropane	Ave	0.2908	0.3293		56.6	50.0	13.3	20.0
Propionitrile	Ave	2.314	2.273		246	250	-1.8	20.0
Methacrylonitrile	Ave	0.1318	0.1260		120	125	-4.4	20.0
Bromoch1oromethane	Ave	0.1133	0.1123		49.6	50.0	-0.8	20.0
Tetrahydrofuran	Ave	2.274	2.041		89.8	100	-10.2	20.0
Chloroform	Ave	0.4008	0.4031	0.2000	50.3	50.0	0.6	20.0
1,1,1-Trichloroethane	Ave	0.2867	0.3251	0.1000	56.7	50.0	13.4	20.0
Cyclohexane	Ave	0.3766	0.3800	0.1000	50.5	50.0	0.9	20.0
Carbon tetrachloride	Qua		0.2531	0.1000	54.7	50.0	9.4	20.0
1,1-Dichloropropene	Ave	0.3378	0.3497		51.8	50.0	3.5	20.0

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11057-1

SDG No.:

Lab Sample ID: CCVIS 410-36246/3 Calibration Date: 08/23/2020 12:03

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bg23C50.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.2782	0.1000	37.1	50.0	-25.8*	20.0
Chloromethane	Ave	0.4529	0.4035	0.1000	44.5	50.0	-10.9	20.0
1,3-Butadiene	Ave	0.2969	0.2778		46.8	50.0	-6.5	20.0
Vinyl chloride	Ave	0.4156	0.3969	0.1000	47.8	50.0	-4.5	20.0
Bromomethane	Ave	0.2846	0.2790	0.1000	49.0	50.0	-2.0	20.0
Chloroethane	Ave	0.2339	0.2411	0.1000	51.5	50.0	3.1	20.0
Trichlorofluoromethane	Ave	0.3905	0.3736	0.1000	47.8	50.0	-4.3	20.0
n-Pentane	Ave	0.4618	0.3710		40.2	50.0	-19.7	20.0
Ethanol	Ave	0.1521	0.1737		2850	2500	14.2	20.0
Freon 123a	Ave	0.3063	0,3228		52.7	50.0	5.4	20.0
Acrolein	Ave	2.690	3.024		562	500	12.4	20.0
1,1-Dichloroethene	Ave	0.2219	0.2442	0.1000	55.0	50.0	10.1	20.0
Acetone	Ave	1.272	1.246	0.1000	97.9	100	-2.1	20.0
Freon 113	Ave	0.2425	0.2292	0.1000	47.3	50.0	-5.5	20.0
2-Propanol	Ave	0.8154	0.9548		293	250	17.1	20.0
Methyl iodide	Ave	0.4254	0.4652		54.7	50.0	9.3	20.0
Carbon disulfide	Ave	0.8045	0.8944	0.1000	55.6	50.0	11.2	20.0
Allyl chloride	Ave	0.4553	0.4335		47.6	50.0	-4.8	20.0
Methyl acetate	Ave	0.1942	0.1473	0.1000	37.9	50.0	-24.1*	20.0
Methylene Chloride	Ave	0.2769	0.2902	0.1000	52.4	50.0	4.8	20.0
t-Butyl alcohol	Ave	1.284	1.288		251	250	0.3	20.0
Acrylonitrile	Ave	0.1015	0.0836		41.2	50.0	-17.6	20.0
trans-1,2-Dichloroethene	Ave	0.2613	0.2893	0.1000	55.3	50.0	10.7	20.0
Methyl tertiary butyl ether	Ave	0.7155	0.6806	0.1000	47.6	50.0	-4.9	20.0
n-Hexane	Ave	0.3864	0.3454		44.7	50.0	-10.6	20.0
1,1-Dichloroethane	Ave	0.4804	0.5159	0.2000	53.7	50.0	7.4	20.0
di-Isopropyl ether	Ave	0.9198	0.9436		51.3	50.0	2.6	20.0
2-Chloro-1,3-butadiene	Ave	0.3898	0.4288		55.0	50.0	10.0	20.0
Ethyl t-butyl ether	Ave	0.8018	0.7982		49.8	50.0	-0.4	20.0
2-Butanone	Ave	0.1268	0.0952*	0.1000	75.0	100	-25.0*	20.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3214	0.1000	54.5	50.0	9.0	20.0
2,2-Dichloropropane	Ave	0.3557	0.3854		54.2	50.0	8.4	20.0
Propionitrile	Ave	1.834	2.025		276	250	10.4	20.0
Methacrylonitrile	Ave	0.1105	0.0956		108	125	-13.4	20.0
Bromochloromethane	Ave	0.1474	0.1487		50.4	50.0	0.9	20.0
Tetrahydrofuran	Ave	1.517	1.578		104	100	4.1	20.0
Chloroform	Ave	0.4429	0.4787	0.2000	54.0	50.0	8.1	20.0
1,1,1-Trichloroethane	Ave	0.3691	0.4022	0.1000	54.5	50.0	9.0	20.0
Cyclohexane	Ave	0.4942	0.4757	0.1000	48.1	50.0	-3.8	20.0
1,1-Dichloropropene	Ave	0.3654	0.4042		55.3	50.0	10.6	20.0
Carbon tetrachloride	Ave	0.3104	0.3306	0.1000	53.3	50.0	6.5	20.0

FORM II GC/MS VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11057-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): R-624SilMS ID: 0.25(mm)

AND POLICE VAN SAVEY								
Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #	#		
SB16_0-2	410-11057-1	101	102	103	88	1		
SB16_6-8	410-11057-2	90	101	98	93	1		
SB16_10-12	410-11057-3	95	102	98	97	1		
SB13_0-2	410-11057-4	102	102	107	81	1		
SB13_0-2 RA	410-11057-4 RA	102	103	108	79	1		
SB13_4-6	410-11057-5	103	105	100	93	1		
SB13_12-14	410-11057-6	101	102	97	95	1		
SODUP03_081820	410-11057-7	100	98	107	82	1		
SB28_0-2	410-11057-10	105	102	129	65			
SB28_0-2 RA	410-11057-10 RA	106	104	119	70	1		
SB28_4-6	410-11057-11	99	96	101	94	1	5 12	12/0/
SB28_12-14	410-11057-12	102 *3	105 *3	94 *3	90 *3	3	DAS	12/8/2
SB28_12-14 RA	410-11057-12 RA	101 *3	99 *3	96 *3	90 *3	₫		
SB22_0-2	410-11057-13	106	101	123	69	-		
SB22_0-2 RA	410-11057-13 RA	105	102	115	72	1		
SB22_4-6	410-11057-14	102	98	103	85	1		
SB22_8-10	410-11057-15	102	100	102	90	1		
SB21_0-2	410-11057-16	103	103	105	84	1		
	MB 410-35277/7	100	100	98	97	1		
	MB 410-36246/7	101	105	96	98	1		
	LCS 410-35277/4	100	101	99	99	1		
- LONG LOVER CO.	LCS 410-36246/4	99	99	99	102	1		
	LCSD 410-35277/5	99	100	99	99	1		
	LCSD 410-36246/5	100	103	98	101	1		
SB13_12-14 MS	410-11057-6 MS	99	98	100	99			
SB13_12-14 MSD	410-11057-6 MSD	99	98	99	98	1		

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	50-141
DCA = 1,2-Dichloroethane-d4 (Surr)	54-135
TOL = Toluene-d8 (Surr)	52-141
BFB = 4-Bromofluorobenzene (Surr)	50-131

Column to be used to flag recovery values

Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-11057-1
SDG No.:	
Sample No.: CCVIS 410-36246/3	Date Analyzed: 08/23/2020 12:03
Instrument ID: 9953	GC Column: R-624SilMS 30m ID: 0.25(mm)
Lab File ID (Standard): bg23C50.D	Heated Purge: (Y/N) N

Calibration ID: 7943

		TBAd1	0	FB		CBZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		93882	3.03	1226271	5.39	900134	8.45
UPPER LIMIT		187764	3.53	2452542	5.89	1800268	8.95
LOWER LIMIT		46941	2.53	613136	4.89	450067	7.95
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-36246/4		118958	3.04	1243016	5.38	919474	8.45
LCSD 410-36246/5		125830	3.05	1169267	5.39	867962	8.45
MB 410-36246/7		152944	3.05	1181160	5.39	883423	8.45
410-11057-4 RA	SB13_0-2 RA	108652	3.05	1019914	5.39	630064	8.45
410-11057-10 RA	SB28_0-2 RA	85954	3.04	996956	5.39	564548	8.45
410-11057-12 RA	SB28_12-14 RA	43979*3	3.04	573460*3	5.39	423438*3	8.45
410-11057-13 RA	SB22_0-2 RA	91064	3.05	1002473	5.39	586575	8.45
410-11057-14	SB22_4-6	84204	3.05	1051714	5.39	711144	8.45
410-11057-15	SB22_8-10	76127	3.03	1064174	5.39	751567	8.45



TBAd10 = t-Butyl alcohol-d10 (IS)
FB = Fluorobenzene (IS)

CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-11057-1
SDG No.:	
Sample No.: CCVIS 410-36246/3	Date Analyzed: 08/23/2020 12:03
Instrument ID: 9953	GC Column: R-624SilMS 30m ID: 0.25(mm)
Lab File ID (Standard): bg23C50.D	Heated Purge: (Y/N) N
Calibration ID: 7943	

		DCBd4					
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		457394	10.29				
UPPER LIMIT		914788	10.79				
LOWER LIMIT		228697	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-36246/4		471701	10.29				
LCSD 410-36246/5		443790	10.29				
MB 410-36246/7		448668	10.29				
410-11057-4 RA	SB13_0-2 RA	197439*3	10.29				
410-11057-10 RA	SB28_0-2 RA /	151207*3	10.29				
410-11057-12 RA	SB28_12-14 RA	201940*3	10.29				
410-11057-13 RA	SB22_0-2 RA	159925*3	10.29		.,,		
410-11057-14	SB22_4-6	247999	10.29				
410-11057-15	SB22_8-10	306036	10.29				

DAS 12/8/20

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

TBAd10 FB CBZd5 RT # AREA # RT # AREA # RT # AREA # 3.05 871783 8.45 138650 1192983 12/24 HOUR STD 5 39 UPPER LIMIT 277300 3.55 2385966 5.89 1743566 8.95 435892 7.95 LOWER LIMIT 69325 2.55 596492 4 89 LAB SAMPLE ID CLIENT SAMPLE ID LCS 410-35277/4 110682 3.05 1165832 5.39 848391 8.45 LCSD 410-35277/5 110747 3.05 1162199 5.39 849931 8.45 102390 3.06 5.39 803435 8.45 1111861 MB 410-35277/7 410-11057-1 SB16 0-2 107217 3.04 1068443 5.39 714891 8.45 410-11057-2 SB16 6-8 114159 3.05 1070025 5.39 772924 8.45 812703 8.45 410-11057-3 SB16 10-12 121064 3.05 1126964 5.39 110787 3.05 1092203 5.39 695808 8.45 SB13 0-2 410-11057-4 410-11057-5 SB13 4-6 114691 3.05 1063716 5.38 759268 8.45 SB13 12-14 103426 3.03 1098910 5.38 807898 8.45 410-11057-6 8.45 410-11057-6 MS SB13 12-14 MS 87537 3.04 1129126 5.39 819051 3.04 1142032 5.39 829816 8.45 410-11057-6 MSD SB13 12-14 MSD 94605 8.45 410-11057-7 SODUP03 081820 94924 3.04 1080743 5.38 695551 8.45 98227 3.05 1009648 5.39 508635 410-11057-10 SB28 0-2 1114289 786032 8.45 410-11057-11 SB28 4-6 94082 3.04 5.38 250021*3 8.45 A0947*3 3.03 5.39 410-11057-12 SB28 12-14 338484*3

DAS 12/8/20

3.04

3.04

998521

1061912

5.38

5.38

535258

692915

8.45

8.45

94889

115437

TBAd10 = t-Butyl alcohol-d10 (IS)
FB = Fluorobenzene (IS)

CBZd5 = Chlorobenzene-d5 (IS)

Calibration ID: 7943

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

SB22 0-2

SB21 0-2

Column used to flag values outside QC limits

FORM VIII 8260C

410-11057-13

410-11057-16

Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-11057-1
SDG No.:	
Sample No.: CCVIS 410-35277/3	Date Analyzed: 08/20/2020 09:47
Instrument ID: 9953	GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg19C50.D Heated Purge: (Y/N) N

Calibration ID: 7943

		DCBd4					
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		449681	10.29				
UPPER LIMIT	100	899362	10.79				
LOWER LIMIT		224841	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-35277/4		434997	10.29				
LCSD 410-35277/5		433008	10.29				
MB 410-35277/7		404196	10.29				
410-11057-1	SB16_0-2	283621	10.29				
410-11057-2	SB16_6-8	362633	10.29				
410-11057-3	SB16_10-12	384376	10.29				
410-11057-4	SB13_0-2	223427*3	10.29				
410-11057-5	SB13_4-6	354049	10.29				
410-11057-6	SB13_12-14	409731	10.29				
410-11057-6 MS	SB13_12-14 MS	421773	10.29				
410-11057-6 MSD	SB13_12-14 MSD	413307	10.29				
410-11057-7	SODUP03_081820	234653	10.29				
410-11057-10	SB28_0-2	117489*3	10.29				
410-11057-11	SB28_4-6	360877	10.29				
410-11057-12	SB28_12-14	119477*3	10.29				
410-11057-13	SB22_0-2	140847*3	10.29				pupulu para
410-11057-16	SB21_0-2	247717	10.29				

DAS 12/8/20

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flaq values outside QC limits

FORM VIII 8260C

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.: 410-11057-1
SDG No.	:		
Matrix:	Solid	Level: Medium	Lab File ID: rg20L10.D
Lab ID:	I.CS 410-35520/5		Client ID:

[7
	SPIKE	LCS	LCS	QC		
	ADDED	CONCENTRATION	용	LIMITS	#	1
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC		
1,1,1-Trichloroethane	1000	1170	117			
1,1-Dichloroethane	1000	1070	107			20
1,1-Dichloroethene	1000	1110	111	73-129		1
1,2,4-Trimethylbenzene	1000	1040	104			12
1,2-Dichlorobenzene	1000	996	100			1 %
1,2-Dichloroethane	1000	1000	100			1 %
1,3,5-Trimethylbenzene	1000	1060	106			150
1,3-Dichlorobenzene	1000	1030	103			1
1,4-Dichlorobenzene	1000	1020	102			SAS
1,4-Dioxane	25000	27500	110			1
2-Butanone	7500	5160	69			4
Acetone	7500	5110	68			-
Benzene	1000	1050	105	i i		
Carbon tetrachloride	1000	1240	124			
Chlorobenzene	1000	1040	104			
Chloroform	1000	1050	105			
cis-1,2-Dichloroethene	1000	1110	111			
Ethylbenzene	1000	1050	105			
Methyl tertiary butyl ether	1000	1010	101			
Methylene Chloride	1000	1060	106			
n-Butylbenzene	1000	1040	104			
N-Propylbenzene	1000	1080	108			
sec-Butylbenzene	1000	1060	106			
tert-Butylbenzene	1000	1070	107			
Tetrachloroethene	1000	1100	110			
Toluene	1000	1060	106			
trans-1,2-Dichloroethene	1000	1080	108]
Trichloroethene	1000	1060	106			
Vinyl chloride	1000	1040	104			
Xylenes, Total	3000	3200	107	75-120		

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11057-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: bg20S12.D

Lab ID: 410-11057-6 MSD Client ID: SB13 12-14 MSD

	SPIKE	MSD	MSD		QC L1	MITS	
COMPOUND	ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	% REC	% RPD	RPD	REC	#
1,1,1-Trichloroethane	20.0	23.0	115		30	69-123	
1,1-Dichloroethane	20.0	23.1	115	13	30	79-120	
1,1-Dichloroethene	20.0	25.9	129	13	30	73-129	
1,2,4-Trimethylbenzene	20.0	19.4	97	13	30	73-129	
1,2-Dichlorobenzene	20.0	18.9	94	12	30	76-120	
1,2-Dichloroethane	20.0	20.6	103	12	30	71-128	
I	20.0	19.9	99	13	30	73-120	
1,3,5-Trimethylbenzene	1	1 1				75-120	· · · · · · · · · · · · · · · · · · ·
1,3-Dichlorobenzene	20.0	19.1	95 94	13 11	30 30	80-120	
1,4-Dichlorobenzene	20.0	18.8	$\frac{94}{127}$	14 7	30	62-131	
1,4-Dioxane	1	636		- 1		1	
2-Butanone	150	160	105	11	30	57-128	171
Acetone	150	352	181	19	30	41-150	F1
Benzene	20.0	22.7	113	13	30	80-120	,, ,
Carbon tetrachloride	20.0	22.9	114	13	30	64-134	
Ch1orobenzene	20.0	20.3	101	10	30	80-120	
Chloroform	20.0	22.8	114	13	30	80-120	
cis-1,2-Dichloroethene	20.0	24.5	123	14	30	80-123	
Ethylbenzene	20.0	20.0	100	12	30	78-120	
Methyl tertiary butyl ether	20.0	19.3	96	11	30	72-120	
Methylene Chloride	20.0	23.8	119	13	30	76-122	
n-Butylbenzene	20.0	19.8	99	13	30	71-121	
N-Propylbenzene	20.0	20.3	102	14	30	72-123	
sec-Butylbenzene	20.0	17.8	89	14	30	72-120	
tert-Butylbenzene	20.0	20.0	100	15	30	68-120	
Tetrach1oroethene	20.0	18.7	93	12	30	73-120	
Toluene	20.0	21.4	107	13	30	80-120	
trans-1,2-Dichloroethene	20.0	24.3	121	14	30	80-125	
Trichloroethene	20.0	22.2	111	12	30	80-120	
Vinyl chloride	20.0	21.0	105	11	30	52-120	
Xylenes, Total	60.1	59.4	99	10	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11057-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: bg20S11.D

Lab ID: 410-11057-6 MS Client ID: SB13 12-14 MS

	ODTIM	ONNET	112			
	SPIKE	SAMPLE	MS	MS	QC	12
	ADDED	CONCENTRATION		i 1	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	17.5	ND	20.1	114		
1,1-Dichloroethane	17.5	ND	20.3	116	. 1	
1,1-Dichloroethene	17.5	ND	22.7	129	4	
1,2,4-Trimethylbenzene	17.5	ND	17.1	98		
1,2-Dichlorobenzene	17.5	ND	16.8	96		
1,2-Dichloroethane	17.5	ND	18.3	104	71-128	
1,3,5-Trimethylbenzene	17.5	ND	17.4	99		
1,3-Dichlorobenzene	17.5	ND	16.8	96		
1,4-Dichlorobenzene	17.5	ND	16.8	96		
1,4-Dioxane	439	ND	593	135		F1
2-Butanone	132	2.8 J	143	107		
Acetone	132	80	290	159		F1
Benzene	17.5	ND	20.0	114	80-120	
Carbon tetrachloride	17.5	ND	20.1	114	64-134	
Chlorobenzene	17.5	ND	18.3	104	80-120	
Chloroform	17.5	ND	20.0	114	80-120	
cis-1,2-Dichloroethene	17.5	ND	21.4	122	80-123	
Ethylbenzene	17.5	ND	17.8	101	78-120	
Methyl tertiary butyl ether	17.5	ND	17.3	99		
Methylene Chloride	17.5	ND	20.9	119	76-122	
n-Butylbenzene	17.5	ND	17.3	99	71-121	
N-Propylbenzene	17.5	ND	17.7	101	72-123	
sec-Butylbenzene	17.5	ND	15.5	88	72-120	
tert-Butylbenzene	17.5	ND	17.2	98	68-120	
Tetrachloroethene	17.5	ND	16.6	95	73-120	
Toluene	17.5	ND	18.8	107	80-120	
trans-1,2-Dichloroethene	17.5	ND	21.0	120	80-125	
Trichloroethene	17.5	ND	19.7	113	80-120	
Vinyl chloride	17.5	ND	18.9	108	52-120	
Xylenes, Total	52.6	ND	53.5	102	75-120	

[#] Column to be used to flag recovery and RPD values FORM III 8260C

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Nam	e: Eurofins Lancaster Laboratories	Job No	.:	410-11057-1
SDG No.	:			
Matrix:	Solid	Level:	Ļо	W

DAS 12/5/20

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP #	PHL #	NBZ #	FBP #	TBP ‡	TPHd14 #
SB16_0-2	410-11057-1	63	69	77	82	91	86
SB16_6-8	410-11057-2	62	67	70	77	78	81
SB16_10-12	410-11057-3	60	68	72	83	74	84
SB16_10-12 DL /	410-11057-3 DL	62	70	76	94	79	101
SB13_0-2	410-11057-4	65	71	75	84	78	88
SB13_4-6	410-11057-5	61	69	70	92	90	93
SB13_4-6 DL /	410-11057-5 DL	60	65	67	85	84	92
SB13_12-14	410-11057-6	62	69	70	83	91	94
SODUP03_081820 /	410-11057-7	48	52	56	64	77	81
SODUP03_081820 DL /	410-11057-7 DL	47	52	56	71	70	89
SB28_0-2	410-11057-10	61	68	67	72	86	84
SB28_4-6	410-11057-11	67	71	74	84	77	88
SB28_12-14 /	410-11057-12	65	68	73	81	90	87
SB22_0-2 /	410-11057-13	67	74	77	80	85	87
SB22_4-6 /	410-11057-14	49	57	58	71	60	83
SB22_4-6 DL	410-11057-14 DL	48	51	62	74	62	88
SB22_8-10	410-11057-15	66	74	74	83	70	89
SB22_8-10 DL	410-11057-15 DL	65	72	68	90	69	94
SB21_0-2	410-11057-16	58	64	68	81	79	86
SB21_6-8	410-11057-17	49	56	60	42	41	77
SB21_9-11 /	410-11057-18	58	63	65	78	75	88
	MB 410-35041/1-A	65	69	74	87	90	97
A A A A A A A A A A A A A A A A A A A	LCS 410-35041/2-A	67	72	75	90	98	92
SB13_12-14 MS	410-11057-6 MS	74	79	84	92	96	97
SB13_12-14 MSD	410-11057-6 MSD	59	67	62	72	73	80

	QC LIMITS
2FP = 2-Fluoropheno1 (Surr)	18-115
PHL = Pheno1-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

[#] Column to be used to flag recovery values

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab 1	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11057-1
SDG 1	No.:						
Matr	ix: W	later			Leve	1: L	OW

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP	PHL #	NBZ #	FBP #	TBP #	TPHd14 #
SOFB03_081820 /	410-11057-19	43	32	77	71	79	81
	MB 410-35214/1-A	48	37	90	79	94	89
	LCS 410-35214/2-A	56	46	89	82	93	85

DAS 12/8/20

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	10-84
PHL = Pheno1-d5 (Surr)	10-67
NBZ = Nitrobenzene-d5 (Surr)	38-113
FBP = 2-Fluorobiphenyl (Surr)	44-102
TBP = 2, 4, 6-Tribromophenol (Surr)	18-141
TPHd14 = p-Terpheny1-d14 (Surr)	34-128

Column to be used to flag recovery values

FORM II 8270D

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.: 410-11057-1	
SDG No.	:			
Matrix:	Water	Level: Low	Lab File ID: LH0774.D	
Lab ID:	LCS 410-35214/2-A		Client ID:	

	SPIKE	LCS	LCS	ДС	
	ADDED	CONCENTRATION	ક	LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
Acenaphthene	50.1	43.4	87		
Acenaphthylene	50.2	45.7	91	56-127	
Anthracene	50.1	44.9	90		
Benzo[a]anthracene	50.0	53.6	107		
Benzo[a]pyrene	50.2	46.8	93	71-117	
Benzo[b]fluoranthene	50.1	49.3	98	69-121	
Benzo[g,h,i]perylene	50.1	48.8	98	60-119	
Benzo[k]fluoranthene	50.1	46.4	93	1	
Chrysene	50.0	49.8	99	65-121	
Dibenz(a,h)anthracene	50.2	50.2	100	63-128	
Fluoranthene	50.1	52.1	104		
Fluorene	50.1	45.9	92		
Indeno[1,2,3-cd]pyrene	50.2	48.0	96	59-123	
Naphthalene	50.4	40.7	81	51-102	
2-Methylphenol	50.2	40.8	81		
Phenanthrene	50.2	48.8	97	65-113	
4-Methylphenol	50.1	42.8	85	49-108	
Dibenzofuran	50.0	45.9	92		
Pyrene	50.4	45.6	90		
Hexachlorobenzene	50.1	51.2	102		
Pentachlorophenol	50.4	54.7	109		
Phenol	50.2	26.8	53	19-79	

DAS 12/8/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $8270\mbox{D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410-11057-1
SDG No.	•		
Matrix:	Solid	Level: Low	Lab File ID: PH0970.D
Lab ID:	410-11057-6 MSD		Client ID: SB13 12-14 MSD

							Ι	1
	SPIKE	MSD	MSD		QC L	IMITS		
	ADDED	CONCENTRATION	용	8		r	#	
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC		
Acenaphthene	1930	1660	86	5	30	61-112		
Acenaphthylene	1940	1880	97	7	30	60-124		
Anthracene	1940	1940	100	3	30	67-120	\$	
Benzo[a]anthracene	1930	1570	81	25	30	68-120		
Benzo[a]pyrene	1940	1690	87	9	30	68-119		1
Benzo[b] fluoranthene	1940	2340	121	29	30	67-125		
Benzo[g,h,i]perylene	1930	1580	81	18	30	68-125		1
Benzo[k]fluoranthene	1930	692	36	88	30	66-122	İ	6
Chrysene	1930	1390	72	32	30	66-111	F2	
Dibenz(a,h)anthracene	1940	1640	85	19	30	69-135		
Fluoranthene	1930	2490	128	14	30	65-114	F1	
Fluorene	1940	1860	96	6	30	62-110		
Indeno[1,2,3-cd]pyrene	1940	1740	90	12	30	64-130	1	
Naphthalene	1950	1690	87	3	30	49-104		
Phenanthrene	1940	2910	149	41	30	67-116	F1 F2	
Pyrene	1950	2090	107	13	30	67-109		
2-Methylphenol	1940	1360	70	15	30	52-116		
4-Methylphenol	1930	1450	75	9	30	52-121	i	
Dibenzofuran	1930	1710	88		30	62-113	L	
Hexachlorobenzene	1930	1410	73			62-124	<u> </u>	
Pentachlorophenol	1940	1450	75	24		40-131	1	
Phenol	1940	1600	83	5	30	41-107		

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

Report Date: 20-Aug-2020 16:05:08 Chrom Revision: 2.3 17-Aug-2020 20:42:08

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP23262\20200820-8499.b\PH0968.D

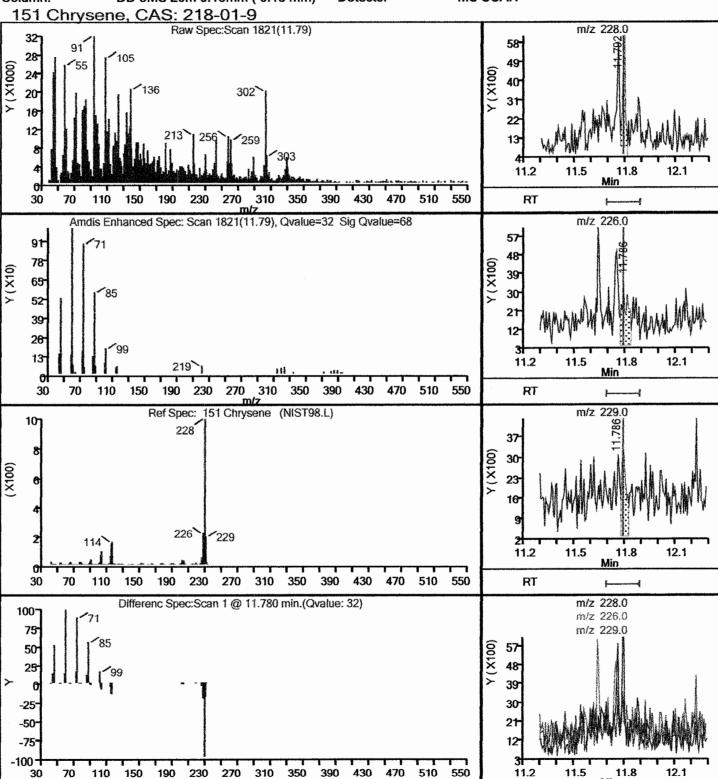
Injection Date: 20-Aug-2020 15:41:30 Instrument ID: HP23262 Lims ID: 410-11057-I-6-C Lab Sample ID: 410-11057-6

Client ID: SB13_12-14

Operator ID: Imh00956 ALS Bottle#: 19 Worklist Smp#: 23

Injection Vol: 1.0 ul Dil. Factor: 1.0000 Method: MSSemi_HP23262 Limit Group: MSSV - 8270D_E

Column: DB-5MS 20m 0.18mm (0.18 mm) Detector MS SCAN



Report Date: 22-Aug-2020 13:10:09 Chrom Revision: 2.3 17-Aug-2020 20:42:08

Eurofins Lancaster Laboratories Env. LLC

Data File:

\\chromfs\Lancaster\ChromData\HP23262\20200820-8499.b\PH0974.D

Injection Date: Lims ID:

20-Aug-2020 17:57:30

Instrument ID:

HP23262

410-11057-I-12-A

Lab Sample ID:

410-11057-12

Client ID: Operator ID: SB28 12-14

Imh00956

ALS Bottle#:

25

Worklist Smp#:

29

Injection Vol:

1.0 ul

Dil. Factor:

1.0000

Method:

MSSemi HP23262

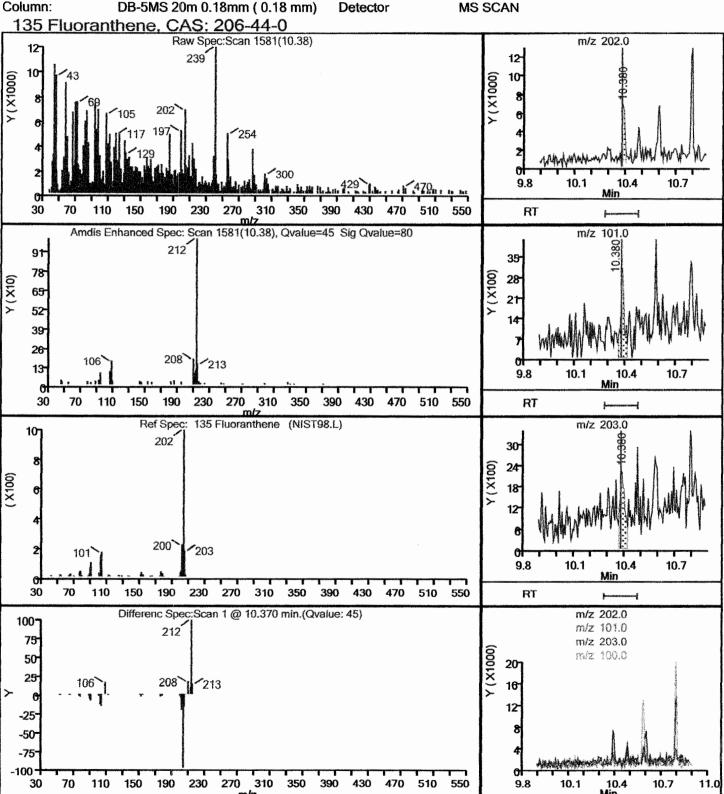
Limit Group:

MSSV - 8270D E

Column:

Detector

MS SCAN



Report Date: 22-Aug-2020 13:10:09 Chrom Revision: 2.3 17-Aug-2020 20:42:08

Eurofins Lancaster Laboratories Env. LLC

Data File:

\\chromfs\Lancaster\ChromData\HP23262\20200820-8499.b\PH0974.D

Injection Date: Lims ID:

20-Aug-2020 17:57:30

Instrument ID: 410-11057-I-12-A Lab Sample ID: HP23262 410-11057-12

Client ID:

SB28_12-14

Imh00956 Operator ID:

ALS Bottle#:

25

Worklist Smp#:

29

Injection Vol:

1.0 ul

Dil. Factor:

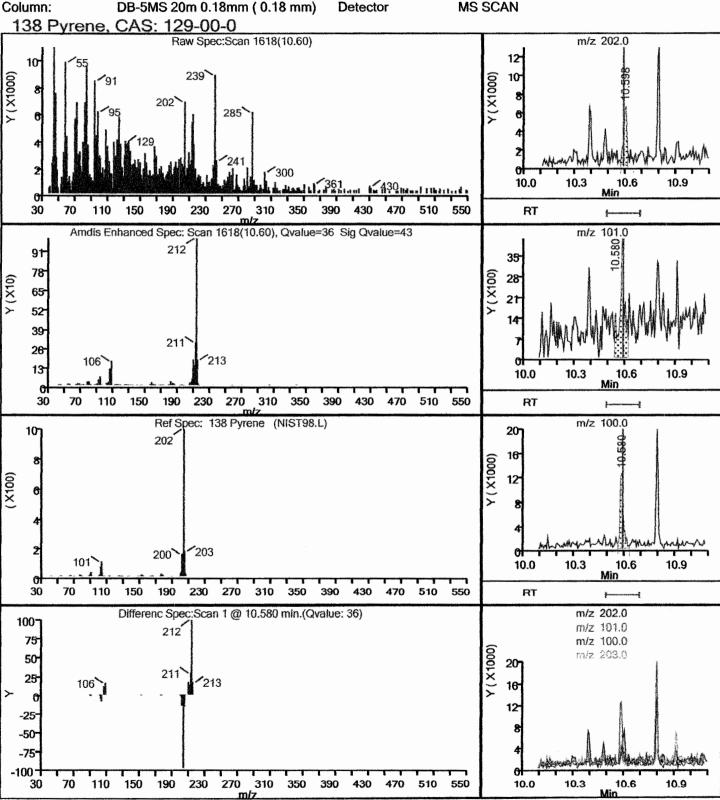
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Method: Column: MSSemi_HP23262

Limit Group:

MSSV - 8270D E

Detector



Report Date: 22-Aug-2020 13:31:46

Chrom Revision: 2.3 17-Aug-2020 20:42:08

Eurofins Lancaster Laboratories Env. LLC \\chromfs\Lancaster\ChromData\HP23262\20200821-8612.b\PH1030.D

Data File: Injection Date:

Instrument ID:

HP23262

Lims ID:

21-Aug-2020 21:25:30

Lab Sample ID:

410-11057-18

Client ID:

410-11057-I-18-A

31

31

Operator ID:

SB21 9-11

Imh00956 ALS Bottle#:

Injection Vol:

1.0 ul

Dil. Factor:

5.0000

Worklist Smp#:

Method:

MSSemi_HP23262

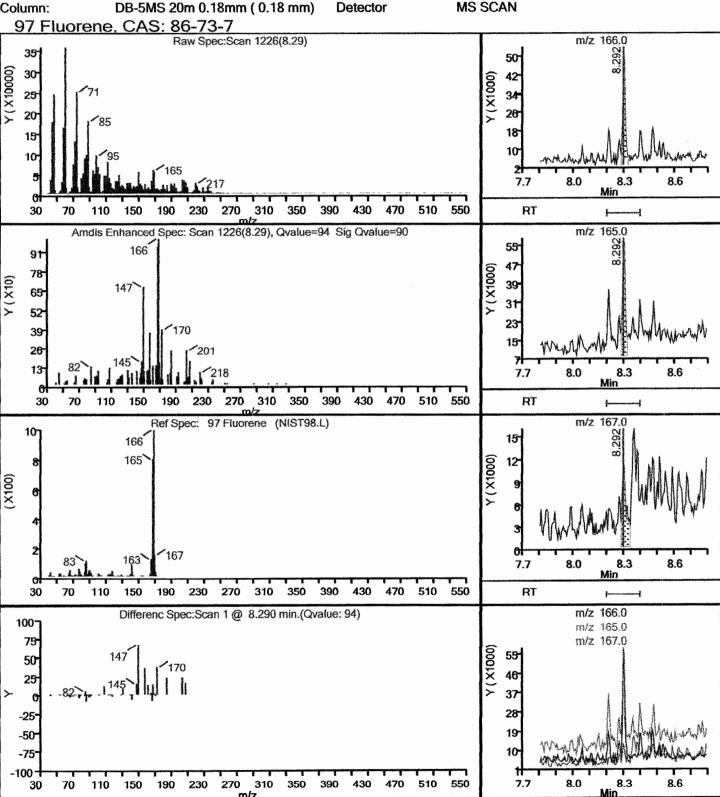
Limit Group:

MSSV - 8270D_E

Column:

Detector

MS SCAN



Chrom Revision: 2.3 17-Aug-2020 20:42:08 Report Date: 22-Aug-2020 13:31:46

Eurofins Lancaster Laboratories Env. LLC

\\chromfs\Lancaster\ChromData\HP23262\20200821-8612.b\PH1030.D Data File:

Injection Date: 21-Aug-2020 21:25:30 Lims ID: 410-11057-I-18-A

Instrument ID: HP23262 Lab Sample ID: 410-11057-18

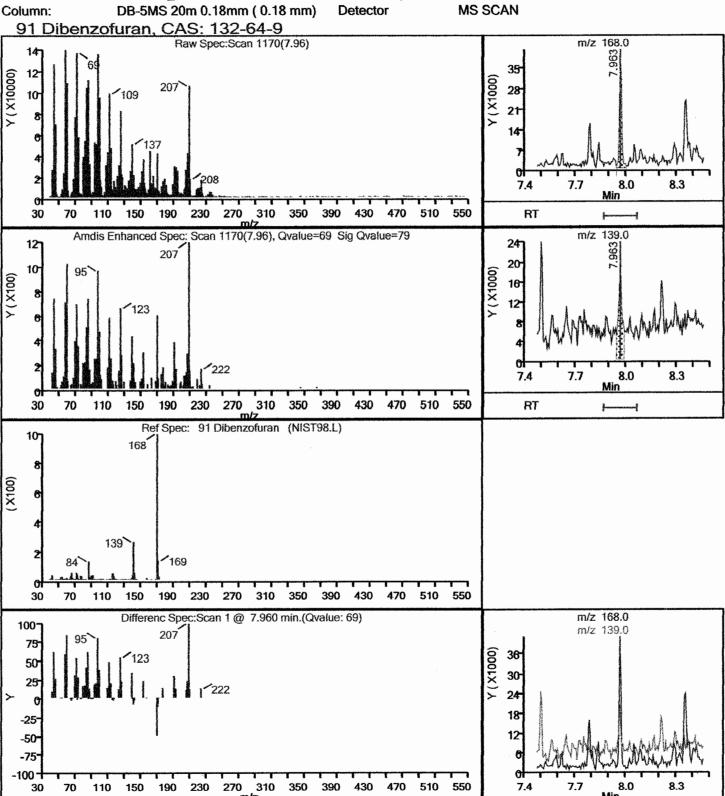
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Worklist Smp#:

Client ID: SB21 9-11

Operator ID: Imh00956 ALS Bottle#: 31 5.0000 1.0 ul Dil. Factor: Injection Vol:

MSSV - 8270D E Method: MSSemi_HP23262 Limit Group: Detector MS SCAN



FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Nam		 Laboratories	Job No.:	410-11057-1
SDG No.	:			
Matrix:	Solid		Level: I	WOW

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

		T	1	r
Client Sample II	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SB16_0-2	410-11057-1	77	88	80 *3
SB16_0-2 RA	410-11057-1 RA	76	100	78 *3
SB16_6-8	410-11057-2	80	90	85 *3
SB16_6-8 RA	410-11057-2 RA	80	95	87 *3
SB16_10-12	410-11057-3	66	87	68 *3
SB16_10-12 RA	410-11057-3 RA	67	120	67 *3
SB13_0-2	410-11057-4	75	106	87 *3
SB13_0-2 RA	410-11057-4 RA	77	93	83 *3
SB13_4-6	410-11057-5	79	88	88 *3
SB13_4-6 RA	410-11057-5 RA	82	92	85 *3
SB13_12-14	410-11057-6	73	92	86
SODUP03_081820	410-11057-7	71	126 X	61 *3
SB28_0-2	410-11057-10	79	86	81 *3
SB28_0-2 RA	410-11057-10 RA	80	89	79 *3
SB28_4-6	410-11057-11	85	79	78 *3
SB28_4-6 RA	410-11057-11 RA	93	69	78 *3
SB28_12-14	410-11057-12	78	84	90 *3
SB28_12-14 RA	410-11057-12 RA	79	79	93 *3
SB22_0-2	410-11057-13	74	56	69 *3
SB22_4-6	410-11057-14	65	33	52 *3
SB22_8-10	410-11057-15	35	33	30 *3
SB21_0-2	410-11057-16	69	45	57 *3
SB21_6-8 V	410-11057-17	68	57	57 *3
SB21_9-11	410-11057-18	35	26	34 *3
	MB 410-35965/1-A	82	89	88
	MB 410-36337/1-A	65	75	71
	LCS 410-35965/2-A	79	91	90
	LCS	79	87	82
SB13 12-14 MS	410-36337/2-A 410-11057-6 MS	79	96	92
SB13_12-14 MSD	410-11057-6 MSD	30 *3	81	92
3B13_12-14 MSD	410-1103/-0 MSD	30 *3	9.1	93 *3

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

Column to be used to flag recovery values

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Nam	e: Eurofins Lancaster Laboratories	Job No	.: 410-11057-1
SDG No.	:		
Matrix:	Water	Level:	Low

GC Column (1): DB-5MS 30m ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SOFB03_081820 V	410-11057-19	62	68	65
	MB 410-35213/1-A	73	81	74
	LCS 410-35213/2-A	77	86	80

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	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	15-121
FLN10 = Fluoranthene-d10 (Surr)	34-125
BAPd12 = Benzo(a)pyrene-d12 (Surr)	10-138

Column to be used to flag recovery values

FORM II 8270D SIM

Lab Name: Eurofins Lancaste	r Laboratories Job	Job No.: 410-11057-1						
SDG No.:								
Matrix: Water	Level: Low Lab	File ID: MH0603.D						
Lab ID: LCS 410-35213/2-A	Cli	ent ID:						
	SPIKE	LCS	LCS	QC				
	ADDED	CONCENTRATION	용	LIMITS	#			
COMPOUND	(ug/L)	(ug/L)	REC	REC				
1 A-Dioyano	1 00	0.600	60	18-91				

1 DAS 12/8/20

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

Lab Name: Eurofins Lancaster Lab	oratories Job	Job No.: 410-11057-1						
SDG No.:								
Matrix: Solid Level	: Low Lab	File ID: IH1303.D						
Lab ID: LCS 410-35965/2-A	Cli	ent ID:						
COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#			
1 A-Diovano	33 3	9.36	28	21-79				

1

DAS 12/8/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

Lab Name: Eurofins Lancaster Lab	oratories Job	Job No.: 410-11057-1					
SDG No.:							
Matrix: Solid Level	: Low Lab	File ID: IH1403.D					
Lab ID: LCS 410-36337/2-A	Cli	ent ID:					
	SPIKE	LCS	LCS	QC			
	ADDED	CONCENTRATION	ક	LIMITS	#		
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC			
1,4-Dioxane	33.3	8.39	25	21-79			

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 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories J

Job No.: 410-11057-1

SDG No.:

Matrix: Solid

Level: Low

Lab File ID: IH1305.D

Lab ID: 410-11057-6 MS

Client ID: SB13 12-14 MS

	SPIKE	SAMPLE	M/S	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	38.6	2.8	12.5	25	21-79	

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FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11057-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: IH1306.D

Lab ID: 410-11057-6 MSD Client ID: SB13_12-14 MSD

		SPIKE	MSD	MSD			MITS	
-		ADDED	CONCENTRATION	용	જ			#
	COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
	1,4-Dioxane	38.6	11.9	24	4	30	21-79	

1 DAS 12/8/20 Report Date: 24-Aug-2020 23:03:34 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env. LLC

Data File: Injection Date: \\chromfs\Lancaster\ChromData\HP10976\20200824-8744.b\\IH1304.D

Instrument ID:

HP10976

Lims ID:

24-Aug-2020 06:25:30 410-11057-E-6-M

Lab Sample ID:

410-11057-6

Client ID:

SB13 12-14

Operator ID: jmg00346

ALS Bottle#:

5 Worklist Smp#:

Injection Vol: Method:

1.0 ul

Dil. Factor:

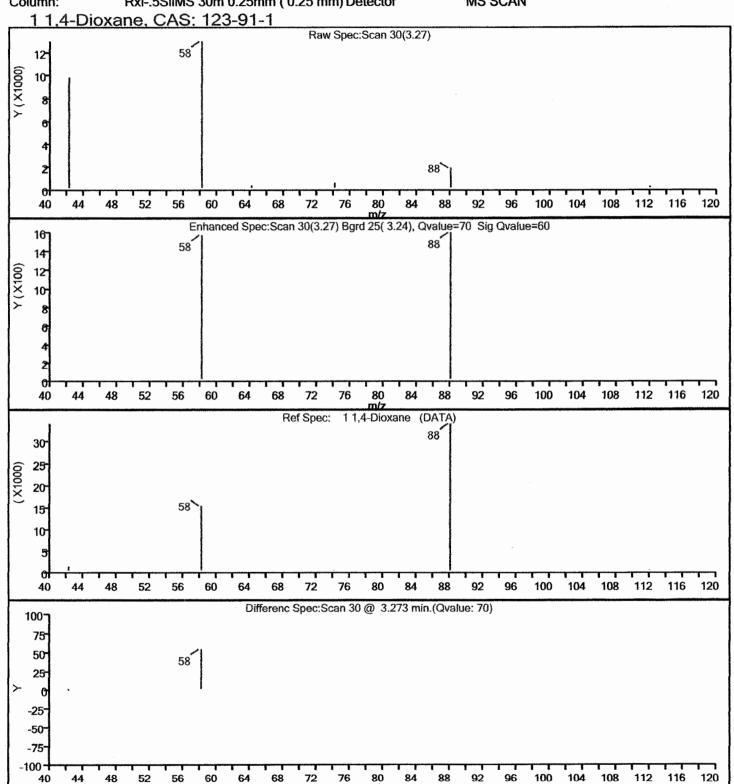
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Limit Group: 8270 SIM_HP10976

MSSV - 8270D E SIM

5

Column: Rxi-.5SilMS 30m 0.25mm (0.25 mm) Detector MS SCAN



FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11057-1

SDG No.:

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB16_0-2	410-11057-1	79		79		138		174	Х
SB16_6-8	410-11057-2	76		72		74		91	\neg
SB16_10-12	410-11057-3	61		55		72		83	\neg
SB13_0-2	410-11057-4	56		51	Х	64		82	\neg
SB13_4-6	410-11057-5	67		61		88		108	\neg
SB13_12-14	410-11057-6	84		96		80		90	
SODUP03_081820	410-11057-7	57		54		99		128	
SB28_0-2	410-11057-10	66		63		113		149	Х
SB28_4-6	410-11057-11	74		77		60		78	\neg
SB28_12-14	410-11057-12	72		76		66		65	\neg
SB22_0-2	410-11057-13			69		120			\neg
SB22_4-6	410-11057-14			74		229	Х		\neg
SB22_8-10	410-11057-15	69		64		87		106	\neg
SB21_0-2	410-11057-16			67		155	Х		\neg
SB21_6-8	410-11057-17	46	Х			99			\neg
SB21_9-11	410-11057-18	57		58		94		123	\neg
	MB 410-36628/21-A	83		93		78		85	
	MB 410-37082/20-A	88		105		86		103	
	MB 410-37293/1-A	83				77			
	LCS 410-36628/22-A	86		102		82		96	
	LCS 410-37082/21-A	88		102		86		99	
	LCS 410-37293/2-A	91				86			
SB13_12-14 MS	410-11057-6 MS	79		88		86		93	\Box
SB13_12-14 MSD	410-11057-6 MSD	64		71		80		91	

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-11057-1				
SDG No.:						
Matrix: Water		Level: Low				
GC Column (1): DB CLP1	ID: 0.32(mm)	GC Column (2): DB CLP2	ID: 0.32 (mm)			

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SOFB03_081820	410-11057-19	51		48		29		30	
	MB 410-35025/1-A	35		33		55		56	
	LCS 410-35025/2-A	94		91		104		96	
	LCSD 410-35025/3-A	17	Х	16	Х	68		67	

QC LIMITS 33-137 10-148

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM III PCBS MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11057-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 07PCBS20223018.0008.D

Lab ID: 410-11057-6 MS Client ID: SB13_12-14 MS

COMPOUND		SAMPLE CONCENTRATION		MS % REC	QC LIMITS REC	#
PCB-1016	(ug/Kg) 193	(ug/Kg) ND	(ug/Kg) 163	84	76-121	
PCB-1260	193	ND	180	93	79-130	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8082A}$

FORM III PCBS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11057-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 07PCBS20223018.0009.D

Lab ID: 410-11057-6 MSD Client ID: SB13_12-14 MSD

	SPIKE	MSD	MSD o.	olo	QC LIMITS		#	
COMPOUND	ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	% REC	RPD	RPD REC		7 #	
PCB-1016	192	133	69	21	50	76-121	F1	
PCB-1260	192	164	86	9	50	79-130		

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8082A}$

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11057-1

SDG No.:

Client Sample ID: <u>SB22_8-10</u> Lab Sample ID: 410-11057-15

Date Analyzed (1): 08/25/2020 09:43 Date Analyzed (2): 08/25/2020 09:43

ANALYTE	COL	PEAK	RT	RT W	INDOW	CONCENT	TRATION	RPD
ANALITE	COL	FEAN		FROM	TO	PEAK	MEAN	TALE
PCB-1260	1	1	3.86	3.84	3.90	40.4	27	49.5
		2	3.93	3.91	3.97	45.7		
		3	4.04	4.01	4.07	41.8		
		4	4.44	4.41	4.47	10.1		
		5	4.57	4.54	4.60	9.06		
		6	4.79	4.76	4.82	12.9		
	2	1	4.14	4.11	4.17	7.90	16	
		2	4.18	4.16	4.22	22.8		
		3	4.34	4.31	4.37	12.0		
		4	4.71	4.67	4.73	23.9		
		5	4.87	4.84	4.90	15.7		
		6	5.05	5.02	5.08	14.2		

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11057-1

SDG No.:

Client Sample ID: SB21_9-11 Lab Sample ID: 410-11057-18

Date Analyzed (1): 08/26/2020 10:00 Date Analyzed (2): 08/26/2020 10:00

ANALYTE	COL	PEAK	RT	RT W	INDOW	CONCENT	TRATION	RPD
ANALITE	СОП	FEAN	I DIII		TO	PEAK	MEAN	KFD
PCB-1254	1	2	3.77	3.75	3.81	19.9	20	9.7
		5	4.16	4.14	4.20	21.7		
		6	4.25	4.21	4.27	19.4		
	2	3	4.10	4.05	4.11	15.2	18	
		4	4.28	4.23	4.29	19.0		
		6	4.51	4.47	4.53	21.2		
PCB-1260	1	4	4.44	4.41	4.47	14.6	15	48.7
		5	4.56	4.54	4.60	13.3		
		6	4.79	4.76	4.82	18.4		
	2	4	4.71	4.67	4.73	29.3	25	
		5	4.87	4.85	4.91	22.9		
		6	5.05	5.02	5.08	23.9		

FORM II HERBICIDES SURROGATE RECOVERY

Lab Nan	ne: <u>Eurofins</u>	Lancaster	Laboratories	Job No.	.: 410-11057-1	
SDG No.	:					
Matrix:	Solid			Level:	Low	

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB16_0-2	410-11057-1	61	57
SB16_6-8	410-11057-2	56	54
SB16_10-12	410-11057-3	62	53
SB13_0-2	410-11057-4	62	56
SB13_4-6	410-11057-5	59	54
SB13_12-14	410-11057-6	57	57
SODUP03_081820	410-11057-7	61	57
SB28_0-2	410-11057-10	62	59
SB28_4-6	410-11057-11	68	65
SB28_12-14	410-11057-12	63	65
SB22_0-2	410-11057-13	70	66
SB22_4-6	410-11057-14	67	60
SB22_8-10	410-11057-15	69	60
SB21_0-2	410-11057-16	63	60
SB21_6-8	410-11057-17	67	45
SB21_9-11	410-11057-18	58	53
	MB 410-35190/1-A	59	53
	MB 410-35666/1-A	59	58
	LCS 410-35190/2-A	59	53
	LCS 410-35666/2-A	67	64
SB13_12-14 MS	410-11057-6 MS	66	61
SB13_12-14 MSD	410-11057-6 MSD	150 X	109

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: $410-11057-1$	
SDG No.:			
Matrix: Water		Level: Low	
GC Column (1): 7B-35	TD: 0 32 (mm)	GC Column (2): 7.B-XI.B	TD: 0 32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SOFB03_081820	410-11057-19	63	63
	MB 410-36770/1-A	47	49
	LCS 410-36770/2-A	71	67

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{34-142}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB13 12-14 MS Lab ID: 410-11057-6 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11057-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 86.1

Analyte	SSR	С	Sample Result (SE	₹) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	2.33		1.2		1.58	73	75-125	F1	6020B
Barium	33.5		24		7.95	120	75-125		6020B
Beryllium	0.782	J	0.24	J	0.644	85	75-125		6020B
Cadmium	0.824		ND		0.801	103	75-125		6020B
Chromium	18.3		ND		8.04	227	75-125	F1	6020B
Copper	15.7		11		8.01	59	75-125	F1	6020B
Lead	12.1		11		0.788	112	75-125	4	6020B
Manganese	79.0		83		8.04	-56	75-125	4	6020B
Nickel	23.4		21		8.04	27	75-125	F1	6020B
Selenium	1.41		ND		1.60	88	75-125		6020B
Silver	7.99		ND		8.06	99	75-125		6020B
Zinc	90.8		19	J	80.4	90	75-125		6020B
Mercury	0.216		ND		0.194	112	80-120		7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: SB13 12-14 MSD Lab ID: 410-11057-6 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11057-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 86.1

Analyte	(SDR)	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Arsenic	2.88	2.19	79	75-125	85	20	F2	6020B
Barium	37.2	11.0	121	75-125	76	20	F2	6020B
Beryllium	0.986	0.889	84	75-125	86	20	F2	6020B
Cadmium	1.16	1.11	105	75-125	95	20	F2	6020B
Chromium	23.3	11.1	210	75-125	24	20	F1 F2	6020B
Copper	21.8	11.1	98	75-125	94	20	F2	6020B
Lead	23.7	1.09	1149	75-125	119	20	4 F2	6020B
Manganese	72.3	11.1	-101	75-125	59	20	4 F2	6020B
Nickel	25.8	11.1	41	75-125	75	20	F2 F1	6020B
Selenium	2.14	2.21	97	75-125	101	20	F2	6020B
Silver	10.9	11.1	98	75-125	93	20	F2	6020B
Zinc	123	111	94	75-125	92	20	F2	6020B
Mercury	0.236	0.182	130	80-120	9	20	F1	7471B

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 410-11057-6

SDG No:

Lab Name: Eurofins Lancaster Laboratories Job No: 410-11057-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Samp Result (I)		Serial Dilution Result (S)	С	% Difference	Q	Method
Arsenic	1.2		2.06	J	NC		6020B
Barium	24		43.2		80	V	6020B
Beryllium	0.24	J	0.452	J	NC		6020B
Cadmium	ND		ND		NC		6020B
Chromium	ND		12.3		NC		6020B
Copper	11		20.3		NC		6020B
Lead	11		21.2		88	V	6020B
Manganese	83		161		93	V	6020B
Nickel	21		38.3		80	V	6020B
Selenium	ND		ND		NC		6020B
Silver	ND		ND		NC		6020B
Zinc	19	J	33.3	J	NC		6020B

Calculations are performed before rounding to avoid round-off errors in calculated results.



December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report - Eurofins Lancaster Laboratories - Soil Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for ten soil samples, one field blank, one equipment blank, and one trip blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-11238-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB15_0-2	SB15_8-10	SB15_14-16	SB14_0-2
SB14_8-10	SB14_18-20	SB11_0-2	SB11_6-8
SB11_18-20	SODUP04_081920	EB01-08192020	TB01_08192020
FB01_08192020			

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report		
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes	
2.	Have all holding times been met?	Yes	
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – Se Following Sections	е
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No	
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes	
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes	

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Data Usability Summary Report	
7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

Volatile Organics

- Results for all target compounds in TB01_08192020 were qualified as estimated (UJ) based on headspace in the sample container.
- Results for acetone and 2-butanone in TB_08192020 and for 1,1-dichloroethene in all of the soil samples, were qualified as estimated (UJ) based on high percent difference (%D) between the initial calibration (IC) and the IC verification (ICV) standards.
- Results for 2-butanone in SB15_0-2, SB15_8-10, SB15_14-16, SB14_0-2, SB14_8-10, SB14_18-20, SB11_0-2, SB11_6-8, SB11_18-20, and SODUP04_081820, were qualified as estimated (J-, UJ) based on a decrease in sensitivity in the associated continuing calibration (CC) standard.
- Results for n-propylbenzene, n-butylbenzene, 1,3,5-trimethylbenzene, tert-butylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene in SB15_8-10 and SB15_8-10 RA were qualified as estimated (UJ) with potential low bias based on low recovery for the associated surrogate compound. Results for the initial analysis are recommended for use; results for the re-analysis were marked "reportable no."
- Results for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, chlorobenzene, ethylbenzene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, and xylenes in SB15_8-10 were qualified as estimated (UJ) with indeterminate bias, based on the low internal standard (IS) responses.
- Results for acetone, benzene, 2-butanone, and tert butyl methyl ether were qualified as estimated (J, UJ) in all of the soil samples, based on poor precision between the field duplicates.

Semi-Volatile Organics (Full Scan)

 Results for all acid-extractable target compounds in SB15_0-2, SB14_0-2, SB14_8-10, SB14_18-20, and SB11_6-8 were qualified as estimated (UJ) with potential low bias, based on low recoveries for the associated surrogate compounds. Mr. Joseph Yanowitz December 18, 2020 Page 3 of 17



- Results for pentachlorophenol in SB15_0-2 RE, SB15_8-10, and SB15_8-10 RE were rejected (R) as unusable, based on surrogate recovery less than 10%.
- Results for acenaphthene, acenaphthylene, fluorene, fluoranthene, anthracene, chrysene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, and phenanthrene in the initial extraction of SB15_0-2 were qualified as estimated (J-) with potential low bias, and non-detect (U) results for naphthalene, dibenzofuran, and hexachlorobenzene in this sample were rejected (R) as unusable, based on surrogate recovery less than 10%.
- Results for naphthalene in SB15_0-2 RE, SB15_8-10 RE, SB14_18-20, and SB11_6-8, were qualified as estimated (J-, UJ) based on low recovery in the associated surrogate compound.
- Results for phenol, 2-methylphenol, and 4-methylphenol in SB15_8-10, SB15_0-2 RE, SB11_0-2, and SB15_8-10 RE, were qualified as estimated (J-, UJ) based on low recovery in the associated surrogate compound.
- Results for all base/neutral extractable target compounds in SB15_8-10 were qualified as estimated (J-, UJ) based on low recovery in the associated surrogate compounds.
- Results for all target compounds in SB11_18-20 were qualified as estimated (J-, UJ) based on low recovery in the associated surrogate compounds.
- Results for pentachlorophenol in SB15_0-2 RE, SB15_8-10 RE, SB14_18-20 and SODUP04_081920 were qualified as estimated (UJ) based on low recovery in the associated MS and MSD. The results for pentachlorophenol in SB15_0-2 RE and SB15_8-10 RE were previously rejected (R) based on surrogate recoveries less than 10%; the "R" qualifier takes precedence.
- The validator corrected results for hexachlorobenzene in SB14_18-20 and SODUP04_081920, and for dibenz(a,h)anthracene in SB11_0-2 and SB11_6-8 to not detected (U) at the RL or reported value, whichever is greater, based on low S/N ratio and/or poor spectral match.
- Results for acenaphthene, anthracene, chrysene, naphthalene, and pyrene in all
 of the soil samples in this SDG were qualified as estimated (J, UJ) based on poor
 precision between the field duplicates.

o Semi-Volatile Organics (Selected Ion Monitoring)

- The result for 1,4-dioxane in SB11_6-8 was qualified as estimated (UJ) based on low recovery for the associated surrogate compound.
- Results for 1,4-dioxane in all of the soil samples were qualified as estimated (J-, UJ) due to low recoveries in the associated LCS.

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o Pesticides

- The results for all target pesticide compounds in SB15_8-10 and SB11_18-20 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.
- The result for 4,4'-DDT in SB11_0-2 was qualified as estimated (J+) due to high surrogate recoveries on both analytical columns.
- Results for gamma-BHC in SB14_0-2 and heptachlor and alpha-chlordane in SB14_18-20 were qualified as estimated (J) due to lack of agreement between the two column measurements.

Herbicides

The results for Silvex in SB15_0-2, SB15_8-10, SB15_14-16, SB14_0-2, SB14_8-10, SB14_18-20, SB11_0-2, SB11_6-8, SB11_18-20, and SODUP04_081920 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns and low LCS recoveries and low LCS recoveries.

o Per- and Polyfluoroalkyl Substances (PFAS)

 The result for perfluorododecanoic acid (PFDoDA) in EB_08192020 was qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - o LCS/LCSD recoveries
 - MS/MSD recoveries
 - Internal standards
 - o Duplicate

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- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- The method blank and laboratory control sample prepared with the SVOCs SIM extraction batch 33519 were analyzed on 8/21/20. A Form 5 was included in the data package, listing the MB and LCS, however no CC standard was listed, and no data were provided for the CC that should have been analyzed in association with these two QC samples. The laboratory was contacted and requested to provide these missing data. A revision of the data package was provided and a CC standard was added to this Form 5, and data and summary Form 7 were provided for the CC standard.
- A "T" flag was present in the EDD for a number of results. This data flag was not present on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for submission to the agency, although this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Sample SODUP04_081920 was re-analyzed by the laboratory for pesticides; no explanation was provided for the re-analysis in the data package. The result for 4,4'-DDT was reported from the sample re-analysis; all other pesticide results for this sample were reported from the initial sample analysis. In response to the validator's inquiry, the laboratory indicated that this result was reported from the subsequent analysis because

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4,4'-DDT was not acceptable in an associated continuing calibration standard. The reason for taking this approach should have been provided in the data package.

- The laboratory reported the lower concentrations for target analytes in two samples and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration. This policy should have been noted in the case narrative.
- Raw data and summary forms for an initial calibration for the pesticide target analytes
 performed on August 19, 2020, and an initial calibration verification standard for
 toxaphene run on August 19, 2020, both on instrument 9191, were included in the data
 package. Since these were not relevant to the site samples, the data were not reviewed.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did not match the responses found in the raw data. According to the laboratory, the discrepancies are because peak heights are reported in the raw data, but peak areas are reported on the summary forms. Corrected documentation was not provided by the time this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.
- For PCBs laboratory control sample 410-38341/2-A in the data package as received, the laboratory quantified the wrong fifth selected peak for Aroclor 1260 on the DB CLP1 column and the wrong fourth selected peak for Aroclor 1260 on the DB CLP2 column. On request, the laboratory corrected these results and provided a revised data package.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening CCVs and CCBs. The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- MDLs for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The

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laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.

• No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 19, 2020. The samples were received by the laboratory on the same day as sample collection. One of the cooler temperatures on receipt at the laboratory (2.9°C) was acceptable (QC 4°C ±2°C); the second cooler temperature (0.4°C) was slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

Sample TB01_08192020 was received and analyzed with headspace. Results for all target compounds in TB01_08192020 were qualified as estimated (UJ).

A. Volatile Organics

1. Calibration

Two ICs were reported in support of sample analyses (Instrument 7159 – waters; 9953 – soils). All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable.

Second source ICV standards were analyzed following each IC and all %Ds were acceptable (<20 %D), with the exceptions of acetone (-21.9 %D) and 2-butanone (20.4 %D) in the ICV associated with the analysis of TB01_08192020, and for 1,1-dichloroethene in the ICV associated with the soil samples. Results for acetone and 2-butanone in TB01_08192020 and results for 1,1-dichloroethene in all of the soil samples were qualified as estimated (UJ).

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
9953 – 8/23/20 @ 12:03	1,4-Dioxane	+29.3	SB15_0-2	None



Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
	2-Butanone	-25.0	SB15_8-10 SB15_14-16 SB14_0-2 SB14_8-10 SB14_18-20 SB11_0-2 SB11_6-8 SB11_18-20 SODUP04_081820	J-, UJ
9953 – 8/24/20 @ 10:03	1,1-Dichloroethene	+25.5	SB15_8-10 RA	None

The %Ds for 1,1-dichloroethene and 1,4-dioxane represent an increase in instrument sensitivity and neither of these compounds was detected in any of the associated samples; therefore, no qualification was necessary.

A decrease in sensitivity was indicated by the high %D for 2-butanone; therefore, results for 2-butanone in associated samples were qualified as estimated (J-, UJ).

2. Surrogates

Surrogate recoveries were within the acceptance limits of 70-130%, with the following exceptions:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB15_8-10	Bromofluorobenzene	64	n-Propylbenzene	UJ
SB15_8-10 RA	Bromofluorobenzene	59	n-butylbenzene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	

Results for the compounds detailed above in the initial and re-analysis of SB15_8-10, where a low surrogate recovery suggests the potential for low bias or false negatives, were qualified as estimated (J-, UJ). All results for this sample in the re-analysis and for many analytes in the initial analysis were also qualified as estimated (J, UJ), with no directional bias, based on unacceptable IS areas. Where applicable, the "J" qualifier takes precedence.

3. Internal Standards

Responses for two of the internal standard compounds in SB15_8-10 (chlorobenzene- d_5 and dichlorobenzene- d_4) were unacceptably low. Results for all compounds calculated against these two IS compounds, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, chlorobenzene, ethylbenzene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, and xylenes, were qualified as estimated with indeterminate bias, based on the low IS responses.

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This sample was re-analyzed (SB15_8-10 RA) and responses for all four of the IS compounds were below the lower acceptance limit. Results for the initial extraction of this sample are recommended for use and results from the re-analysis were marked "reportable no".

4. Field Duplicates

Sample SODUP04_081920 was collected and submitted as a field duplicate of SB11_18-20. Where analytes were detected in one or both of the paired samples poor precision was observed, as detailed below:

Compound	Sample (µg/kg)	Field Duplicate (µg/kg)	Qualifiers Applied
Acetone	5.3	140	J, UJ
Benzene	ND	1.4	
2-Butanone	ND	4.3	
Tert-butyl methyl ether	ND	0.49	

Based on poor precision observed for acetone, benzene, 2-butanone, and tert-butyl methyl ether, results for these compounds in all of the soil samples in the data set were qualified as estimated (J, UJ).

B. Semi-Volatile Organics (Full Scan)

1. Calibration

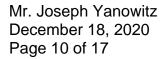
Two ICs (Instrument HP23296 and HP11165) were reported in support of sample analyses. All RRFs and RSDs or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard was analyzed following each IC and all %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D).

2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R Compounds Affected		Qualifiers Applied
SB15-0-2	2-Fluorophenol	17	All acid-extractable	J-, UJ
	Phenol-d₅	23	target compounds	
	2,4,6-Tribromophenol	19		
	Nitrobenzene-d ₅	8	List 1* & List 2**	R
	2-Fluorobiphenyl	4		





Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
	Terphenyl-d ₁₄	41	List 3***	J-, UJ
SB15_0-2 RE	2-Fluorophenol	62	List 4****	J-, UJ
	2,4,6-Tribromophenol	3	Pentachlorophenol	R
	Nitrobenzene-d ₅	61	List 1*	J-, UJ
SB15_8-10	2-Fluorophenol	25	List 4****	J-, UJ
	Phenol-d ₅	27		
	2,4,6-Tribromophenol	0.7	Pentachlorophenol	R
	Nitrobenzene-d ₅	30	All base/neutral-	J-, UJ
	2-Fluorobiphenyl	44	extractable target	
	Terphenyl-d ₁₄	29	compounds	
SB15_8-10 RE	2-Fluorophenol	63	List 4****	
	2,4,6-Tribromophenol	5	Pentachlorophenol	R
	Nitrobenzene-d ₅	65	List 1*	J-, UJ
SB14_0-2	2-Fluorophenol	67	All acid-extractable	
	2,4,6-Tribromophenol	43	target compounds	
SB14_8-10	2-Fluorophenol	63		
	Phenol-d ₅	68		
	2,4,6-Tribromophenol	53		
SB14_18-20	2-Fluorophenol	69		
	2,4,6-Tribromophenol	49		
	Nitrobenzene-d ₅	64	List 1*	
SB11_0-2	2-Fluorophenol	66	List 4****	
SB11_6-8	2-Fluorophenol	59	All acid-extractable	
	2,4,6-Tribromophenol	65	target compounds	
	Nitrobenzene-d ₅	64	List 1*	
SB11_18-20	2-Fluorophenol	57	All target compounds	
	2,4,6-Tribromophenol	64		
	Nitrobenzene-d ₅	66		
	Terphenyl-d ₁₄	39		

^{*}List 1: naphthalene

Where the recovery for the surrogate compound was less than 10%, non-detect results for the associated compound was rejected (R) as unusable; detects were qualified as estimated (J-).

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential for low bias, based on associated low surrogate recoveries.

^{**}List 2: acenaphthene, acenaphthylene, dibenzofuran, fluorene, fluoranthene, anthracene, phenanthrene, and hexachlorobenzene

^{***}List 3: chrysene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene ****List 4: phenol, 2-methylphenol, and 4-methylphenol

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3. LCS/LCSD

Results for two LCSs, one for each of two extraction batches, were reported in the data package. Percent recoveries were acceptable (70-130%R).

4. Matrix Spike Sample (MS)/MS Duplicate (MSD)

Results for one MS/MSD pair associated with the same sample extraction batch were reported in the project-related data package for SDG 11359. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R; RPD<50) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB12_6-8					
Pentachlorophenol	67	67	A	SB15_0-2 RE SB15_8-10 RE SB14_18-20 SODUP04_081920	UJ

a-acceptable

Results for pentachlorophenol in the samples detailed above are qualified as estimated (UJ) with the potential for low bias or false negatives, based on low MS/MSD recoveries. Results for pentachlorophenol in SB15_0-2 RE, SB15_8-10 RE, and SB14_18-20 were previously rejected based on surrogate recovery below 10%; the "R" qualifier takes precedence.

5. Internal Standards

Retention times for all six of the IS compounds in one of the CC standards analyzed in association with the soil samples were early. As the shifts appear similar for these IS, it is assumed that trimming the column, or other minor maintenance gave rise to the shifts. All IS RTs in the analyses associated with the CC were acceptable and matched the applicable CC standard well. Identification and quantitation of the target compounds associated with each IS in the applicable CC were unaffected by the shifts, therefore, no action was warranted on this basis.

6. Target Compound Identification

The validator corrected results for hexachlorobenzene in SB14_18-20 and SODUP04_081920, and for dibenz(a,h)anthracene in SB11_0-2 and SB11_6-8 to not detected (U) at the RL, based on low S/N ratio and/or poor spectral match.

7. Quantitation

Samples SB15_0-2 and SB15_8-10 were re-extracted due to failing surrogate recoveries in the initial analyses. The re-extractions also gave unacceptable recoveries for one or more of the surrogate compounds but showed better performance overall. Results for pentachlorophenol in both re-extractions, as well as the initial extraction of SB15_8-10, were rejected (R) as unusable, based on recoveries less than ten percent for the associated surrogate compound. Results from the initial extractions of these two samples are recommended for use. The re-extractions were marked "reportable – no."

Mr. Joseph Yanowitz December 18, 2020 Page 12 of 17



8. Field Duplicates

Sample SODUP04_081920 was collected and submitted as a field duplicate of SB11_18-20.

Compound	Sample (µg/kg)	Field Duplicate (µg/kg)	Qualifiers Applied
Acenaphthene	ND	17 J	J, UJ
Anthracene	ND	15 J	
Benzo(a)anthracene	3.9 J	10 J	None
Chrysene	ND	8.3 J	J, UJ
Fluoranthene	3.8 J	9.8 J	None
Naphthalene	9.7 J	38	J, UJ
Phenanthrene	5.9 J	5.5 J	None
Pyrene	4.8 J	29	J, UJ
Hexachlorobenzene	ND	9.8 J (ND*)	None

^{*}Result qualified as not detected, based on low signal/noise and/or poor spectral match

Results for the compounds exhibiting poor precision (50 RPD for analytes >RL and ±RL for analytes <RL), acenaphthene, anthracene, chrysene, naphthalene, and pyrene, were qualified estimated (J, UJ), in all of the soil samples in this data set.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Surrogate

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane; therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

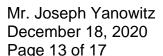
Sample	%R	Qualifier Applied
SB11_6-8	59	UJ

The result for 1,4-dioxane in SB11_6-8 was qualified as estimated (UJ) with the potential low bias, based on low recovery observed in the associated surrogate compound.

2. LCS/LCSD

Three LCS analyses were performed in association with this SDG. Recoveries of 1,4-dioxane were outside the 70-130% acceptance limits in all three LCSs, as follows:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
LCS 35519/2			
1,4-Dioxane	35	SB14_0-2 SB11_6-8 SB11_18-20 SB14_0-2 RA	J-, UJ



vddms

Parameter	LCS %R	Samples Affected	Qualifiers Applied
		SB14_8-10	
		SB11_6-8 RA	
LCS 36612/2			
1,4-Dioxane	27	SODUP04_081920	UJ
LCS 37596/2			
1,4-Dioxane	35	SB15_0-2	UJ
		SB15_8-10	
		SB14_18-20	

Results for 1,4-dioxane in all of the soil samples were qualified as estimated (J-, UJ) due to low LCS recoveries.

3. Quantitation

Samples SB14_0-2 and SB11_6-8 were re-analyzed based on unacceptable internal standard responses in the initial analyses. The re-analyses exhibited the same IS failures, but the affected IS is not used for calculation of the target analyte. The initial analyses were appropriately selected by the laboratory for reporting. The results from the re-analyses were marked "reportable – no."

4. Field Duplicates

Sample SODUP04_081920 was collected and submitted as a field duplicate of SB11_18-20. 1,4-Dioxane was not detected in either of the field duplicate samples

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample		Surrogate / Column					
Sample	TCX/1	DCB/2					
SB15_8-10	50	55	58	61			
SB15_14-16	а	а	144	143			
SB14_0_2	137	134	143	145			
SB11_0-2	а	а	154	151			
SB11 18-20	63	59	47	44			

a-acceptable

The results for all target pesticide compounds in SB15_8-10 and SB11_18-20 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns. The result for 4,4'-DDT in SB11_0-2 was qualified as estimated (J+) due to high surrogate recoveries on both analytical columns. Since the DCB recoveries were high and no target analytes were detected in SB15_14-16, no action was necessary on this basis. Sample SB14_02 was analyzed at a 20-fold dilution, which reduced the surrogate concentration to near the lower limit of the calibration range.

Mr. Joseph Yanowitz December 18, 2020 Page 14 of 17



Accurate surrogate recoveries would not be expected in this situation, and no additional action was taken on this basis.

2. Compound Identification and Quantitation

The relative percent difference (RPD) between the two column measurements columns was acceptable (≤40 RPD) for compounds detected in each sample, with the exception noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB14_0-2	gamma-BHC	10 J	6.9 J	41
SB14_18-20	Heptachlor	43 E	0.40 J	196
	alpha-Chlordane	1.3	3.0	83

Results for gamma-BHC in SB14_0-2 and heptachlor and alpha-chlordane in SB14_18-20 were qualified as estimated (J) due to lack of agreement between the two column measurements.

Sample SODUP04_081920 was re-analyzed by the laboratory for pesticides; no explanation was provided for the re-analysis in the data package. The result for 4,4'-DDT was reported from the sample re-analysis; all other pesticide results for this sample were reported from the initial sample analysis. The laboratory was contacted and explained that the 4,4'-DDT result for this sample was were reported from the subsequent analysis because 4,4'-DDT was unacceptable in an associated continuing calibration analysis. The reason for taking this approach should have been provided in the data package.

The laboratory reported the lower concentration for gamma-BHC in SB14_0-2 and heptachlor and alpha-chlordane in SB14_18-20 and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

Based on the validation effort, all PCBs results were determined to be valid as reported by the laboratory.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA)) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:



Sample	Surrogate	/ Column
Sample	DCPAA / 1	DCPAA / 2
SB15_0-2	62	56
SB15_8-10	53	53
SB14_0-2	57	53
SB14_8-10	28	29
SB14_18-20	32	31
SB11_0-2	48	44
SB11_6-8	25	27
SB11_18-20	55	57
DUP04_081920	51	53

The results for Silvex in all of the soil samples in this SDG were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for one solid-matrix LCS associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCS were below the minimum acceptance limit (QC 70-130%R), as noted below:

Parameter	LCS %R Column 1	LCS %R Column 2	Samples Affected	Qualifier Applied
LCS 410-37771/2	Α			
Silvex	65	64	SB15_0-2 SB15_8-10 SB15_14-16 SB14_0-2 SB14_8-10 SB14_18-20 SB11_0-2 SB11_6-8 SB11_18-20 SODUP04_081920	UJ

The results for Silvex in in all of the soil samples in this SDG were qualified as estimated (UJ) due to low LCS recoveries.

G. Metals

Based on the validation effort, all Metals results were determined to be valid as reported by the laboratory.



H. Per- and Polyfluoroalkyl Substances (PFAS)

1. Surrogates (Extracted Internal Standards/ Labeled Analogs):

All labeled analog recoveries were acceptable (50-150%R) with the following exception:

Sample	Labeled Analog	%R
EB01_08192020	Perfluoro[13C2]dodecanoic acid	39

The result for PFDoDA in EB_08192020 was qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent or trivalent chromium were qualified as a result of the data validation. All reported results for hexavalent and trivalent chromium were determined to be usable as reported.

3. General Chemistry - Quantitation

No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Elizabeth K. Dickinson Sr. Environmental Chemist

fligheth K. Dicker

610-314-6284

edickinson@ddmsinc.com

Mr. Joseph Yanowitz December 18, 2020 Page 17 of 17



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Melissa D'Almeida Environmental Chemist (862) 668-3355

Melim D'Huela

mdalmeida@ddmsinc.com



ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-11238-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-11238-1

Environmental Analysis



Custody

neurofins :

Lancaster Laboratories

Acct. #

nmental use only

COC #611582

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Environmental Analysis Request/Chain of Custody

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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-11238-1

REVISION

The report being provided is a revision of the original report sent on 8/31/2020. The report (revision 1) is being revised due to Sample IDs were cut off on raw data for mercury.

Report revision history

Receipt

The samples were received on 8/19/2020 9:20 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.4° C and 2.9° C.

GC/MS VOA

Method 8260C: The continuing calibration verification (CCV) analyzed in batch 410-36246 was outside the method criteria for the following analyte(s): 2-Butanone. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260C: Internal standard (ISTD) response for the following sample was outside control limits: SB15_8-10 (410-11238-2). The sample(s) was re-extracted and/or re-analyzed and ISTD response was outside control limits.

Method 8260C: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container(s): TB01 08192020 (410-11238-12). The sample container was received with headspace.

Method 8260C: The continuing calibration verification (CCV) associated with batch 410-36437 recovered above the upper control limit for 1,1-Dichloroethene. Non-detections of the affected analytes are reported. Any detections are considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270D: Surrogate recovery for the following samples were outside control limits: SB15_0-2 (410-11238-1) and SB15_8-10 (410-11238-2). Re-extraction and/or re-analysis was performed and surrogate recovery was outside control limits.

Method 8270D SIM: The recovery for the sample internal standard is outside the QC acceptance limits. The following action was taken: The sample was re-analyzed and internal standard areas are again outside of the QC acceptance limits, indicating a matrix effect. The reported data is from the initial analysis of samples SB14_0-2 (410-11238-4) and SB11_6-8 (410-11238-8).

Method 8270D SIM: The following samples were diluted due to the nature of the sample matrix: SB14_0-2 (410-11238-4) and SB11_6-8 (410-11238-8). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8081B: The DCB Decachlorobiphenyl (Surr) surrogate recovery for the following samples was outside acceptance limits (high biased) on column 1: SB11_0-2 (410-11238-7). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

Method 8081B: The following sample required a dilution due to the nature of the sample matrix: SB14_0-2 (410-11238-4). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8081B: The DCB Decachlorobiphenyl (Surr) surrogate recovery for the following samples was outside acceptance limits (low biased) on column 1: SB11_18-20 (410-11238-9). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

Method 8151A: Surrogate 2,4-Dichlorophenylacetic acid (Surr) recovery for the following sample(s) was outside the control limit on one column: No analytes detected. The data is reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

1 CMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories	Env Job No.: 410-11238-1
SDG No.:	
Lab Sample ID: ICV 410-17838/10	Calibration Date: 06/30/2020 02:32
Instrument ID: 7159	Calib Start Date: 06/29/2020 23:58
GC Column: R-624SilMS 30m ID: 0.25(mm	n) Calib End Date: 06/30/2020 02:10
Lab File ID: NU29V01.D	Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4253	0.3655	0.1000	17.2	20.0	-14.0	30.0
Chloromethane	Ave	0.3823	0.3798	0.1000	19.9	20.0	-0.7	30.0
1,3-Butadiene	Ave	0.3202	0.2929		18.3	20.0	-8.5	30.0
Vinyl chloride	Ave	0.3852	0.3945	0.1000	20.5	20.0	2.4	30.0
Bromomethane	Ave	0.2801	0.2913	0.1000	20.8	20.0	4.0	30.0
Chloroethane	Ave	0.2214	0.2334	0.1000	21.1	20.0	5.4	30.0
Dichlorofluoromethane	Ave	0.5174	0.5322		20.6	20.0	2.9	30.0
Trichlorofluoromethane	Ave	0.4832	0.5489	0.1000	22.7	20.0	13.6	30.0
n-Pentane	Ave	0.4630	0.3890		16.8	20.0	-16.0	30.0
Ethanol	Ave	0.0609	0.0554		909	1000	-9.1	30.0
Freon 123a	Ave	0.3095	0.3014		19.5	20.0	-2.6	30.0
Acrolein	Ave	1.996	1.717	50°5011 1 1 1 1 1 1 1 1 1	129	150	-14.0	30.0
1,1-Dichloroethene	Ave	0.2425	0.2505	0.1000	20.7	20.0	3.3	30.0
Freon 113	Ave	0.2792	0.2560	0.1000	18.3	20.0	-8.3	30.0
Acetone	Ave	0.8619	0.6734	0.1000	117	150	-21.9	30.0
2-Propanol	Ave	0.4818	0.4277	no. / toward . · hamm. notes	133	150	-11.2	30.0
Methyl iodide	Ave	0.5108	0.4701		18.4	20.0	-8.0	30.0
Carbon disulfide	Ave	0.8069	0.7479	0.1000	18.5	20.0	-7.3	30.0
Methyl acetate	Ave	0.2835	0.2688	0.1000	19.0	20.0	-5.2	30.0
Allyl chloride	Ave	0.4185	0.3831		18.3	20.0	-8.5	30.0
Methylene Chloride	Ave	0.2972	0.2868	0.1000	19.3	20.0	-3.5	30.0
t-Butyl alcohol	Ave	1.058	1.056		200	200	-0.2	30.0
Acrylonitrile	Ave	0.1582	0.1471		93.0	100	-7.0	30.0
Methyl tertiary butyl ether	Ave	0.8040	0.7596	0.1000	18.9	20.0	-5.5	30.0
trans-1,2-Dichloroethene	Ave	0.2803	0.2815	0.1000	20.1	20.0	0.4	30.0
n-Hexane	Ave	0.4386	0.4131		18.8	20.0	-5.8	30.0
1,1-Dichloroethane	Ave	0.4852	0.4798	0.2000	19.8	20.0	-1.1	30.0
di-Isopropyl ether	Ave	0.8331	0.7889	4.4.4	18.9	20.0	-5.3	30.0
2-Chloro-1,3-butadiene	Ave	0.4465	0.4198		18.8	20.0	-6.0	30.0
Ethyl t-butyl ether	Ave	0.8170	0.7934		19.4	20.0	-2.9	30.0
2-Butanone	Ave	0.2155	0.1714	0.1000	119	150	-20.4	30.0
cis-1,2-Dichloroethene	Ave	0.3146	0.3389	0.1000	21.5	20.0	7.7	30.0
2,2-Dichloropropane	Ave	0.4422	0.4559		20.6	20.0	3.1	30.0
Propionitrile	Ave	1.233	1.203		146	150	-2.5	30.0
Methacrylonitrile	Ave	0.1627	0.1628		150	150	0.0	30.0
Bromochloromethane	Ave	0.1727	0.1676	-	19.4	20.0	-2.9	30.0
Tetrahydrofuran	Ave	1.377	1.237		89.8	100	-10.2	30.0
Chloroform	Ave	0.4873	0.5034	0.2000	20.7	20.0	3.3	30.0
1,1,1-Trichloroethane	Ave	0.4459	0.4543	0.1000	20.4	20.0	1.9	30.0
Cyclohexane	Ave	0.5064	0.4854	0.1000	19.2	20.0	-4.2	30.0
1,1-Dichloropropene	Ave	0.3923	0.4004	, or take any other control of the c	20.4	20.0	2.1	30.0

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11238-1

SDG No.:

Lab Sample ID: ICV 410-17838/10 Calibration Date: 06/30/2020 02:32

Instrument ID: 7159 Calib Start Date: 06/29/2020 23:58

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 06/30/2020 02:10

Lab File ID: NU29V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

				-				
ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4253	0.3655	0.1000	17.2	20.0	-14.0	30.0
Chloromethane	Ave	0.3823	0.3798	0.1000	19.9	20.0	-0.7	30.0
1,3-Butadiene	Ave	0.3202	0.2929		18.3	20.0	-8.5	30.0
Vinyl chloride	Ave	0.3852	0.3945	0.1000	20.5	20.0	2.4	30.0
Bromomethane	Ave	0.2801	0.2913	0.1000	20.8	20.0	4.0	30.0
Chloroethane	Ave	0.2214	0.2334	0.1000	21.1	20.0	5.4	30.0
Dichlorofluoromethane	Ave	0.5174	0.5322		20.6	20.0	2.9	30.0
Trichlorofluoromethane	Ave	0.4832	0.5489	0.1000	22.7	20.0	13.6	30.0
n-Pentane	Ave	0.4630	0.3890		16.8	20.0	-16.0	30.0
Ethanol	Ave	0.0609	0.0554		909	1000	-9.1	30.0
Freon 123a	Ave	0.3095	0.3014		19.5	20.0	-2.6	30.0
Acrolein	Ave	1.996	1.717	p-1, s/k1/ 1 - 2/-3	129	150	-14.0	30.0
1,1-Dichloroethene	Ave	0.2425	0.2505	0.1000	20.7	20.0	3.3	30.0
Freon 113	Ave	0.2792	0.2560	0.1000	18.3	20.0	-8.3	30.0
Acetone	Ave	0.8619	0.6734	0.1000	117	150	-21.9	30.0
2-Propanol	Ave	0.4818	0.4277		133	150	-11.2	30.0
Methyl iodide	Ave	0.5108	0.4701		18.4	20.0	-8.0	30.0
Carbon disulfide	Ave	0.8069	0.7479	0.1000	18.5	20.0	-7.3	30.0
Methyl acetate	Ave	0.2835	0.2688	0.1000	19.0	20.0	-5.2	30.0
Allyl chloride	Ave	0.4185	0.3831		18.3	20.0	-8.5	30.0
Methylene Chloride	Ave	0.2972	0.2868	0.1000	19.3	20.0	-3.5	30.0
t-Butyl alcohol	Ave	1.058	1.056		200	200	-0.2	30.0
Acrylonitrile	Ave	0.1582	0.1471		93.0	100	-7.0	30.0
Methyl tertiary butyl ether	Ave	0.8040	0.7596	0.1000	18.9	20.0	-5.5	30.0
trans-1,2-Dichloroethene	Ave	0.2803	0.2815	0.1000	20.1	20.0	0.4	30.0
n-Hexane	Ave	0.4386	0.4131		18.8	20.0	-5.8	30.0
1,1-Dichloroethane	Ave	0.4852	0.4798	0.2000	19.8	20.0	-1.1	30.0
di-Isopropyl ether	Ave	0.8331	0.7889		18.9	20.0	-5.3	30.0
2-Chloro-1,3-butadiene	Ave	0.4465	0.4198		18.8	20.0	-6.0	30.0
Ethyl t-butyl ether	Ave	0.8170	0.7934		19.4	20.0	-2.9	30.0
2-Butanone	Ave	0.2155	0.1714	0.1000	119	150	-20.4	30.0
cis-1,2-Dichloroethene	Ave	0.3146	0.3389	0.1000	21.5	20.0	7.7	30.0
2,2-Dichloropropane	Ave	0.4422	0.4559		20.6	20.0	3.1	30.0
Propionitrile	Ave	1.233	1.203		146	150	-2.5	30.0
Methacrylonitrile	Ave	0.1627	0.1628		150	150	0.0	30.0
Bromochloromethane	Ave	0.1727	0.1676		19.4	20.0	-2.9	30.0
Tetrahydrofuran	Ave	1.377	1.237		89.8	100	-10.2	30.0
Chloroform	Ave	0.4873	0.5034	0.2000	20.7	20.0	3.3	30.0
1,1,1-Trichloroethane	Ave	0.4459	0.4543	0.1000	20.4	20.0	1.9	30.0
Cyclohexane	Ave	0.5064	0.4854	0.1000	19.2	20.0	-4.2	30.0
1,1-Dichloropropene	Ave	0.3923	0.4004		20.4	20.0	2.1	30.0

120 12/8/24

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11238-1

SDG No.:

Lab Sample ID: CCVIS 410-36246/3 Calibration Date: 08/23/2020 12:03

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25(mm) Calib End Date: 07/29/2020 17:55

Lab File ID: bg23C50.D Conc. Units: ug/L Heated Purge: (Y/N) N

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ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.2782	0.1000	37.1	50.0	-25.8*	20.0
Chloromethane	Ave	0.4529	0.4035	0.1000	44.5	50.0	-10.9	20.0
1,3-Butadiene	Ave	0.2969	0.2778		46.8	50.0	-6.5	20.0
Vinyl chloride	Ave	0.4156	0.3969	0.1000	47.8	50.0	-4.5	20.0
Bromomethane	Ave	0.2846	0.2790	0.1000	49.0	50.0	-2.0	20.0
Chloroethane	Ave	0.2339	0.2411	0.1000	51.5	50.0	3.1	20.0
Trichlorofluoromethane	Ave	0.3905	0.3736	0.1000	47.8	50.0	-4.3	20.0
n-Pentane	Ave	0.4618	0.3710		40.2	50.0	-19.7	20.0
Ethanol	Ave	0.1521	0.1737		2850	2500	14.2	20.0
Freon 123a	Ave	0.3063	0.3228		52.7	50.0	5.4	20.0
Acrolein	Ave	2.690	3.024		562	500	12.4	20.0
1,1-Dichloroethene	Ave	0.2219	0.2442	0.1000	55.0	50.0	10.1	20.0
Acetone	Ave	1.272	1.246	0.1000	97.9	100	-2.1	20.0
Freon 113	Ave	0.2425	0.2292	0.1000	47.3	50.0	-5.5	20.0
2-Propanol	Ave	0.8154	0.9548		293	250	17.1	20.0
Methyl iodide	Ave	0.4254	0.4652		54.7	50.0	9.3	20.0
Carbon disulfide	Ave	0.8045	0.8944	0.1000	55.6	50.0	11.2	20.0
Allyl chloride	Ave	0.4553	0.4335		47.6	50.0	-4.8	20.0
Methyl acetate	Ave	0.1942	0.1473	0.1000	37.9	50.0	-24.1*	20.0
Methylene Chloride	Ave	0.2769	0.2902	0.1000	52.4	50.0	4.8	20.0
t-Butyl alcohol	Ave	1.284	1.288		251	250	0.3	20.0
Acrylonitrile	Ave	0.1015	0.0836		41.2	50.0	-17.6	20.0
trans-1,2-Dichloroethene	Ave	0.2613	0.2893	0.1000	55.3	50.0	10.7	20.0
Methyl tertiary butyl ether	Ave	0.7155	0.6806	0.1000	47.6	50.0	-4.9	20.0
n-Hexane	Ave	0.3864	0.3454		44.7	50.0	-10.6	20.0
1,1-Dichloroethane	Ave	0.4804	0.5159	0.2000	53.7	50.0	7.4	20.0
di-Isopropyl ether	Ave	0.9198	0.9436		51.3	50.0	2.6	20.0
2-Chloro-1,3-butadiene	Ave	0.3898	0.4288		55.0	50.0	10.0	20.0
Ethyl t-butyl ether	Ave	0.8018	0.7982		49.8	50.0	-0.4	20.0
2-Butanone	Ave	0.1268	0.0952*	0.1000	75.0	100	-25.0*	20.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3214	0.1000	54.5	50.0	9.0	20.0
2,2-Dichloropropane	Ave	0.3557	0.3854		54.2	50.0	8.4	20.0
Propionitrile	Ave	1.834	2.025	TOTAL MENTAL	276	250	10.4	20.0
Methacrylonitrile	Ave	0.1105	0.0956		108	125	-13.4	20.0
Bromochloromethane	Ave	0.1474	0.1487		50.4	50.0	0.9	20.0
Tetrahydrofuran	Ave	1.517	1.578		104	100	4.1	20.0
Chloroform	Ave	0.4429	0.4787	0.2000	54.0	50.0	8.1	20.0
1,1,1-Trichloroethane	Ave	0.3691	0.4022	0.1000	54.5	50.0	9.0	20.0
Cyclohexane	Ave	0.4942	0.4757	0.1000	48.1	50.0	-3.8	20.0
1,1-Dichloropropene	Ave	0.3654	0.4042		55.3	50.0	10.6	20.0
Carbon tetrachloride	Ave	0.3104	0.3306	0.1000	53.3	50.0	6.5	20.0

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11238-1

SDG No.:

Sample No.: CCVIS 410-36246/3 Date Analyzed: 08/23/2020 12:03

Instrument ID: 9953 GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg23C50.D Heated Purge: (Y/N) N

Calibration ID: 7943

-		TBAd1	0	FB		CBZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT :
12/24 HOUR STD		93882	3.03	1226271	5.39	900134	8.45
UPPER LIMIT		187764	3.53	2452542	5.89	1800268	8.95
LOWER LIMIT		46941	2.53	613136	4.89	450067	7.95
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-36246/4		118958	3.04	1243016	5.38	919474	8.45
LCSD 410-36246/5		125830	3.05	1169267	5.39	867962	8.45
MB 410-36246/7		152944	3.05	1181160	5.39	883423	8.45
410-11238-1	SB15_0-2	116572	3.05	1172185	5.39	834221	8.45
410-11238-2	SB15_8-10	62497	3.04	827367	5.39	409104*3	8.45
410-11238-3	SB15_14-16	75857	3.04	1138971	5.39	849476	8.45
410-11238-4	SB14_0-2	85180	3.04	1141078	5.39	820537	8.45
410-11238-5	SB14_8-10	74512	3.05	1104760	5.39	821267	8.45
410-11238-6	SB14_18-20	65140	3.03	1124043	5.38	840154	8.45
410-11238-7	SB11_0-2	86766	3.05	1108486	5.39	820237	8.45
410-11238-8	SB11_6-8	96603	3,03	1113571	5.38	798668	8.45
410-11238-9	SB11_18-20	79664	3.03	1104603	5.38	820255	8.45
410-11238-10	SODUP04 081920	70220	3.05	1106150	5.39	821629	8.45

TBAd10 = t-Butyl alcohol-d10 (IS)
FB = Fluorobenzene (IS)

CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-11238-1
SDG No.:	
Sample No.: CCVIS 410-36246/3	Date Analyzed: 08/23/2020 12:03
Instrument ID: 9953	GC Column: R-624SilMS 30m ID: 0.25(mm)
Lab File ID (Standard): bg23C50.D	Heated Purge: (Y/N) N
Calibration ID: 7943	

		DCBd	1				
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		457394	10.29		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
UPPER LIMIT		914788	10.79				i
LOWER LIMIT		228697	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-36246/4		471701	10.29				
LCSD 410-36246/5		443790	10.29				
MB 410-36246/7		448668	10.29				
410-11238-1	SB15_0-2	379270	10.29				i.
410-11238-2	SB15_8-10	99079*3	10.29				
410-11238-3	SB15_14-16	427082	10.29				
410-11238-4	SB14_0-2	357998	10.29				
410-11238-5	SB14_8-10	397870	10.29				
410-11238-6	SB14_18-20	407165	10.29				
410-11238-7	SB11_0-2	410645	10.29				
410-11238-8	SB11_6-8	361591	10.29				
410-11238-9	SB11_18-20	412335	10.29				
410-11238-10	SODUP04_081920	402245	10.29				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

Lab Name: Eurofins Lancaster Laboratories E	Z Job No.: 410-11238-1
SDG No.:	
Sample No.: CCVIS 410-36437/3	Date Analyzed: 08/24/2020 10:03
Instrument ID: 9953	GC Column: R-624SilMS 30m ID: 0.25(mm)
Lab File ID (Standard): bg24C01.D	Heated Purge: (Y/N) N
Calibration ID: 7943	

	TBAd1	0	FB		CBZd5		
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	126214	3.05	1132188	5.39	853287	8.45	
UPPER LIMIT		252428	3.55	2264376	5.89	1706574	8,95
LOWER LIMIT		63107	2.55	566094	4.89	426644	7.95
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-36437/4		113595	3.05	1134841	5.39	850604	8.45
LCSD 410-36437/5		118415	3.05	1151084	5.39	858837	8.45
MB 410-36437/7		111026	3.05	1098328	5.39	824420	8.45
410-11238-2 RA	SB15_8-10 RA	19326*3	3.02	241466*3	5.38	104572*3	8.45

DAS 12/9/20

TBAd10 = t-Butyl alcohol-d10 (IS)
FB = Fluorobenzene (IS)
CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-11238-1	
SDG No.:		
Sample No.: CCVIS 410-36437/3	Date Analyzed: 08/24/2020 10:03	
Instrument ID: 9953	GC Column: R-624SilMS 30m ID: 0.25(mm)	
Lab File ID (Standard): bg24C01.D	Heated Purge: (Y/N) N	

Calibration ID: 7943

		DCBd4					
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		440027	10.29				
UPPER LIMIT	The state of the s	880054	10.79				
LOWER LIMIT		220014	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-36437/4		441252	10.29				
LCSD 410-36437/5		450528	10.29				
MB 410-36437/7		414962	10.29				
410-11238-2 RA	SB15_8-10 RA	26184*3	10.29				

DAS 12/9/20

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM II GC/MS VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11238-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): R-624SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA	#	TOL	#	BFB	#			
SB15_0-2	410-11238-1	101	105	-	99		95	-			
SB15_8-10	410-11238-2	115	116		134	*3	64 *	3 4		15/0/0	
SB15_8-10 RA	410-11238-2 RA	118 *3	111	*3	144	*3	59 *	3 4	DAS	13/9/20	7
SB15_14-16	410-11238-3	99	101	T	97		96	7			
SB14_0-2	410-11238-4	101	100	T	99		93	1			
SB14_8-10	410-11238-5	101	101	1	97		95	1			
SB14_18-20	410-11238-6	100	100	1	96		95	1			
SB11_0-2	410-11238-7	101	102	1	96		96	1			
SB11_6-8	410-11238-8	102	101	\top	100		92	1			
SB11_18-20	410-11238-9	100	101	1	96	-	96	7			
SODUP04_081920	410-11238-10	100	99	\top	97		96	1			
	MB 410-36246/7	101	105	十	96		98				
	MB 410-36437/7	101	103	\top	96		97	1			
	LCS 410-36246/4	99	99	\top	99		102	1			
	LCS 410-36437/4	101	103	1	98		101	1			
	LCSD 410-36246/5	100	103	+	98		101				
	LCSD 410-36437/5	100	100	\top	97		102	1			

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	50-141
DCA = 1,2-Dichloroethane-d4 (Surr)	54-135
TOL = Toluene-d8 (Surr)	52-141
BFB = 4-Bromofluorobenzene (Surr)	50-131

[#] Column to be used to flag recovery values

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11238-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP	#	PHL	#	NBZ	#	FBP	#	TBP	#	TPHd14	#
SB15_0-2	410-11238-1	17	Х	23		8	Х	4	Х	19		41	
SB15_0-2 RE 🗸	410-11238-1 RE	62		70		61		80		3	Х	83	
SB15_8-10	410-11238-2	25	7	27		30		44		0.7	Х	29	X
SB15_8-10 RE /	410-11238-2 RE	63	1	71		65		77	\neg	5	Х	82	٦
SB15_14-16	410-11238-3	70	\neg	75		81		94		88		102	
SB14_0-2	410-11238-4	67	7	73		72		97		43		99	٦
SB14_8-10 /	410-11238-5	63		68		74	\neg	87		53		93	٦
SB14_18-20	410-11238-6	69		77		64	7	82		49		93	
SB11_0-2	410-11238-7	66	\exists	74		77		94		90		100	٦
SB11_6-8	410-11238-8	59	7	64		64		87		65		74	٦
SB11_18-20 /	410-11238-9	57	1	57		66		76	1	64		39	٦
SODUP04_081920	410-11238-10	78	_	81		72	1	86	\exists	76		88	\exists
	MB 410-35523/21-A	63		65		73		84		87		94	
	MB 410-36615/1-A	80		82		77		90	1	94		100	٦
	LCS 410-35523/22-A	67		74		76		94		97		101	
	LCS 410-36615/2-A	76		82		74		87		95		90	

DAS 12/9/20

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

Column to be used to flag recovery values

FORM II 8270D

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410-11359-1	
SDG No.	:			
Matrix:	Solid	Level: Low	Lab File ID: GH1218.D	
Lab ID:	410-11359-9 MSD		Client ID: SB12 6-8 MSD	

	SPIKE ADDED	MSD CONCENTRATION	MSD %	96	QC L1	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
Acenaphthene	1840	1680	90	2	30	61-112	
Acenaphthylene	1840	1940	98	2	30	60-124	
Anthracene	1840	2010	104	2	30	67-120	
Benzo[a]anthracene	1840	1930	87	0	30	68-120	
Benzo[a]pyrene	1840	2040	90	1	30	68-119	
Benzo[b]fluoranthene	1840	2130	91	0	30	67-125	
Benzo[g,h,i]perylene	1840	2120	98	5	30	68-125	
Benzo[k]fluoranthene	1840	1920	94	0	30	66-122	
Chrysene	1840	1800	81	1	30	66-111	
Dibenz(a,h)anthracene	1840	1990	103	1	30	69-135	
Fluoranthene	1840	2340	96	4	30	65-114	
Fluorene	1840	1730	93	4	30	62-110	
Indeno[1,2,3-cd]pyrene	1840	2050	96	3	30	64-130	
Naphthalene	1850	1590	84	3	30	49-104	
Phenanthrene	1840	2290	108	2	30	67-116	
Pyrene	1850	2150	88	3	30	67-109	
2-Methylphenol	1840	1630	88	4	30	52-116	
4-Methylphenol	1840	1530	83	5	30	52-121	
Dibenzofuran	1840	1660	91	6	30	62-113	
Hexachlorobenzene	1840	1780	97	2	30	62-124	
Pentachlorophenol	1850	1240	67	1	30	40-131	V
Phenol	1840	1550	84	3	30	41-107	

DAS 12/9/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	JOB N	10.:	410-	11359-1
SDG No.						
Matrix:	Solid	Level: Low	Lab F	ile	ID:	GH1217.D

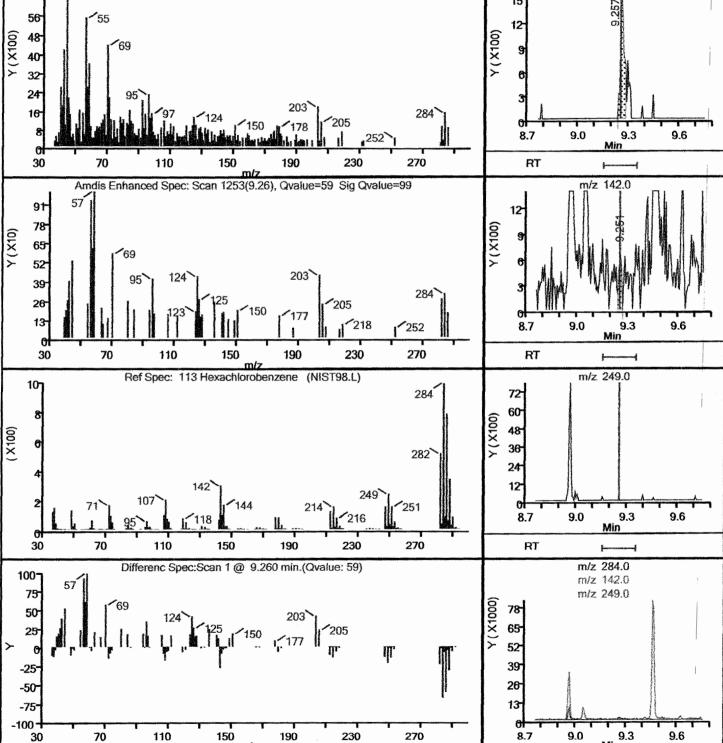
Lab ID: 410-11359-9 MS Client ID: SB12_6-8 MS

	T	1				
	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	ક	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1860	17 J	1720	92	61-112	
Acenaphthylene	1860	130	1980	100	60-124	
Anthracene	1860	110	1970	100	67-120	
Benzo[a]anthracene	1850	330	1930	86	68-120	
Benzo[a]pyrene	1860	390	2020	88	68-119	
Benzo[b]fluoranthene	1860	460	2130	90	67-125	
Benzo[g,h,i]perylene	1860	320	2010	91	68-125	
Benzo[k]fluoranthene	1860	190	1920	93	66-122	
Chrysene	1850	320	1820	81	66-111	
Dibenz(a,h)anthracene	1860	84	1960	101	69-135	
Fluoranthene	1860	560	2430	100	65-114	
Fluorene	1860	22	1800	95	62-110	
Indeno[1,2,3-cd]pyrene	1860	270	1980	92	64-130	
Naphthalene	1870	31	1630	86	49-104	
Phenanthrene	1860	310	2330	109	67-116	
Pyrene	1870	510	2200	91	67-109	
2-Methylpheno1	1860	ND	1690	91	52-116	
4-Methylphenol	1860	ND	1610	87	52-121	
Dibenzofuran	1850	ND	1760	95	62-113	
Hexachlorobenzene	1860	ND	1740	94	62-124	_
Pentachlorophenol	1870	ND	1260	67	40-131	V
Pheno1	1860	ND	1600	86	41-107	

DNS 12/9/20

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D

Report Date: 26-Aug-2020 15:32:34 Chrom Revision: 2.3 20-Aug-2020 13:57:12 Eurofins Lancaster Laboratories Env. LLC \\chromfs\Lancaster\ChromData\HP11165\20200825-8885.b\GH1225.D Data File: Injection Date: 25-Aug-2020 20:32:30 Instrument ID: HP11165 410-11238-6 Lims ID: 410-11238-E-6-C Lab Sample ID: Client ID: SB14 18-20 Operator ID: em10340 ALS Bottle#: 24 Worklist Smp#: 24 1.0000 Dil. Factor: Injection Vol: 1.0 ul MSSV - 8270D E Method: MSSemi_HP11165 Limit Group: MS SCAN Column: DB-5MS 20m 0.18mm (0.18 mm) Detector 113 Hexachlorobenzene, CAS: 118-74-1 Raw Spec:Scan 1253(9.26) m/z 284.0 56 Y (X100) Y (X100) 48 40 32 24 284 8.7 9.0 9.3 9.6 70 30 110 150 190 230 270 RT Amdis Enhanced Spec: Scan 1253(9.26), Qvalue=59 Sig Qvalue=99 142.0 91 78 Y (X100) Y (X10) 65 52 203 124 39 284 26



Report Date: 26-Aug-2020 15:32:37 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env. LLC

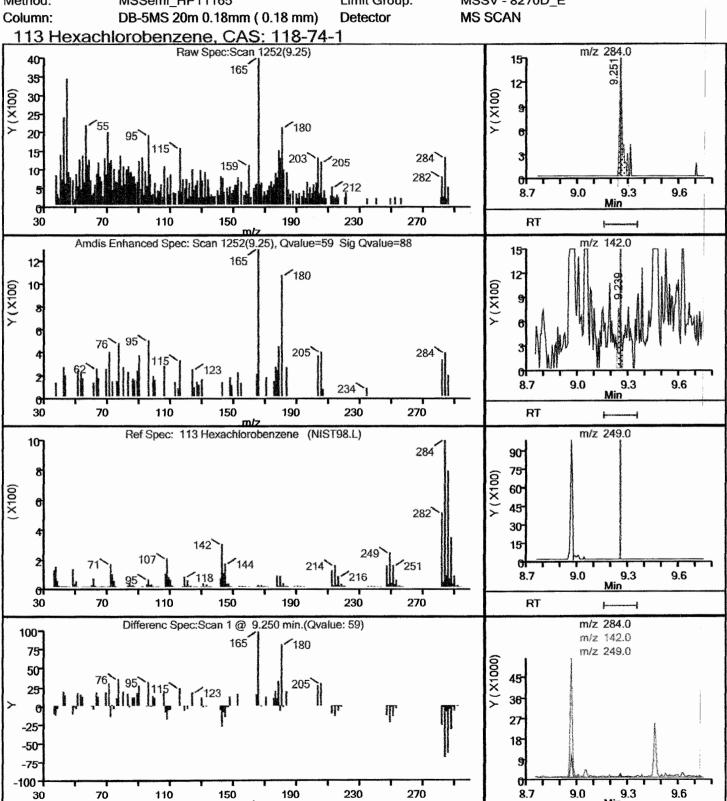
\\chromfs\Lancaster\ChromData\HP11165\20200825-8885.b\GH1226.D Data File: 25-Aug-2020 20:58:30 HP11165 Injection Date: Instrument ID: Lims ID: 410-11238-I-10-B Lab Sample ID: 410-11238-10

Client ID: SODUP04_081920

25 Operator ID: em10340 ALS Bottle#: 25 Worklist Smp#:

Injection Vol: 1.0 ul Dil. Factor: 1.0000

Method: MSSemi HP11165 Limit Group: MSSV - 8270D E



Report Date: 21-Aug-2020 20:41:28

Chrom Revision: 2.3 17-Aug-2020 20:42:08

Eurofins Lancaster Laboratories Env. LLC

Data File:

\\chromfs\Lancaster\ChromData\HP23262\20200821-8612.b\PH1021.D

Injection Date:

21-Aug-2020 16:31:30

Instrument ID:

HP23262

Lims ID:

410-11238-I-7-B

Lab Sample ID:

410-11238-7

Client ID:

22

22 Worklist Smp#:

Operator ID:

SB11 0-2

Imh00956

ALS Bottle#: Dil. Factor:

Injection Vol: 1.0 ul 1.0000

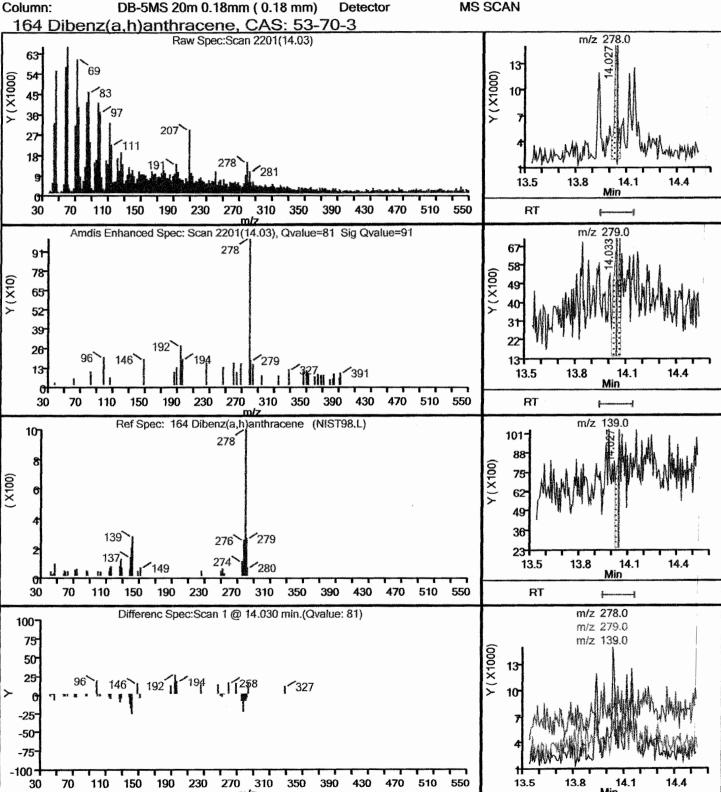
Method:

MSSemi HP23262

Limit Group:

MSSV - 8270D E

MS SCAN



Chrom Revision: 2.3 17-Aug-2020 20:42:08 Report Date: 21-Aug-2020 20:41:30

Eurofins Lancaster Laboratories Env. LLC

410-11238-8

23

Worklist Smp#:

\\chromfs\Lancaster\ChromData\HP23262\20200821-8612.b\PH1022.D Data File: HP23262 Injection Date: 21-Aug-2020 16:54:30 Instrument ID:

Lims ID: 410-11238-L-8-B Client ID:

-50 -75 100

70

110

150

190

230

270

310

350

Lab Sample ID: SB11 6-8

Imh00956 ALS Bottle#: 23 Operator ID: Dil. Factor: 1.0000 1.0 ul Injection Vol:

Limit Group: MSSV - 8270D E Method: MSSemi HP23262

DB-5MS 20m 0.18mm (0.18 mm) Detector MS SCAN Column: 164 Dibenz(a,h)anthracene, CAS: 53-70-3 m/z 278.0 Raw Spec:Scan 2202(14.03) 36 Y (X1000) Y (X1000) 60 29 50 22 40 278 30 20 276 13.8 14.1 14.4 13.5 Min 510 30 110 150 190 270 310 350 390 430 RT Amdis Enhanced Spec: Scan 2202(14.03), Qvalue=48 Sig Qvalue=94 m/z 279.0 276 16 36 Y (X1000) 13 Y (X100) 30 10 24 18 12 **^**277 274 138 13.5 13.8 14.1 14.4 270 310 350 390 470 510 550 RT 30 70 110 150 190 230 430 Ref Spec: 164 Dibenz(a,h)anthracene (NIST98.L) m/z 139.0 10 15 278 Y (X1000) (X100) 139 **^**279 276 13.5 13.8 14.1 14.4 280 Min 510 70 110 270 310 350 390 430 470 RT 150 190 230 m/z 278.0 Differenc Spec:Scan 1 @ 14.010 min.(Qvalue: 48) 100 m/z 279.0 75 m/z 139.0 276 Y (X1000) 50 36 25 274 29 22 -25

430

470

510

390

550

13.5

13.8

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Nam	e: Eurofins	Lancaster	Laboratories	Job N	ov	410-11238-1
SDG No.	:					
Matrix:	Solid			Level	L: Lo	DW .

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SB15_0-2	410-11238-1	79	95	84
SB15_8-10	410-11238-2	85	103	89
SB15_14-16	410-11238-3	77	88	85
SB14_0-2	410-11238-4	73	100	78 *3
SB14_0-2 RA	410-11238-4 RA	75	99	80 *3
SB14_8-10	410-11238-5	78	94	89
SB14_18-20	410-11238-6	85	101	96
SB11_0-2	410-11238-7	74	87	84
SB11_6-8	410-11238-8	77	75	65 *3
SB11_6-8 RA	410-11238-8 RA	79	75	65 *3
SB11_18-20	410-11238-9	59	41	24
SODUP04_081920	410-11238-10	89	110	62
	MB 410-35519/1-A	88	96	97
	MB 410-36612/1-A	88	100	69
	MB 410-37596/1-A	84	96	91
	LCS 410-35519/2-A	81	92	89
	LCS 410-36612/2-A	83	106	93
	LCS 410-37596/2-A	85	100	93

DAS 12/9/20

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

Column to be used to flag recovery values

FORM II 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster Laboratories		Job No.: 410-11238-1					
SDG No.:							
Matrix: Solid	Level: Low	Lab	File ID: IH1253.D				
Lab ID: LCS 410-35519/2-A		Cli	ent ID:				
	SPIKE ADDED		LCS CONCENTRATION	LCS	QC LIMITS	#	
COMPOUND	(ug/Kg)		(ug/Kg)	REC	REC		
1 1-Diovano	1	33 3	116	1 35	21-79		

A DAS 12/9/20

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster L	aboratories Jo	b No.: 410-11238-1			
SDG No.:					
Matrix: Solid Leve	el: Low La	b File ID: CH1403.D			· . · · · /
Lab ID: LCS 410-36612/2-A	Cl	ient ID:			
	SPIKE ADDED	LCS CONCENTRATION	LCS	QC LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	33.3	8.98	27	21-79	

12/9/20 DB

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster La	boratories Job	Job No.: 410-11238-1				
SDG No.:						
Matrix: Solid Leve	l: Low Lab	File ID: IH1803.D				
Lab ID: LCS 410-37596/2-A	Cli	ent ID:	N/A manage			
	SPIKE	LCS	LCS	QC		
	ADDED	CONCENTRATION	ક	LIMITS	#	
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC		
1.4-Dioxane	33.3	11.7	35	21-79		

A DAS 12/9/20

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11238-1

SDG No.:

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB15_0-2	410-11238-1	84		79		98		94	
SB15_8-10	410-11238-2	50		55		58		61	
SB15_14-16	410-11238-3	101		103		144		143	
SB14_0-2	410-11238-4	137	Х	134		143		145	
SB14_8-10	410-11238-5	80		75		109		111	
SB14_18-20	410-11238-6	97		82		104		101	
SB11_0-2	410-11238-7	112		105		154	Х	151	
SB11_6-8	410-11238-8	88		82		98		97	
SB11_18-20	410-11238-9	63		59		47		44	Х
SODUP04_081920	410-11238-10	101		86		106		102	
SODUP04_081920	410-11238-10	82		72		102		104	
	MB 410-35517/21-A	74		81		132		141	
	MB 410-37080/1-A	93		93		116		113	
	MB 410-38340/1-A	78		81		111		114	
	MB 410-38342/1-A	57		61		91		95	
	LCS 410-35517/22-A	71		78		139		144	
	LCS 410-37080/2-A			87		106		106	
	LCS 410-38340/2-A	62		65		95		96	
	LCS 410-38342/2-A	64		68		90		94	

FORM X IDENTIFICATION SUMMARY

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
ANALITE	COL FEAR		1/1	FROM	TO	PEAK	MEAN	IXI D
gamma-BHC (Lindane)	1		2.61	2.56	2.62	10		41.0
	2		3.02	3.01	3.07	6.9		

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11238-1

SDG No.:

Client Sample ID: <u>SB14_18-20</u> Lab Sample ID: <u>410-11238-6</u>

Date Analyzed (1): 08/28/2020 16:40 Date Analyzed (2): 08/28/2020 16:40

ANALYTE	COL PEAK		PEAK RT		RT WINDOW		CONCENTRATION			
ANALILE	СОП	LEAR	ТЫШ	1 11/11	1(1	FROM	TO	PEAK	MEAN	RPD
Heptachlor	1		2.88	2.86	2.92	43		196.3		
	2		3.55	3.54	3.60	0.40		1		
alpha-Chlordane	1		3.92	3.91	3.97	1.3		83.4		
	2		4.52	4.49	4.55	3.0				

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancast	er Laboratories	Job No.: 410-11238-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB15_0-2	410-11238-1	62	56
SB15_8-10	410-11238-2	53	53
SB15_14-16	410-11238-3	69	71
SB14_0-2	410-11238-4	57	53
SB14_8-10	410-11238-5	28	29
SB14_18-20	410-11238-6	32	31
SB11_0-2	410-11238-7	48	44
SB11_6-8	410-11238-8	25 X	27
SB11_18-20	410-11238-9	55	57
SODUP04_081920	410-11238-10	51	53
	MB 410-37771/1-A	59	59
	LCS 410-37771/2-A	56	53

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster Laboratories			Job	No.: 410	0-11238-1				
SDG No.:	:								
Matrix:	Solid	Level	Low	Lab	File ID:	: 36HERB2024	0001.	022.D	
Lab ID:	LCS 410-37771/2-A			Cli	ent ID:				
			SPIKE			LCS	LCS	QC	
			ADDED		CONCE	NTRATION	용	LIMITS	#

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	5.44	65	49-133	

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery and RPD values FORM III 8151A



December 18, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for 13 soil samples, one field blank, one equipment blank, and one trip blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-11359-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB27_18-20	SB27_10-12	SB27_0-2	SB30_30-32
SB30_16-18	SB12_1-3	SB27_20-22	SB30_0-2
SB12_6-8	SB12_14-16	SB37_12-14	SB37_6-8
SB37 2-4	FB01-08202020	EB01 08202020	TB01 08202020

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report		
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes	
2.	Have all holding times been met?	Yes	
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – Following Sections	See
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No	
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes	
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes	

Mr. Joseph Yanowitz December 18, 2020 Page 2 of 19



Data Usability Summary Report	
7. Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

Volatile Organics

- The result for acetone in the trip blank, TB01_08202020, was qualified as estimated (UJ) based on the high percent difference (%D) between the initial calibration (IC) and the IC verification (ICV) standard.
- Results for 2-butanone in SB27_0-2, SB27_10-12, and SB27_18-20 were qualified as estimated (J-, UJ) with potential low bias, based on a high percent difference (%D) between the IC and ICV standards.
- Positive results for n-propylbenzene, n-butylbenzene, 1,3,5-trimethylbenzene, tertbutylbenzene, 1,2,4-trimethylbenzene, and sec-butylbenzene in SB30_16-18 were qualified as estimated with the potential for high bias (J+) based on high recovery of the associated surrogate compound.
- Results for acetone in SB30_16-18 and SB37_2-4 were qualified as estimated with the potential for low bias (UJ) based on low recovery in the associated laboratory control sample (LCS).

o Semi-Volatile Organics

- Results for pentachlorophenol in SB27_0-2, SB27_10-12, SB27_18-20, SB30_16-18, SB30_30-32, SB12_1-3, SB27_20-22, SB30_0-2, SB12_14-16, SB37_12-14, and SB12_1-3 DL were qualified as estimated with potential low bias (UJ) based on decreased response observed in the continuing calibration (CC) standard when compared to the IC.
- Results for phenol, 2-methylphenol, and 4-methylphenol in SB27_10-12 SB27_0-2, and SB37_6-8 were qualified as estimated (J-, UJ) with the potential for low bias and false negatives, based on low recoveries for the associated surrogate compound.
- Results for hexachlorobenzene and naphthalene in SB27_10-12, SB27_0-2, SB30_30-32, and SB37_6-8 were qualified as estimated (J-, UJ) with the potential for low bias and false negatives, based on low recoveries for the associated surrogate compound.
- Results for all target compounds in SB30_0-2 and SB37_2-4 were qualified as estimated (J-, UJ) with the potential for low bias and false negatives, based on low recoveries for the associated surrogate compound.

Mr. Joseph Yanowitz December 18, 2020 Page 3 of 19



- The result for pentachlorophenol in SB27_20-22 was qualified as estimated (UJ) with the potential for low bias or a false negative, based on low recovery for the associated surrogate compound.
- Results for phenol in all of the soil samples in this SDG were qualified as estimated (J-, UJ) with the potential for low bias and false negatives, based on low recoveries for the associated LCS.
- Results for pentachlorophenol in SB12_6-8, SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB27_20-22, SB30_0-2, SB12_14-16, and SB37-12-14 were qualified as estimated (UJ) with potential low bias, based on low recoveries in the matrix spike (MS) and matrix spike duplicate (MSD).
- Results for naphthalene, 2-methylphenol, 4-methylphenol, dibenzofuran, hexachlorobenzene, pentachlorophenol, phenol, acenaphthene, anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,hi)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene in SB37_6-8, and SB37_2-4 were qualified as estimated (J-, UJ) with potential low bias, based on low recoveries in the MS.
- Results for benzo(a)pyrene and fluoranthene in SB27_18-20 were revised to not detected (U) at the reporting limit, based on low signal to noise (S/N) ratio and/or poor spectra match.

Semi-Volatile Organics (SIM)

- Results for 1,4-dioxane in SB27_10-12, SB27_0-2, SB30_16-18, SB30_0-2, and SB37_2-4 were qualified as estimated (UJ) with potential for low bias or false negatives, based on low recoveries for the associated surrogate compound.
- Results for 1,4-dioxane in all of the soil samples in this SDG were qualified as estimated (UJ) with potential for low bias or false negatives, based on low recoveries in the LCS, MS, and MSD.

o Pesticides

- o The results for gamma-BHC and alpha-chlordane in SB27_0-2 were qualified as estimated (J+) due to high surrogate recoveries.
- The results for all pesticide target analytes in SB12_1-3 and for all target analytes except 4,4'-DDT in SB30_0-2, SB37_6-8, and SB37_2-4 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns.
- Results for gamma-BHC and 4,4'-DDD in SB27_18-20, alpha-BHC and delta-BHC in SB30_16-18, dieldrin in SB12_1-3 and SB12_6-8, aldrin, alpha-chlordane, endosulfan I, 4,4'-DDE, and endosulfan II in SB30_0-2, alpha-BHC, 4,4'-DDE, and dieldrin in SB37_6-8, and 4,4'-DDE, dieldrin, and endosulfan II in SB37_2-4 were qualified as estimated (J) due to lack of agreement between the two column measurements.

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- Results for alpha-chlordane, aldrin, dieldrin, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II in SB30_0-2 were qualified as tentatively identified and estimated (NJ) due to possible interferences from Aroclor peaks in the sample.
- Results for dieldrin and 4,4'-DDE in SB37_6-8 were qualified as tentatively identified and estimated (NJ) due to possible interferences from Aroclor peaks in the sample.
- Results for dieldrin, 4,4'-DDE, and endosulfan II in SB37_2-4 were qualified as tentatively identified and estimated (NJ) due to possible interferences from Aroclor peaks in the sample.

o Herbicides

- The results for Silvex in SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB30_0-2, SB12_6-8, SB12_14-16, SB37_6-8, and SB37_2-4 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.
- The results for Silvex in SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB30_0-2, SB12_6-8, SB12_14-16, SB37_12-14, SB37_6-8, and SB37_2-4 were qualified as estimated (UJ) due to low LCS and MS/MSD recoveries.

o <u>Metals</u>

- Results for lead in samples SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB27_20-22, SB30_0-2, SB12_6-8, SB12_14-16, SB37_12-14, SB37_6-8 and SB37_2-4 were qualified as estimated (J+) due to elevated MS recovery.
- Results for barium and nickel in samples SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB27_20-22, SB30_0-2, SB12_6-8, SB12_14-16, SB37_12-14, SB37_6-8 and SB37_2-4 were qualified as estimated (J) due to elevated relative percent difference between the laboratory duplicate pairing.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods

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- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - o Trip Blanks
 - o Surrogate recoveries
 - o LCS/LCSD recoveries
 - MS/MSD recoveries
 - Internal standards
 - o Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - o Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- A "T" flag was present in the electronic data deliverable (EDD) for a number of results.
 This data flag was not present on the Form 1s in the data package, nor was it listed in the
 definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for
 submission to the agency, although this qualifier format is not reflected in the data
 package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory responded that these peaks are checked both by the analyst and during a secondary level review of the calibration data.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did
 not match the responses found in the raw data. According to the laboratory, the
 discrepancies are because peak heights are reported in the raw data, but peak areas are
 reported on the summary forms. Corrected documentation was not provided by the time
 this report was issued; however, the data can be reassessed if corrections are

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subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.

- The results for 4,4'-DDT in all samples and 4,4'-DDD in one sample were reported by the laboratory from more diluted analyses or re-analyses, but all other results for these samples were reported from the initial analyses. In response to the validator's inquiry, the laboratory indicated that these results were reported from subsequent analyses because 4,4'-DDT or 4,4'-DDD was not acceptable in an associated continuing calibration standard. The reason for taking this approach should have been provided in the data package.
- The laboratory reported the lower concentrations for target analytes in several samples and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration. This policy should have been noted in the case narrative.
- Documentation of interelement correction factors for metals instruments Trace 4 and Trace 7 were included in the data package. Since the site samples were not analyzed on either of these instruments, these results are not relevant to this data set.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening CCVs and CCBs. The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- MDLs for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. The laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the standards analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, that because hexavalent chromium is a manual wet chem method, such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.

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• No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 20, 2020. The samples were received by the laboratory on the same day as sample collection. All three cooler temperatures on receipt at the laboratory (0.6°C to 1.6°C) were slightly below the minimum limit (QC 4°C ±2°C). No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

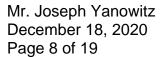
1. Calibration

Three ICs were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable.

Second source ICV standards were analyzed following each IC and all %Ds were acceptable (<20 %D), with the exception of acetone (-21.9 %D) in the ICV associated with the analysis of the trip blank TB01_08202020. The result for acetone in the TB was qualified as estimated (UJ) on this basis. This water TB was not used to qualify any results in the associated soil samples.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
7159 – 8/24/20 @ 9:07	1,4-Dioxane	+26.2	TB01_08202020	None
9953 – 8/23/20 @ 12:03	1,4-Dioxane	+29.3	SB27_18-20	None
	2-Butanone	-25.0	SB27_10-12 SB27_0-2	J-, UJ
9953 – 8/24/20 @ 10:03	1,1-Dichloroethene	+25.5	SB30_30-32 SB12_1-3 SB27_20-22 SB30_0-2 SB12_6-8 SB12_14-16 SB37_12-14 SB37_6-8	None





The %Ds for 1,1-dichloroethene and 1,4-dioxane represent an increase in instrument sensitivity. Neither compound was detected in the associated samples, therefore, no action was necessary. A decrease in sensitivity was indicated by the high %D for 2-butanone, therefore, results for 2-butanone in associated samples were qualified as estimated (J-, UJ).

2. Surrogates

Surrogate recoveries were acceptable (70-130%), with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB30-16-18	Bromofluorobenzene	170	n-Propylbenzene n-Butylbenzene 1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	J+

Positive results for the compounds detailed above, where a high surrogate recovery suggests the potential for high bias or false positives, were qualified as estimated (J+). The compounds associated with this surrogate, where not detected, did not warrant qualification on this basis.

3. LCS/LCSD

Recoveries and precision for the LCS/LCSD pairs prepared and analyzed with the site samples in this dataset were acceptable (70-130 %R; <30 RPD) with the exception noted below:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
Acetone	68	SB37_2-4 SB30_16-18	ΟJ

Low recovery indicates the potential for low bias or false negatives, therefore, results for acetone in the samples detailed above were qualified as estimated (UJ).

4. Quantitation

Sample SB30-16-18 was analyzed at a 1:100 dilution based on the matrix. The presence of hydrocarbon material, with several high concentrations of associated target compounds, is visible in the raw data. The laboratory adjusted the RLs appropriately to account for the dilution.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

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Two ICs (Instrument HP23296 and HP11165) were reported in support of sample analyses. All RRFs and RSDs or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard was analyzed following the IC and all %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with these exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
HP11165 - 8/25/20 @	Pentachlorophenol	-21.0	SB27_18-20	UJ
12:34			SB27_10-12	
			SB27_0-2	
			SB30_30-32	
			SB30_16-18	
			SB12_1-3	
			SB27_20-22	
			SB30_0-2	
			SB12_14-16	
			SB37_12-14	
HP11165 - 8/25/20 @	Pentachlorophenol	-28.1	SB12_1-3 DL	UJ
02:29				
HP23262 - 8/27/20 @	1,4-Dioxane	-20.2	SB37_6-8	UJ
02:06	Phenol	-21.4		

All of the exceptions detailed above involve decreases in sensitivity between the CC and the IC. On this basis, results for the compounds in the samples listed were qualified as estimated (J-, UJ) with the potential for low bias or false negatives.

2. Surrogates

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB27_10-12	2-Fluorophenol	68	List 1*	J-, UJ
	Nitrobenzene-d₅	64	List 2**	
SB27_0-2	2-Fluorophenol	69	List 1*	
	Nitrobenzene-d₅	68	List 2**	
SB30_30-32	Nitrobenzene-d₅	69	List 2**	
SB30_20-22	2,4,6-Tribromophenol	47	Pentachlorophenol	UJ
SB30_0-2	2-Fluorophenol	68	All target compounds	J-, UJ
	2,4,6-Tribromophenol	64		



Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
	Nitrobenzene-d ₅	67		
	2-Fluorobiphenyl	64		
SB37_6-8	2-Fluorophenol	63	List 1*	J-, UJ
	Nitrobenzene-d ₅	64	List 2**	
SB27_2-4	2-Fluorophenol	48	All target compounds	J-, UJ
	Phenol-d ₅	54		
	2,4,6-Tribromophenol	54		
	Nitrobenzene-d ₅	54		
	2-Fluorobiphenyl	66		

^{*}List 1: phenol, 2-methylphenol, and 4-methylphenol

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

3. LCS/LCSD

Results for two LCSs (1 soil, 1 water) were reported in the data package. Percent recoveries were acceptable (70-130%R) with the exceptions below:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
LCS 37672/2			
Phenol	69	All soil sample in this SDG	J-, UJ

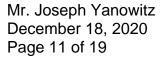
Results, as detailed above, were qualified as estimated (J-, UJ) with the potential for low bias or false negatives based on the low recoveries observed in the LCS.

4. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for two MS/MSD pairs associated with the sample analyses were reported in the data package. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<50) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB12_6-8					
Pentachlorophenol	67	67	а	SB12_6-8 SB27_18-20 SB27_10-12 SB27_0-2 SB30_30-32 SB30_16-18	UJ

^{**}List 2: hexachlorobenzene and naphthalene





Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
				SB12_1-3	
				SB27_20-22	
				SB30_0-2	
				SB12_14-16	
				SB37_12-14	
Parent Sample SB37_6-8					
Acenaphthene	65	а	а	SB37_6-8	J-, UJ
Anthracene	68	а	а	SB37_2-4	
Benzo(a)pyrene	67	а	а		
Benzo(b)fluoranthene	62	а	а		
Benzo(g,h,i)perylene	69	а	а		
Benzo(k)fluoranthene	67	а	а		
Dibenz(a,h)anthracene	68	а	а		
Indeno(1,2,3-cd)pyrene	68	а	а		
Naphthalene	67	а	а		
2-Methylphenol	48	а	а		
4-Methylphenol	44	68	а		
Dibenzofuran	68	а	а		
Hexachlorobenzene	69	а	а		
Pentachlorophenol	43	62	а]	
Phenol	45	67	а		

a-acceptable

Results for compounds as detailed above, in the associated soil sample in this SDG, are qualified as estimated (J-, UJ) with a potential low bias, based on low MS and/or MSD recoveries.

5. Internal Standards

Retention times for several of the CC standards analyzed in association with the soil samples were early for one to six of the internal standard (IS) compounds. As the shifts appear similar for these IS in applicable CCs, it is assumed that column trimming, or other minor maintenance gave rise to the shift(s). All IS retention times (RTs) in the analyses associated with the CCs were acceptable and matched the applicable CC standard well. Identification and quantitation of the target compounds associated with each IS in the applicable CC were unaffected by the shift(s), and the shift(s) was/were reflected in the associated sample analysis, therefore, no action was warranted on this basis.

6. Target Compound Identification

The validator corrected results for benzo(a)pyrene and fluoranthene in SB27_18-20 to not detected at the RL, based on low S/N ratio and/or poor spectral match.

7. Quantitation

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Samples SB27_0-2, SB37_2-4, and SB37_6-8 were analyzed at five-times dilutions due to the sample matrix. SB12_1-3 was analyzed straight and also at a five-times dilution to bring the concentrations of some target analytes into the calibration range. Results were reported from the dilution and RLs were adjusted accordingly by the laboratory.

B. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Surrogate

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane, therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

Sample	%R	Qualifier Applied
SB27_10-12	62	UJ
SB27_0-2	67	
SB30_16-18	60	
SB30_0-2	66	
SB37_2-4	58	

Results for 1,4-dioxane in the samples listed above were qualified as estimated (UJ) with a potential low bias, based on low recovery observed in the associated surrogate compound.

2. LCS/LCSD

Parameter	LCS %R	Samples Affected	Qualifiers Applied
LCS 36612/2			
1,4-Dioxane	27	All soil samples in the SDG	UJ

Results for 1,4-dioxane in all of the soil samples in this SDG were qualified as estimated (UJ) with potential low bias, based on low recovery in the associated LCS.

4. MS/MSD

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB30_16-18					
1,4-Dioxane	24	21	а	All soil samples in the SDG	UJ

a=acceptable

Results for 1,4-dioxane in all of the soil samples in this SDG were qualified as estimated (UJ) with potential low bias, based on low recovery in the associated MS and MSD.

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5. Quantitation

Samples SB12_1-3, SB12_6-8, SB27_0-2, SB30_0-2, SB37_2-4, and SB37_6-8 were analyzed at five-times dilutions. The reporting limits were adjusted accordingly by the laboratory.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene {TCX} and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column					
Sample	TCX/1	TCX/2	DCB/1	DCB/2		
SB27_18-20RA	137	а	а	а		
SB27_0-2	а	а	181	218		
SB27_0-2DL	а	а	178	166		
SB12_1-3	а	66	150	233		
SB12_1-3RA	а	67	192	247		
SB30_0-2	а	65	276	242		
SB30_0-2RA	а	а	292	167		
SB37_6-8	27	60	183	211		
SB37_6-8DL	а	67	215	179		
SB37_2-4	50	61	124	135		
SB37_2-4DL	67	а	145	а		

a-acceptable

The results for gamma-BHC and alpha-chlordane in SB27_0-2 were qualified as estimated (J+) due to high surrogate recoveries. The results for all pesticide target analytes in SB12_1-3 and for all target analytes except 4,4'-DDT in SB30_0-2, SB37_6-8, and SB37_2-4 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns. Since three of four surrogate recoveries were acceptable for SB27_18-20 RA, no action was taken on this basis. SB27_0-2 DL, SB30_0-2 RA, SB37_6-8 DL, and SB37_2-4 DL were analyzed at 20-fold dilutions, which reduced the surrogate concentration to near the lower limit of the calibration range. Accurate surrogate recoveries would not be expected in this situation, and no additional action was taken on this basis.

2. Compound Identification and Quantitation

Reported target compounds were identified based on the presence of peaks within the established retention time windows on both columns. With the exceptions noted below, the higher of the two column measurements was reported, as specified by the method.

The relative percent difference (RPD) between the two column measurements was acceptable (<40 RPD) for compounds detected in each sample, with the exceptions noted below:



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Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB27_18-20	gamma-BHC	0.61 J	1.6	90
	4,4'-DDD	0.58 J	1.7 J	98
SB30_16-18	alpha-BHC	1.2 J	2.4 J	67
	delta-BHC	2.6 J	8.35	105
SB12_1-3	Dieldrin	14	2.2 J	147
SB30_0-2	Aldrin	20	4.0 J	133
	alpha-Chlordane	25	40	45
	Endosulfan I	11	18	52
	4,4'-DDE	11 J	40	111
	Endosulfan II	9.2 J	24	71
SB12_6-8	Dieldrin	7.9	0.90 J	159
SB37_6-8	alpha-BHC	7.2 J	3.0 J	83
	4,4'-DDE	7.9 J	55	150
	Dieldrin	21	130	145
SB37_2-4	4,4'-DDE	10 J	69	148
	Dieldrin	170	15 J	179
	Endosulfan II	56	86	42

Results for gamma-BHC and 4,4'-DDD in SB27_18-20, alpha-BHC, delta-BHC, and endosulfan II in SB30_1-18, dieldrin in SB12_1-3 and SB12_6-8, aldrin, alpha-chlordane, endosulfan I, 4,4'-DDE, and endosulfan II in SB30_0-2, alpha-BHC, 4,4'-DDE, and dieldrin in SB37_6-8, and 4,4'-DDE, dieldrin, and endosulfan II in SB37_2-4 were qualified as estimated (J) due to lack of agreement between the two column measurements.

For SB30_0-2, the laboratory reported the higher concentration for dieldrin but reported the lower concentrations for aldrin, alpha-chlordane, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II. Aroclor 1254 and Aroclor 1260 are present in the sample, the patterns for these Aroclors are clearly visible in the sample chromatograms for the pesticide analyses, and the reported pesticide compounds elute within the Aroclor patterns. It appears that the laboratory selected pesticide peaks to report that were not visible in the Aroclor calibration standard, although no explanation for this approach was provided in the data package. For all of these compounds, the identifications are not confirmed due to possible interferences from the Aroclors present in the sample. Results for alpha-chlordane, dieldrin, aldrin, endosulfan I, 4,4'-DDE, 4,4'-DDD, and endosulfan II in SB30_0-2 were qualified as tentatively identified and estimated (NJ) on this basis.

For SB37_6-8, the laboratory reported the lower concentrations for 4,4'-DDE and dieldrin. Aroclor 1254 is present in the sample, the pattern for this Aroclor is clearly visible in the sample chromatograms for the pesticide analyses, and 4,4'-DDE and dieldrin elute within the Aroclor pattern. It appears that the laboratory selected pesticide peaks to report that were not visible in the Aroclor calibration standard, although no explanation for this approach was provided in the data package. For 4,4'-DDE and dieldrin, the identifications are not confirmed due to possible interferences from the Aroclor present in the sample. Results for dieldrin and 4,4'-DDE in SB37_6-8 were qualified as tentatively identified and estimated (NJ) on this basis.

For SB37_2-4, the laboratory reported the lower concentrations for 4,4'-DDE, dieldrin, and endosulfan II. Aroclor 1254 is present in the sample, the pattern for this Aroclor is clearly visible

Mr. Joseph Yanowitz December 18, 2020 Page 15 of 19



in the sample chromatograms for the pesticide analyses, and 4,4'-DDE, dieldrin, and endosulfan II elute within the Aroclor pattern. It appears that the laboratory selected pesticide peaks to report that were not visible in the Aroclor calibration standard, although no explanation for this approach was provided in the data package. For all three compounds, the identifications are not confirmed due to possible interferences from the Aroclor present in the sample. Results for dieldrin, 4,4'-DDE, and endosulfan II in SB37_6-8 were qualified as tentatively identified and estimated (NJ) on this basis.

The laboratory also reported the lower concentrations for gamma-BHC in SB27_18-20, alpha-BHC and delta-BHC in SB30_16-18, gamma-BHC and dieldrin in SB12_1-3, gamma-BHC and dieldrin in SB12_6-8. The laboratory was contacted for explanation regarding reporting the lower values and responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

All of the samples were re-analyzed, some at additional dilutions. Results for 4,4'-DDT in all samples and the result for 4,4'-DDD in one sample were reported by the laboratory from the more diluted analysis or sample re-analysis, and all other results for these samples were reported from the initial analyses. The laboratory was contacted and explained that the 4,4'-DDT results for all samples and the 4,4'-DDD result for one sample were reported from subsequent analyses because 4,4'-DDT and 4,4'-DDD were unacceptable in an associated continuing calibration analysis. The reason for taking this approach should have been provided in the data package.

As noted above, results for 4,4'-DDT in SB27_0-2, SB30_0-2, and SB37_6-8 were reported from 20-fold dilutions; all other sample results were reported from the less diluted analyses (5-fold for SB27_0-2 and 10-fold for SB30_0-2 and SB37_6-8). The 20-fold dilutions were not necessary for 4,4'-DDT in any of these samples. The laboratory was contacted for explanation but did not respond.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

Based on the validation effort, all PCBs results were determined to be valid as reported by the laboratory. It is noted, however, that SB30_0-2 was analyzed at a 50-fold dilution. As a result, concentrations of Aroclor 1254 and Aroclor 1260 in this sample were diluted to below the lower limit of the established instrument calibration range and were appropriately qualified as estimated by the laboratory on this basis.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column							
Sample	DCPAA / 1	DCPAA / 2						
SB27_18-20	44	44						
SB27_10-12	54	52						



Mr. Joseph Yanowitz December 18, 2020 Page 16 of 19

Sample	Surrogate	/ Column
Sample	DCPAA / 1	DCPAA/2
SB27_0-2	55	55
SB30_30-32	61	63
SB30_16-18	50	50
SB12_1-3	45	43
SB30_0-2	60	58
SB12_6-8	57	61
SB12_14-16	51	47
SB37_6-8	49	47
SB37_2-4	43	40

The results for Silvex in SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB30_0-2, SB12_6-8, SB12_14-16, SB37_6-8, and SB37_2-4 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for two solid-matrix LCSs associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCS analyses were below the minimum acceptance limit (QC 70-130%R), as noted below:

Parameter	LCS %R Column 1	LCS %R Column 2	Samples Affected	Qualifier Applied
LCS 410-38264/2				
Silvex	51	54	SB12_1-3 SB37 12-14	UJ
			SB37_2-4	
LCS 410-38264/2	A			
Silvex	59	59	SB27_18-20 SB27_10-12 SB27_0-2 SB30_30-32 SB30_16-18 SB30_0-2 SB12_6-8 SB12_14-16 SB37_6-8	UJ

The results for Silvex in SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB30_0-2, SB12_6-8, SB12_14-16, SB37_12-14, SB37_6-8, and SB37_2-4 were qualified as estimated (UJ) due to low LCS recoveries.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Sample SB27_18-20 was prepared as an MS/MSD pair in association with the sample analyses reported in the data package. The percent recoveries of Silvex on both columns in the MS and MSD were below the minimum acceptance limit (QC 70-130%R), as noted below:



Parameter	MS %R Column 1	MS %R Column 2	MSD %R Column 1	MSD %R Column 2	Samples Affected	Qualifier Applied
Parent Sam	ple: SB27_	18-20				
Silvex	57	58	55	56	SB27_18-20 SB27_10-12 SB27_0-2 SB30_30-32 SB30_16-18 SB30_0-2 SB12_6-8 SB12_14-16 SB37_6-8	UJ

The results for Silvex in SB27_18-20, SB27_10-12, SB27_0-2, SB30_30-32, SB30_16-18, SB12_1-3, SB30_0-2, SB12_6-8, SB12_14-16, SB37_12-14, SB37_6-8, and SB37_2-4 were qualified as estimated (UJ) due to low MS/MSD recoveries.

G. Metals

1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD) / Post-Digestion Spike (PS)

Data and results for an MS/MSD pair and post-digestion spike (PS) performed on SB27_18-20 and associated with the sample analyses were reported in the data package. Percent recoveries and relative percent differences were acceptable (75-125%R; 50% RPD) with the following exception:

Analyte	MS %R	MSD %R	MS/MSD RPD	PS %R	Affected Samples	Qualifiers Applied
Lead	173	а	а	NC	SB27_18-20	J+
					SB27_10-12	
					SB27_0-2	
					SB30_30-32	
					SB30_16-18	
					SB12_1-3	
					SB27_20-22	
					SB30_0-2	
					SB12_6-8	
					SB12_14-16	
					SB37_12-14	
					SB37_6-8	
					SB37_2-4	

a – acceptableNC – Not calculated

Results for lead in the samples listed above were qualified as estimated (J+) due to elevated MS recovery and insufficiently spiked post spike analysis. The PS recoveries were not calculated due to a sample concentration that significantly exceeded the spike concentration.

Mr. Joseph Yanowitz December 18, 2020 Page 18 of 19



2. Laboratory Duplicate

A laboratory duplicate analysis was performed on sample SB27_18-20. All RPDs were acceptable (50% limit) except for barium (58%RPD) and nickel (62%RPD). The results for barium and nickel in all of the field samples were qualified as estimated (J) due to elevated RPD between the paired laboratory duplicate samples.

H. Per- and Polyfluoroalkyl Substances (PFAS)

Based on the validation effort, all PFAS sample results were determined to be valid as reported. No qualifiers were applied to these data by the validator.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent or trivalent chromium were qualified as a result of the data validation. All reported results for hexavalent and trivalent chromium were determined to be usable as reported.

3. General Chemistry - Quantitation

No duplicate analysis was documented for cyanide, hexavalent chromium, or for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Mr. Joseph Yanowitz December 18, 2020 Page 19 of 19



Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-11359-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-11359-1

Environmental Analysis F

Custody

ental use only

neurofins :

Lancaster Laboratories Environmental

Acct. #

410-11359 Chain of Custody

COC #611566

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SB27-2-4		14:40	X	X			1					×				ON	hold	
SB27-0-2		14:38	X	X			6	X	X	X	X							
5B30-30-32		13:45	X	×			6	1	+	1	+							
5B30-16-18		13:40	X	X			10				П							
SB12-1-3		10:39	X	X			6			1	1							
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Environmental Analysis Request/Chain of Custody

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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-11359-1

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11359-1

SDG No.:

Lab Sample ID: CCVIS 410-36246/3 Calibration Date: 08/23/2020 12:03

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25 (mm) Calib End Date: 0.7/29/2020 17:55

Lab File ID: bg23C50.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3749	0.2782	0.1000	37.1	50.0	-25.8*	20.0
Chloromethane	Ave	0.4529	0.4035	0.1000	44.5	50.0	-10.9	20.0
1,3-Butadiene	Ave	0.2969	0.2778		46.8	50.0	-6.5	20.0
Vinyl chloride	Ave	0.4156	0.3969	0.1000	47.8	50.0	-4.5	20.0
Bromomethane	Ave	0.2846	0.2790	0.1000	49.0	50.0	-2.0	20.0
Chloroethane	Ave	0.2339	0.2411	0.1000	51.5	50.0	3.1	20.0
Trichlorofluoromethane	Ave	0.3905	0.3736	0.1000	47.8	50.0	-4.3	20.0
n-Pentane	Ave	0.4618	0.3710		40.2	50.0	-19.7	20.0
Ethanol	Ave	0.1521	0.1737		2850	2500	14.2	20.0
Freon 123a	Ave	0.3063	0.3228		52.7	50.0	5.4	20.0
Acrolein	Ave	2.690	3.024		562	500	12.4	20.0
1,1-Dichloroethene	Ave	0.2219	0.2442	0.1000	55.0	50.0	10.1	20.0
Acetone	Ave	1.272	1.246	0.1000	97.9	100	-2.1	20.0
Freon 113	Ave	0.2425	0.2292	0.1000	47.3	50.0	-5.5	20.0
2-Propanol	Ave	0.8154	0.9548		293	250	17.1	20.0
Methyl iodide	Ave	0.4254	0.4652		54.7	50.0	9.3	20.0
Carbon disulfide	Ave	0.8045	0.8944	0.1000	55.6	50.0	11.2	20.0
Allyl chloride	Ave	0.4553	0.4335		47.6	50.0	-4.8	20.0
Methyl acetate	Ave	0.1942	0.1473	0.1000	37.9	50.0	-24.1*	20.0
Methylene Chloride	Ave	0.2769	0.2902	0.1000	52.4	50.0	4.8	20.0
t-Butyl alcohol	Ave	1.284	1.288		251	250	0.3	20.0
Acrylonitrile	Ave	0.1015	0.0836		41.2	50.0	-17.6	20.0
trans-1,2-Dichloroethene	Ave	0.2613	0.2893	0.1000	55.3	50.0	10.7	20.0
Methyl tertiary butyl ether	Ave	0.7155	0.6806	0.1000	47.6	50.0	-4.9	20.0
n-Hexane	Ave	0.3864	0.3454		44.7	50.0	-10.6	20.0
1,1-Dichloroethane	Ave	0.4804	0.5159	0.2000	53.7	50.0	7.4	20.0
di-Isopropyl ether	Ave	0.9198	0.9436		51.3	50.0	2.6	20.0
2-Chloro-1,3-butadiene	Ave	0.3898	0.4288		55.0	50.0	10.0	20.0
Ethyl t-butyl ether	Ave	0.8018	0.7982		49.8	50.0	-0.4	20.0
2-Butanone	Ave	0.1268	0.0952*	0.1000	75.0	100	-25.0*	20.0
cis-1,2-Dichloroethene	Ave	0.2949	0.3214	0.1000	54.5	50.0	9.0	20.0
2,2-Dichloropropane	Ave	0.3557	0.3854		54.2	50.0	8.4	20.0
Propionitrile	Ave	1.834	2.025		276	250	10.4	20.0
Methacrylonitrile	Ave	0.1105	0.0956		108	125	-13.4	20.0
Bromochloromethane	Ave	0.1474	0.1487		50.4	50.0	0.9	20.0
Tetrahydrofuran	Ave	1.517	1.578		104	100	4.1	20.0
Chloroform	Ave	0.4429	0.4787	0.2000	54.0	50.0	8.1	20.0
1,1,1-Trichloroethane	Ave	0.3691	0.4022	0.1000	54.5	50.0	9.0	20.0
Cyclohexane	Ave	0.4942	0.4757	0.1000	48.1	50.0	-3.8	20.0
1,1-Dichloropropene	Ave	0.3654	0.4042		55.3	50.0	10.6	20.0
Carbon tetrachloride	Ave	0.3104	0.3306	0.1000	53.3	50.0	6.5	20.0
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FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11359-1

SDG No.:

Lab Sample ID: <u>ICV 410-17838/10</u> Calibration Date: <u>06/30/2020 02:32</u>

Instrument ID: 7159 Calib Start Date: 06/29/2020 23:58

GC Column: R-624SilMS 30m ID: 0.25 (mm) Calib End Date: 0.6/30/2020 02:10

Lab File ID: NU29V01.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.4253	0.3655	0.1000	17.2	20.0	-14.0	30.0
Chloromethane	Ave	0.3823	0.3798	0.1000	19.9	20.0	-0.7	30.0
1,3-Butadiene	Ave	0.3202	0.2929		18.3	20.0	-8.5	30.0
Vinyl chloride	Ave	0.3852	0.3945	0.1000	20.5	20.0	2.4	30.0
Bromomethane	Ave	0.2801	0.2913	0.1000	20.8	20.0	4.0	30.0
Chloroethane	Ave	0.2214	0.2334	0.1000	21.1	20.0	5.4	30.0
Dichlorofluoromethane	Ave	0.5174	0.5322		20.6	20.0	2.9	30.0
Trichlorofluoromethane	Ave	0.4832	0.5489	0.1000	22.7	20.0	13.6	30.0
n-Pentane	Ave	0.4630	0.3890		16.8	20.0	-16.0	30.0
Ethanol	Ave	0.0609	0.0554		909	1000	-9.1	30.0
Freon 123a	Ave	0.3095	0.3014		19.5	20.0	-2.6	30.0
Acrolein	Ave	1.996	1.717		129	150	-14.0	30.0
1,1-Dichloroethene	Ave	0.2425	0.2505	0.1000	20.7	20.0	3.3	30.0
Freon 113	Ave	0.2792	0.2560	0.1000	18.3	20.0	-8.3	30.0
Acetone	Ave	0.8619	0.6734	0.1000	117	150	-21.9	30.0
2-Propanol	Ave	0.4818	0.4277		133	150	-11.2	30.0
Methyl iodide	Ave	0.5108	0.4701		18.4	20.0	-8.0	30.0
Carbon disulfide	Ave	0.8069	0.7479	0.1000	18.5	20.0	-7.3	30.0
Methyl acetate	Ave	0.2835	0.2688	0.1000	19.0	20.0	-5.2	30.0
Allyl chloride	Ave	0.4185	0.3831		18.3	20.0	-8.5	30.0
Methylene Chloride	Ave	0.2972	0.2868	0.1000	19.3	20.0	-3.5	30.0
t-Butyl alcohol	Ave	1.058	1.056		200	200	-0.2	30.0
Acrylonitrile	Ave	0.1582	0.1471		93.0	100	-7.0	30.0
Methyl tertiary butyl ether	Ave	0.8040	0.7596	0.1000	18.9	20.0	-5.5	30.0
trans-1,2-Dichloroethene	Ave	0.2803	0.2815	0.1000	20.1	20.0	0.4	30.0
n-Hexane	Ave	0.4386	0.4131		18.8	20.0	-5.8	30.0
1,1-Dichloroethane	Ave	0.4852	0.4798	0.2000	19.8	20.0	-1.1	30.0
di-Isopropyl ether	Ave	0.8331	0.7889		18.9	20.0	-5.3	30.0
2-Chloro-1,3-butadiene	Ave	0.4465	0.4198		18.8	20.0	-6.0	30.0
Ethyl t-butyl ether	Ave	0.8170	0.7934		19.4	20.0	-2.9	30.0
2-Butanone	Ave	0.2155	0.1714	0.1000	119	150	-20.4	30.0
cis-1,2-Dichloroethene	Ave	0.3146	0.3389	0.1000	21.5	20.0	7.7	30.0
2,2-Dichloropropane	Ave	0.4422	0.4559		20.6	20.0	3.1	30.0
Propionitrile	Ave	1.233	1.203		146	150	-2.5	30.0
Methacrylonitrile	Ave	0.1627	0.1628		150	150	0.0	30.0
Bromochloromethane	Ave	0.1727	0.1676		19.4	20.0	-2.9	30.0
Tetrahydrofuran	Ave	1.377	1.237		89.8	100	-10.2	30.0
Chloroform	Ave	0.4873	0.5034	0.2000	20.7	20.0	3.3	30.0
1,1,1-Trichloroethane	Ave	0.4459	0.4543	0.1000	20.4	20.0	1.9	30.0
Cyclohexane	Ave	0.5064	0.4854	0.1000	19.2	20.0	-4.2	30.0
1,1-Dichloropropene	Ave	0.3923	0.4004		20.4	20.0	2.1	30.0

FORM II GC/MS VOA SURROGATE RECOVERY

SDG No.:

Matrix: Solid Level: Medium

GC Column (1): R-624SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB
SB30_16-18	410-11359-5	83	86	103	170
SB37_2-4	410-11359-13	97	99	100	99
	MB 410-36620/8	100	103	100	97
	LCS 410-36620/5	101	101	101	97
	LCSD 410-36620/6	102	102	101	98

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	50-141
DCA = 1,2-Dichloroethane-d4 (Surr)	54-135
TOL = Toluene-d8 (Surr)	52-141
BFB = 4-Bromofluorobenzene (Surr)	50-131

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	ter Laboratories	Job No.: 410-11359-1	
SDG No.	:			
Matrix:	Solid	Level: Medium	Lab File ID: rg24L10.D	
Lab ID:	LCS 410-36620/5		Client ID:	
				_

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	1000	1160	116	69-123	
1,1-Dichloroethane	1000	1090	109	79-120	
1,1-Dichloroethene	1000	1120	112	73-129	
1,2,4-Trimethylbenzene	1000	1020	102	73-120	
1,2-Dichlorobenzene	1000	1000	100		
1,2-Dichloroethane	1000	1070	107	71-128	
1,3,5-Trimethylbenzene	1000	1050	105	73-120	
1,3-Dichlorobenzene	1000	1020	102	75-120	
1,4-Dichlorobenzene	1000	1030	103		
1,4-Dioxane	25000	27200	109		
2-Butanone	7500	5520	74		
Acetone	7500	5130	68		
Benzene	1000	1060	106		
Carbon tetrachloride	1000	1220	122	64-134	
Chlorobenzene	1000	1040	104		
Chloroform	1000	1060	106		
cis-1,2-Dichloroethene	1000	1130	113		
Ethylbenzene	1000	1050	105		
Methyl tertiary butyl ether	1000	1020	102	72-120	
Methylene Chloride	1000	1090	109		
n-Butylbenzene	1000	1040	104		
N-Propylbenzene	1000	1070	107		
sec-Butylbenzene	1000	1050	105		
tert-Butylbenzene	1000	1050	105		
Tetrachloroethene	1000	1040	104		
Toluene	1000	1060	106		
trans-1,2-Dichloroethene	1000	1090	109		
Trichloroethene	1000	1060	106		
Vinyl chloride	1000	1030	103		
Xylenes, Total	3000	3190	106	75-120	

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM VII GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11359-1

SDG No.:

Lab Sample ID: CCVIS 410-37358/2 Calibration Date: 08/26/2020 12:34

Instrument ID: <u>HP11165</u> Calib Start Date: 08/12/2020 02:09

GC Column: DB-5MS 20m 0.18 ID: 0.18 (mm) Calib End Date: 08/12/2020 08:38

Lab File ID: GH1261.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
4,6-Dinitro-2-methylphenol	Ave	0.1424	0.1392	0.0100	29.3	30.0	-2.3	20.0
N-Nitrosodiphenylamine	Ave	0.7519	0.7446	0.0100	29.7	30.0	-1.0	20.0
1,2-Diphenylhydrazine	Ave	1.117	1.024		27.5	30.0	-8.4	20.0
Sulfotepp	Ave	0.1531	0.1487		29.1	30.0	-2.8	20.0
cis-Diallate	Ave	0.4925	0.4500		20.3	22.2	-8.6	20.0
Phorate	Ave	0.7152	0.6623		27.8	30.0	-7.4	20.0
Phenacetin	Ave	0.4864	0.4831		29.8	30.0	-0.7	20.0
4-Bromophenyl-phenylether	Ave	0.1988	0.1885	0.1000	28.5	30.0	-5.2	20.0
trans-Diallate	Ave	0.5017	0.4588		7.13	7.80	-8.5	20.0
Hexachlorobenzene	Ave	0.1977	0.1847	0.1000	28.0	30.0	-6.6	20.0
Dimethoate	Ave	0.4344	0.4539		31.3	30.0	4.5	20.0
4-Aminobiphenyl	Ave	0.6710	0.6824		30.5	30.0	1.7	20.0
Pentachloronitrobenzene	Ave	0.0851	0.0837		29.5	30.0	-1.7	20.0
Pentachlorophenol	Ave	0.1300	0.1027	0.0500	23.7	30.0	-21.0*	20.0
Pronamide	Ave	0.3347	0.3608		32.3	30.0	7.8	20.0
Phenanthrene	Ave	1.249	1.227	0.7000	29.5	30.0	-1.7	20.0
Dinoseb	Lin1		0.1718		28.5	30.0	-5.0	20.0
Anthracene	Ave	1.247	1.270	0.7000	30.6	30.0	1.8	20.0
Carbazole	Ave	1.179	1.182	0.0100	30.1	30.0	0.2	20.0
Methyl parathion	Ave	0.2957	0.3224		32.7	30.0	9.0	20.0
Di-n-butyl phthalate	Ave	1.420	1.460	0.0100	30.9	30.0	2.8	20.0
4-Nitroquinoline-1-oxide	Ave	0.0910	0.0994		32.8	30.0	9.2	20.0
Parathion	Ave	0.1868	0.1982		31.8	30.0	6.1	20.0
Octachlorostyrene	Ave	0.0775	0.0753		29.2	30.0	-2.8	20.0
Isodrin	Ave	0.1262	0.1282		30.5	30.0	1.6	20.0
Fluoranthene	Ave	1.281	1.300	0.6000	30.4	30.0	1.5	20.0
Benzidine	Ave	0.9444	1.036		98.7	90.0	9.7	20.0
Pyrene	Ave	1.534	1.423	0.6000	27.8	30.0	-7.3	20.0
p-Dimethylamino azobenzene	Ave	0.2494	0.2548		30.7	30.0	2.2	20.0
Chlorobenzilate	Ave	0.4559	0.4515		29.7	30.0	-1.0	20.0
3,3'-Dimethylbenzidine	Ave	0.8165	0.8712		32.0	30.0	6.7	20.0
Butylbenzylphthalate	Ave	0.7201	0.7283	0.0100	30.3	30.0	1.1	20.0
2-Acetylaminofluorene	Ave	0.5819	0.6453		33.3	30.0	10.9	20.0
3,3'-Dichlorobenzidine	Ave	0.4540	0.4665	0.0100	30.8	30.0	2.7	20.0
Benzo[a]anthracene	Ave	1.296	1.278	0.8000	29.6	30.0	-1.4	20.0
4,4'-Methylene bis(2-chloroaniline)	Ave	0.2435	0.2555		31.5	30.0	4.9	20.0
Chrysene	Ave	1.304	1.253	0.7000	28.8	30.0	-3.9	20.0
Bis(2-ethylhexyl) phthalate	Ave	0.9848	1.014	0.0100	30.9	30.0	3.0	20.0
6-Methylchrysene	Ave	0.8651	0.8809		30.5	30.0	1.8	20.0
Di-n-octyl phthalate	Ave	1.848	1.944	0.0100	31.6	30.0	5.2	20.0

FORM VII GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11359-1

SDG No.:

Lab Sample ID: <u>CCVIS 410-37764/2</u> Calibration Date: <u>08/27/2020 02:29</u>

Instrument ID: <u>HP11165</u> Calib Start Date: 08/12/2020 02:09

GC Column: DB-5MS 20m 0.18 ID: 0.18 (mm) Calib End Date: 08/12/2020 08:38

Lab File ID: GH1301.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
4,6-Dinitro-2-methylphenol	Ave	0.1424	0.1399	0.0100	29.5	30.0	-1.8	20.0
N-Nitrosodiphenylamine	Ave	0.7519	0.7700	0.0100	30.7	30.0	2.4	20.0
1,2-Diphenylhydrazine	Ave	1.117	1.172		31.5	30.0	4.9	20.0
Sulfotepp	Ave	0.1531	0.1675		32.8	30.0	9.4	20.0
cis-Diallate	Ave	0.4925	0.5154		23.2	22.2	4.7	20.0
Phorate	Ave	0.7152	0.7509		31.5	30.0	5.0	20.0
Phenacetin	Ave	0.4864	0.5359		33.1	30.0	10.2	20.0
4-Bromophenyl-phenylether	Ave	0.1988	0.1904	0.1000	28.7	30.0	-4.2	20.0
trans-Diallate	Ave	0.5017	0.5030		7.82	7.80	0.3	20.0
Hexachlorobenzene	Ave	0.1977	0.1883	0.1000	28.6	30.0	-4.8	20.0
Dimethoate	Ave	0.4344	0.5011		34.6	30.0	15.4	20.0
Pentachloronitrobenzene	Ave	0.0851	0.0860		30.3	30.0	1.1	20.0
Pentachlorophenol	Ave	0.1300	0.0935	0.0500	21.6	30.0	-28.1*	20.0
4-Aminobiphenyl	Ave	0.6710	0.6956		31.1	30.0	3.7	20.0
Pronamide	Ave	0.3347	0.3815		34.2	30.0	14.0	20.0
Phenanthrene	Ave	1.249	1.255	0.7000	30.1	30.0	0.5	20.0
Dinoseb	Lin1		0.1756		29.0	30.0	-3.2	20.0
Anthracene	Ave	1.247	1.295	0.7000	31.2	30.0	3.9	20.0
Carbazole	Ave	1.179	1.192	0.0100	30.3	30.0	1.1	20.0
Methyl parathion	Ave	0.2957	0.3496		35.5	30.0	18.2	20.0
Di-n-butyl phthalate	Ave	1.420	1.570	0.0100	33.2	30.0	10.6	20.0
Parathion	Ave	0.1868	0.2158		34.6	30.0	15.5	20.0
4-Nitroquinoline-1-oxide	Ave	0.0910	0.1040		34.3	30.0	14.3	20.0
Octachlorostyrene	Ave	0.0775	0.0796		30.8	30.0	2.7	20.0
Isodrin	Ave	0.1262	0.1319		31.4	30.0	4.6	20.0
Fluoranthene	Ave	1.281	1.316	0.6000	30.8	30.0	2.7	20.0
Benzidine	Ave	0.9444	1.050		100	90.0	11.1	20.0
Pyrene	Ave	1.534	1.489	0.6000	29.1	30.0	-2.9	20.0
p-Dimethylamino azobenzene	Ave	0.2494	0.2544		30.6	30.0	2.0	20.0
Chlorobenzilate	Ave	0.4559	0.4872		32.1	30.0	6.9	20.0
3,3'-Dimethylbenzidine	Ave	0.8165	0.8739		32.1	30.0	7.0	20.0
Butylbenzylphthalate	Ave	0.7201	0.7536	0.0100	31.4	30.0	4.6	20.0
2-Acetylaminofluorene	Ave	0.5819	0.6380		32.9	30.0	9.6	20.0
3,3'-Dichlorobenzidine	Ave	0.4540	0.4649	0.0100	30.7	30.0	2.4	20.0
Benzo[a]anthracene	Ave	1.296	1.278	0.8000	29.6	30.0	-1.3	20.0
4,4'-Methylene bis(2-chloroaniline)	Ave	0.2435	0.2595		32.0	30.0	6.5	20.0
Chrysene	Ave	1.304	1.234	0.7000	28.4	30.0	-5.4	20.0
Bis(2-ethylhexyl) phthalate	Ave	0.9848	1.041	0.0100	31.7	30.0	5.7	20.0
6-Methylchrysene	Ave	0.8651	0.8539		29.6	30.0	-1.3	20.0
Di-n-octyl phthalate	Ave	1.848	2.097	0.0100	34.0	30.0	13.5	20.0

FORM VII GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11359-1

SDG No.:

Lab Sample ID: CCVIS 410-37757/2 Calibration Date: 08/27/2020 02:06

Instrument ID: <u>HP23262</u> Calib Start Date: 07/27/2020 23:30

GC Column: $\underline{DB-5MS\ 20m\ 0.18}$ ID: $\underline{0.18\ (mm)}$ Calib End Date: $\underline{07/28/2020\ 08:21}$

Lab File ID: PH1401.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.8026	0.6403		39.9	50.0	-20.2*	20.0
N-Nitrosodimethylamine	Ave	1.248	1.081		43.3	50.0	-13.4	20.0
Pyridine	Ave	2.183	1.701		39.0	50.0	-22.1*	20.0
2-Picoline	Ave	2.245	1.903		42.4	50.0	-15.2	20.0
N-Nitrosomethylethylamine	Ave	0.9082	0.8067		44.4	50.0	-11.2	20.0
Methyl methanesulfonate	Ave	0.9510	0.8146		42.8	50.0	-14.3	20.0
N-Nitrosodiethylamine	Ave	0.9129	0.7957		43.6	50.0	-12.8	20.0
Ethyl methanesulfonate	Ave	0.9039	0.7783		43.1	50.0	-13.9	20.0
Aniline	Ave	3.321	2.849		42.9	50.0	-14.2	20.0
Phenol	Ave	2.811	2.211	0.8000	39.3	50.0	-21.4*	20.0
Bis(2-chloroethyl)ether	Ave	2.065	1.869	0.7000	45.3	50.0	-9.5	20.0
2-Chlorophenol	Ave	1.525	1.489	0.8000	48.8	50.0	-2.3	20.0
1,3-Dichlorobenzene	Ave	1.595	1.509		47.3	50.0	-5.4	20.0
1,4-Dichlorobenzene	Ave	1.643	1.589		48.4	50.0	-3.3	20.0
1,2-Dichlorobenzene	Ave	1.552	1.544		49.8	50.0	-0.5	20.0
Benzyl alcohol	Ave	1.294	1.129		43.6	50.0	-12.8	20.0
Indene	Ave	2.400	2.180		45.4	50.0	-9.2	20.0
2,2'-oxybis[1-chloropropane]	Ave	2.546	2.672	0.0100	52.5	50.0	4.9	20.0
2-Methylphenol	Ave	1.831	1.556	0.7000	42.5	50.0	-15.0	20.0
N-Nitrosopyrrolidine	Ave	1.023	0.9267		45.3	50.0	-9.4	20.0
Acetophenone	Ave	2.702	2.434	0.0100	45.0	50.0	-9.9	20.0
N-Nitrosodi-n-propylamine	Ave	1.657	1.521	0.5000	45.9	50.0	-8.2	20.0
N-Nitrosomorpholine	Ave	1.213	1.207		49.7	50.0	-0.5	20.0
o-Toluidine	Ave	3.011	2.580		42.8	50.0	-14.3	20.0
Hexachloroethane	Ave	0.7261	0.6495	0.3000	44.7	50.0	-10.6	20.0
4-Methylphenol	Ave	2.048	1.691	0.6000	41.3	50.0	-17.4	20.0
Nitrobenzene	Ave	0.5739	0.5207	0.2000	45.4	50.0	-9.3	20.0
N-Nitrosopiperidine	Ave	0.2178	0.2029		46.6	50.0	-6.8	20.0
Isophorone	Ave	1.021	0.9642	0.4000	47.2	50.0	-5.5	20.0
2-Nitrophenol	Ave	0.1976	0.2024	0.1000	51.2	50.0	2.4	20.0
2,4-Dimethylphenol	Ave	0.4751	0.4316	0.2000	45.4	50.0	-9.2	20.0
o,o',o''-Triethylphosphoroth ioate	Ave	0.2112	0.2221		52.6	50.0	5.1	20.0
Bis(2-chloroethoxy)methane	Ave	0.6151	0.6239	0.3000	50.7	50.0	1.4	20.0
2,4-Dichlorophenol	Ave	0.3148	0.3394	0.2000	53.9	50.0	7.8	20.0
Benzoic acid	Ave	0.3835	0.3842		50.1	50.0	0.2	20.0
1,2,4-Trichlorobenzene	Ave	0.3510	0.3550		50.6	50.0	1.1	20.0
Naphthalene	Ave	1.116	1.080	0.7000	48.4	50.0	-3.2	20.0
4-Chloroaniline	Ave	0.4528	0.4500	0.0100	49.7	50.0	-0.6	20.0
2,6-Dichlorophenol	Ave	0.3067	0.3281		53.5	50.0	7.0	20.0
Hexachloropropene	Ave	0.2221	0.2524	·	56.8	50.0	13.7	20.0

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11359-1	

SDG No.:

Matrix: Solid Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP #	PHL #	NBZ #	FBP #	TBP #	TPHd14 #
SB27_18-20	410-11359-1	81	86	75	83	91	94
SB27_10-12	410-11359-2	68	71	64	73	73	85
SB27_0-2	410-11359-3	69	77	68	73	76	83
SB30_30-32	410-11359-4	73	77	69	77	76	80
SB30_16-18	410-11359-5	77	81	91	87	75	91
SB12_1-3	410-11359-6	73	80	71	79	75	82
SB12_1-3 DL	410-11359-6 DL	84	92	82	91	77	93
SB27_20-22	410-11359-7	72	79	76	88	47	92
SB30_0-2	410-11359-8	68	71	67	69	64	77
SB12_6-8	410-11359-9	80	82	71	86	79	90
SB12_14-16	410-11359-10	82	86	76	84	89	89
SB37_12-14	410-11359-11	80	84	74	84	84	89
SB37_6-8	410-11359-12	63	72	64	90	70	90
SB37_2-4	410-11359-13	48	54	54	66	54	60
	MB 410-36615/1-A	80	82	77	90	94	100
	MB 410-37672/1-A	72	76	75	94	98	103
	LCS 410-36615/2-A	76	82	74	87	95	90
	LCS 410-37672/2-A	67	73	71	90	100	97
SB12_6-8 MS	410-11359-9 MS	79	84	76	88	89	89
SB37_6-8 MS	410-11359-12 MS	41	44	52	66	47	61
SB12_6-8 MSD	410-11359-9 MSD	76	82	74	87	83	87
SB37_6-8 MSD	410-11359-12 MSD	61	67	67	84	49	88

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Nam	ne: Eurofins Lancast	er Laboratories	Job No.: 410-	-11359-1
SDG No.	:			
Matrix:	Solid	Level: Low	Lab File ID:	PH1405.D
Lab ID:	I.CS 410-37672/2-A		Client ID:	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1670	1490	89	61-112	
Acenaphthylene	1670	1650	99	60-124	
Anthracene	1670	1630	98		
Benzo[a]anthracene	1670	1680	101	68-120	
Benzo[a]pyrene	1670	1680	100	68-119	
Benzo[b]fluoranthene	1670	1540	92	67-125	
Benzo[g,h,i]perylene	1670	1700	102	68-125	
Benzo[k]fluoranthene	1670	1750	105	66-122	
Chrysene	1670	1640	98	66-111	
Dibenz(a,h)anthracene	1670	1800	107	69-135	
Fluoranthene	1670	1790	107	65-114	
Fluorene	1670	1630	98	62-110	
Indeno[1,2,3-cd]pyrene	1670	1770	106	64-130	
Naphthalene	1680	1350	81	49-104	
Phenanthrene	1670	1640	98	67-116	
Pyrene	1680	1580	94	67-109	
2-Methylphenol	1670	1200	72	52-116	
4-Methylphenol	1670	1170	70	52-121	
Dibenzofuran	1670	1570	94	62-113	
Hexachlorobenzene	1670	1600	96	62-124	
Pentachlorophenol	1680	1490	89	40-131	
Phenol	1670	1160	69	57-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11359-1
Lan	Name.	EULOLIIIS	Lancaster	Laboratories	JOD NO	410-11339-1

SDG No.: ____

Matrix: Solid Level: Low Lab File ID: PH1407.D

Lab ID: 410-11359-12 MS Client ID: SB37_6-8 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	2390	100 J	1660	65	61-112	
Acenaphthylene	2400	92 J	1770	70	60-124	
Anthracene	2400	310	1930	68	67-120	
Benzo[a]anthracene	2390	940	2690	73	68-120	
Benzo[a]pyrene	2400	860	2460	67	68-119	F1
Benzo[b]fluoranthene	2400	1000	2520	62	67-125	F1
Benzo[g,h,i]perylene	2390	600	2250	69	68-125	
Benzo[k]fluoranthene	2390	390	1990	67	66-122	
Chrysene	2390	940	2700	73	66-111	
Dibenz(a,h)anthracene	2400	140	1770	68	69-135	F1
Fluoranthene	2390	2200	4120	80	65-114	
Fluorene	2400	93 J	1790	71	62-110	
Indeno[1,2,3-cd]pyrene	2400	570	2200	68	64-130	
Naphthalene	2410	64 J	1680	67	49-104	
Phenanthrene	2400	1500	3420	81	67-116	
Pyrene	2410	1800	3900	89	67-109	
2-Methylphenol	2400	ND	1160	48	52-116	F1
4-Methylphenol	2390	ND	1050	44	52-121	F1
Dibenzofuran	2390	ND	1620	68	62-113	
Hexachlorobenzene	2390	ND	1660	69	62-124	
Pentachlorophenol	2410	ND	1020 J	43	40-131	
Phenol	2400	ND	1080	45	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab N	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11359-1	

SDG No.:

Matrix: Solid Level: Low Lab File ID: GH1218.D

Lab ID: 410-11359-9 MSD Client ID: SB12_6-8 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD %	9	QC LIMITS		#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	II
Acenaphthene	1840	1680	90	2	30	61-112	
Acenaphthylene	1840	1940	98	2	30	60-124	
Anthracene	1840	2010	104	2	30	67-120	
Benzo[a]anthracene	1840	1930	87	0	30	68-120	
Benzo[a]pyrene	1840	2040	90	1	30	68-119	
Benzo[b]fluoranthene	1840	2130	91	0	30	67-125	
Benzo[g,h,i]perylene	1840	2120	98	5	30	68-125	
Benzo[k]fluoranthene	1840	1920	94	0	30	66-122	
Chrysene	1840	1800	81	1	30	66-111	
Dibenz(a,h)anthracene	1840	1990	103	1	30	69-135	
Fluoranthene	1840	2340	96	4	30	65-114	
Fluorene	1840	1730	93	4	30	62-110	
Indeno[1,2,3-cd]pyrene	1840	2050	96	3	30	64-130	
Naphthalene	1850	1590	84	3	30	49-104	
Phenanthrene	1840	2290	108	2	30	67-116	
Pyrene	1850	2150	88	3	30	67-109	
2-Methylphenol	1840	1630	88	4	30	52-116	
4-Methylphenol	1840	1530	83	5	30	52-121	
Dibenzofuran	1840	1660	91	6	30	62-113	
Hexachlorobenzene	1840	1780	97	2	30	62-124	
Pentachlorophenol	1850	1240	67	1	30	40-131	
Phenol	1840	1550	84	3	30	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

ries Job No.: 410-	aboratories	Lancaster	Eurofins	Name:	Lab
ries Job No.: 410-	aboratories	Lancaster	Eurofins	Name:	Lab

SDG No.:

Matrix: Solid Level: Low Lab File ID: PH1408.D

Lab ID: 410-11359-12 MSD Client ID: SB37_6-8 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	olo -	QC LIMITS		#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Acenaphthene	2390	2210	88	28	30	61-112	
Acenaphthylene	2400	2370	95	29	30	60-124	
Anthracene	2400	2540	93	27	30	67-120	
Benzo[a]anthracene	2390	3260	97	19	30	68-120	
Benzo[a]pyrene	2400	3130	95	24	30	68-119	
Benzo[b]fluoranthene	2400	3160	89	23	30	67-125	
Benzo[g,h,i]perylene	2390	2790	91	21	30	68-125	
Benzo[k]fluoranthene	2390	2620	93	27	30	66-122	
Chrysene	2390	3090	90	13	30	66-111	
Dibenz(a,h)anthracene	2400	2580	102	37	30	69-135	F2
Fluoranthene	2390	4930	114	18	30	65-114	
Fluorene	2400	2370	95	28	30	62-110	
Indeno[1,2,3-cd]pyrene	2400	2860	96	26	30	64-130	
Naphthalene	2410	1920	77	13	30	49-104	
Phenanthrene	2400	3820	98	11	30	67-116	
Pyrene	2410	4240	103	8	30	67-109	
2-Methylphenol	2400	1720	72	39	30	52-116	F2
4-Methylphenol	2390	1640	68	44	30	52-121	F2
Dibenzofuran	2390	2190	92	30	30	62-113	
Hexachlorobenzene	2390	2170	91	27	30	62-124	
Pentachlorophenol	2410	1480	62	37	30	40-131	F2
Phenol	2400	1610	67	39	30	41-107	F2

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

Report Date: 27-Aug-2020 18:38:14 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP11165\20200826-8980.b\GH1268.D Injection Date: 26-Aug-2020 15:59:30 Instrument ID: HP11165 Lims ID: 410-11359-I-1-B Lab Sample ID: 410-11359-1

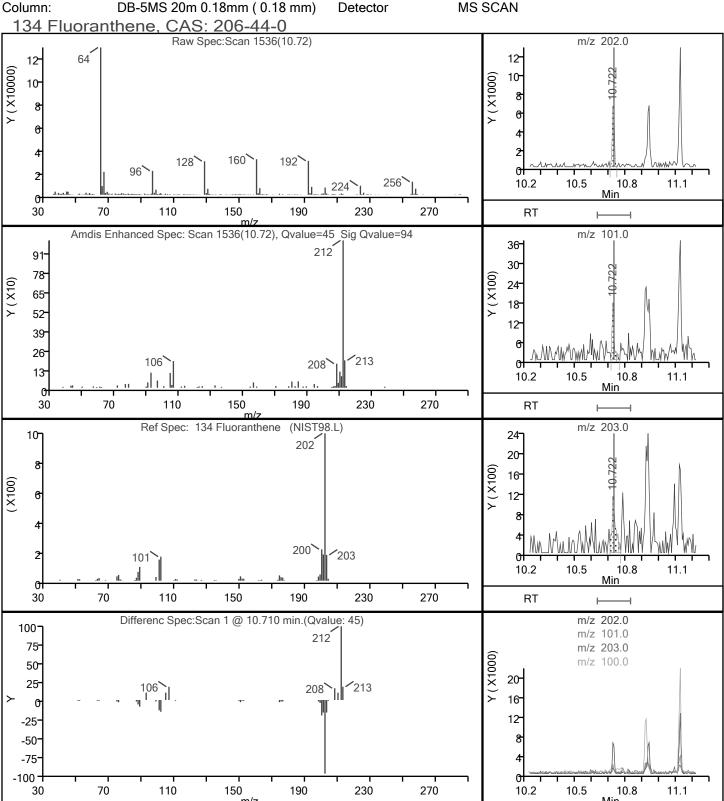
Client ID: SB27_18-20

Operator ID: em10340 ALS Bottle#: 9 Worklist Smp#: 28

1.0 ul Dil. Factor: 1.0000 Injection Vol:

MSSV - 8270D E Method: MSSemi HP11165 Limit Group:

Detector MS SCAN



Report Date: 27-Aug-2020 18:38:15 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP11165\20200826-8980.b\GH1268.D Injection Date: 26-Aug-2020 15:59:30 Instrument ID: HP11165 Lims ID: 410-11359-I-1-B Lab Sample ID: 410-11359-1

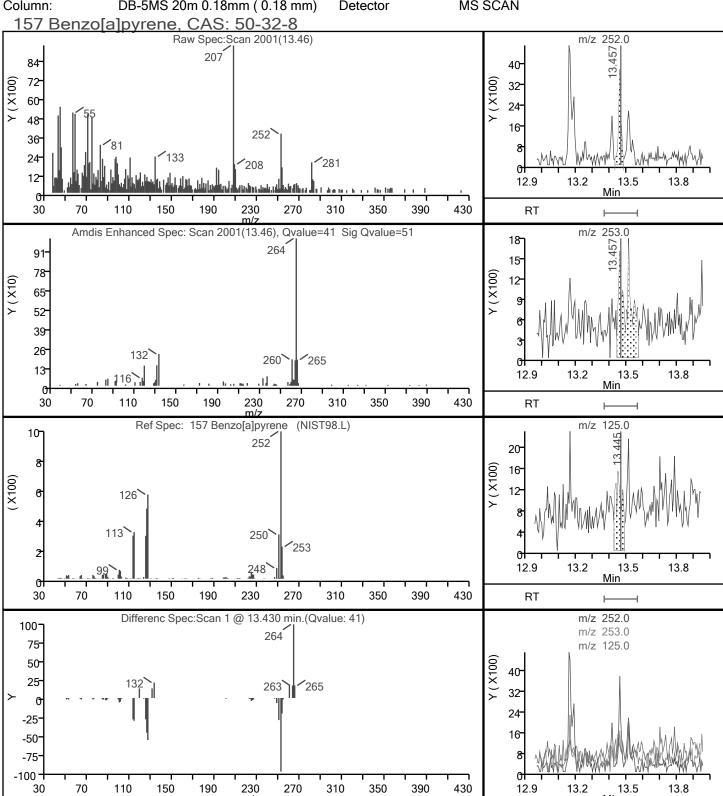
Client ID: SB27_18-20

Operator ID: em10340 ALS Bottle#: 9 Worklist Smp#: 28

1.0 ul Dil. Factor: 1.0000 Injection Vol:

MSSemi HP11165 MSSV - 8270D E Method: Limit Group:

Column: DB-5MS 20m 0.18mm (0.18 mm) Detector MS SCAN



FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11359-1	

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SB27_18-20	410-11359-1	80	84	80
SB27_10-12	410-11359-2	62	61	72
SB27_0-2	410-11359-3	67	95	59
SB30_30-32	410-11359-4	83	112	94
SB30_16-18	410-11359-5	60	97	99
SB12_1-3	410-11359-6	73	186 X	73
SB30_0-2	410-11359-8	66	95	28
SB12_6-8	410-11359-9	77	99	78
SB12_14-16	410-11359-10	76	91	75
SB37_12-14	410-11359-11	94	99	89
SB37_6-8	410-11359-12	82	118	72
SB37_2-4	410-11359-13	58	80	77
	MB 410-36612/1-A	88	100	69
	LCS 410-36612/2-A	83	106	93
SB30_16-18 MS	410-11359-5 MS	85	97	80
SB30_16-18 MSD	410-11359-5 MSD	114 X	92	88

	OC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: Eurofins Lancast	er Labora	atories	Job	No.: 410	0-11359-1			
SDG No.	:								
Matrix:	Solid	Level: I	-OM	Lab	File ID	: CH1403.D			
Lab ID:	LCS 410-36612/2-A			Cli	ent ID:				
			SPIKE			LCS	LCS	QC T.TMTTS	#

33.3

(ug/Kg)

8.98

REC

REC

21-79

(ug/Kg)

COMPOUND

1,4-Dioxane

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11359-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: CH1405.D

Lab ID: 410-11359-5 MS Client ID: SB30_16-18 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	38.2	ND	9.05	24	21-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11359-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: CH1406.D

Lab ID: 410-11359-5 MSD Client ID: SB30_16-18 MSD

	SPIKE MSD N		MSD		QC LIMITS		
	ADDED	CONCENTRATION	%	용			#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
1,4-Dioxane	38.5	8.14	21	11	30	21-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11359-1

SDG No.:

Matrix: Solid Level: Low

	I								\neg
Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB27_18-20	410-11359-1	112		79		104		102	
SB27_18-20 RA	410-11359-1 RA	137	Х	97		107		106	\neg
SB27_10-12	410-11359-2	83		76		103		101	\neg
SB27_10-12 RA	410-11359-2 RA	93		87		98		97	
SB27_0-2	410-11359-3	85		77		181	Х	218	Х
SB27_0-2 DL	410-11359-3 DL	103		92		178	Х	166	Х
SB30_30-32	410-11359-4	87		81		102		102	\neg
SB30_30-32 RA	410-11359-4 RA	102		92		108		103	\neg
SB30_16-18	410-11359-5	109		116		108		102	\neg
SB30_16-18 RA	410-11359-5 RA	76		125		120		109	\neg
SB12_1-3	410-11359-6	78		66		150		233	Х
SB12_1-3 RA	410-11359-6 RA	86		67		192	Х	247	Х
SB30_0-2	410-11359-8	71		65		276	Х	242	Х
SB30_0-2 RA	410-11359-8 RA	92		80		292	Х	167	Х
SB12_6-8	410-11359-9	79		73		108		123	
SB12_6-8 DL	410-11359-9 DL	98		87		107		99	\neg
SB12_14-16	410-11359-10	83		77		98		98	\neg
SB12_14-16 RA	410-11359-10 RA	108		98		106		104	\neg
SB37_12-14	410-11359-11	90		82		100		102	\neg
SB37_12-14 RA	410-11359-11 RA	105		95		107		106	\neg
SB37_6-8	410-11359-12	27	р	60		183	Х	211	Х
SB37_6-8 DL	410-11359-12 DL	78		67		215	Х	179	Х
SB37_2-4	410-11359-13	50		61		124		135	\neg
SB37_2-4 DL	410-11359-13 DL	67		72		145		99	\neg
	MB 410-37080/1-A	93		93		116		113	\neg
	LCS 410-37080/2-A	87		87		106		106	

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Client Sample ID: <u>SB27_18-20</u> Lab Sample ID: <u>410-11359-1</u>

Instrument ID (1): 9191 Instrument ID (2): 9191

Date Analyzed (1): 08/26/2020 02:39 Date Analyzed (2): 08/26/2020 02:39

ANALYTE	COL PEAK		RT	RT WI	INDOW	CONCENT	RPD	
ANADITE	СОП	LEAK	1/1	FROM	TO	PEAK	MEAN	INID
gamma-BHC (Lindane)	1		2.58	2.55	2.61	0.61		90.1
	2		3.02	3.01	3.07	1.6		
p,p'-DDD	1		4.57	4.54	4.60	0.58		97.5
	2		5.02	5.01	5.07	1.7		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Instrument ID (1): 9191 Instrument ID (2): 9191

Date Analyzed (1): 08/26/2020 03:28 Date Analyzed (2): 08/26/2020 03:28

ANALYTE	COL	PEAK	RT	RT WI	NDOW	CONCENT	CONCENTRATION	
ANALITE	COL	PEAN	KI	FROM	TO	PEAK	MEAN	RPD
alpha-BHC	1		2.28	2.26	2.32	1.2		66.6
	2		2.74	2.72	2.78	2.4		1
delta-BHC	1		3.04	3.01	3.07	2.6		105.1
	2		3.53	3.49	3.55	8.3		1
alpha-Chlordane	1		3.91	3.90	3.96	10		10.2
	2		4.52	4.50	4.56	9.4		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Client Sample ID: SB30_16-18 RA Lab Sample ID: 410-11359-5 RA

Date Analyzed (1): 08/26/2020 12:29 Date Analyzed (2): 08/26/2020 12:29

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	RATION	RPD
ANALIIE	COL	PEAR	KI	FROM	TO	PEAK	MEAN	RPD
alpha-BHC	1		2.04	2.01	2.07	2.4		87.6
	2		2.54	2.50	2.56	6.2		
gamma-BHC (Lindane)	1		2.33	2.28	2.34	22		97.9
	2		2.79	2.78	2.84	7.5		
beta-BHC	1		2.51	2.48	2.54	7.3		51.6
	2		3.05	3.03	3.09	12		
delta-BHC	1		2.74	2.71	2.77	2.8		138.2
	2		3.31	3.26	3.32	15		
Aldrin	1		2.86	2.83	2.89	1.8		83.0
	2		3.60	3.58	3.64	4.4		
alpha-Chlordane	1		3.53	3.51	3.57	9.2		70.0
	2		4.14	4.11	4.17	4.4		
Endosulfan I	1		3.66	3.62	3.68	12		135.6
	2		4.21	4.16	4.22	2.3		
p,p'-DDE	1		3.78	3.75	3.81	3.3		39.8
	2		4.26	4.24	4.30	2.2		
Dieldrin	1		3.86	3.82	3.88	5.5		89.5
	2		4.34	4.32	4.38	14		
p,p'-DDD	1		4.16	4.13	4.19	15		117.9
	2		4.57	4.54	4.60	3.8		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Client Sample ID: SB12_1-3 Lab Sample ID: 410-11359-6

Instrument ID (1): 9191 Instrument ID (2): 9191

Date Analyzed (1): 08/26/2020 03:40 Date Analyzed (2): 08/26/2020 03:40

ANALYTE	COL	PEAK	RT	RT WI	NDOW	CONCENT	RATION	RPD
ANALITE	СОП	FEAN	KI	FROM	TO	PEAK	MEAN	RED
gamma-BHC (Lindane)	1		2.60	2.55	2.61	12		40.4
	2		3.02	3.01	3.07	8.1		1
alpha-Chlordane	1		3.93	3.90	3.96	1.1		3.6
	2		4.53	4.50	4.56	1.1		1
p,p'-DDE	1		4.11	4.08	4.14	1.9		33.8
	2		4.65	4.62	4.68	2.7]
Dieldrin	1		4.20	4.18	4.24	14		147.4
	2		4.73	4.73	4.79	2.2		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Client Sample ID: <u>SB30_0-2</u> Lab Sample ID: <u>410-11359-8</u>

Date Analyzed (1): 08/26/2020 03:52 Date Analyzed (2): 08/26/2020 03:52

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	RATION	RPD
ANALIIE	COL	PLAN	KI	FROM	TO	PEAK	MEAN	RPD
Aldrin	1		3.15	3.14	3.20	20		132.5
	2		3.88	3.84	3.90	4.0		
alpha-Chlordane	1		3.93	3.90	3.96	25		44.5
	2		4.53	4.50	4.56	40		
Endosulfan I	1		3.97	3.94	4.00	11		51.8
	2		4.57	4.53	4.59	18		
p,p'-DDE	1		4.11	4.08	4.14	11		110.6
	2		4.66	4.62	4.68	40		
Dieldrin	1		4.20	4.18	4.24	17		31.6
	2		4.76	4.73	4.79	23		
p,p'-DDD	1		4.57	4.54	4.60	10		8.1
	2		5.04	5.01	5.07	9.2		
Endosulfan II	1		4.68	4.64	4.70	24		71.2
	2		5.11	5.10	5.16	51		
p,p'-DDT	1		4.78	4.75	4.81	110		13.8
	2		5.28	5.24	5.30	92		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1 SDG No.: Lab Sample ID: 410-11359-9 Client Sample ID: SB12_6-8

Instrument ID (2): 9191 Instrument ID (1): 9191

Date Analyzed (1): 08/26/2020 04:05 Date Analyzed (2): 08/26/2020 04:05

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENT	RPD	
ANADITE			1/1	FROM	TO	PEAK	MEAN	INLD
gamma-BHC (Lindane)	1		2.59	2.55	2.61	1.3		38.7
	2		3.01	3.01	3.07	0.87		
Dieldrin	1		4.20	4.18	4.24	7.9		159.1
	2		4.73	4.73	4.79	0.90		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Client Sample ID: SB37_6-8 Lab Sample ID: 410-11359-12

Instrument ID (1): 9191 Instrument ID (2): 9191

Date Analyzed (1): 08/26/2020 04:41 Date Analyzed (2): 08/26/2020 04:41

ANALYTE	COL	PEAK	RT	RT W	INDOW	CONCENT	TRATION	RPD
ANALITE	COL	PEAN	KI	FROM	TO	PEAK	MEAN	KPD
alpha-BHC	1		2.29	2.26	2.32	7.2		82.6
	2		2.76	2.72	2.78	3.0		
gamma-BHC (Lindane)	1		2.60	2.55	2.61	12		11.5
	2		3.01	3.01	3.07	11		
p,p'-DDE	1		4.11	4.08	4.14	7.9		149.8
	2		4.66	4.62	4.68	55		
Dieldrin	1		4.19	4.18	4.24	21		145.0
	2		4.73	4.73	4.79	130		
p,p'-DDT	1		4.77	4.75	4.81	150		1.4
	2		5.28	5.24	5.30	150		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Client Sample ID: SB37_2-4 Lab Sample ID: 410-11359-13

Date Analyzed (1): 08/26/2020 04:54 Date Analyzed (2): 08/26/2020 04:54

ANALYTE	COL	PEAK	RT	RT WI	NDOW	CONCENT	RATION	RPD	
ANALITE	COL	COL FEAR		FROM	TO	PEAK	MEAN		
gamma-BHC (Lindane)	1		2.60	2.55	2.61	6.9		35.5	
	2		3.01	3.01	3.07	4.8			
p,p'-DDE	1		4.10	4.08	4.14	10		147.5	
	2		4.66	4.62	4.68	69			
Dieldrin	1		4.22	4.18	4.24	170		168.2	
	2		4.79	4.73	4.79	15			
p,p'-DDD	1		4.57	4.54	4.60	16		144.4	
	2		5.06	5.01	5.07	100			
Endosulfan II	1		4.67	4.64	4.70	56		41.9	
	2		5.16	5.10	5.16	86			

FORM II PCBS SURROGATE RECOVERY

Lab Name:	Eurofins Lancaster Laboratories	Job No.:	410-11539-1
SDG No.:			

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SB33_0-2	410-11539-2	84	82	114 p	207 X
SB33_11-13	410-11539-3	99	97	56 p	101
SB33_18-20	410-11539-4	103	100	69 p	105
SB32_0-2	410-11539-5	90	87	75 p	128
SB32_14-16	410-11539-6	87	92	75	111
SB32_26-28	410-11539-7	90	92	76	102
	MB 410-38341/1-A	95	107	84	90
	LCS 410-38341/2-A	96	115	84	96
SB33_0-2 MS	410-11539-2 MS	87	76	212 X	302 X
SB33_0-2 MSD	410-11539-2 MSD	84	76	164 p X	254 X

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancast	ter Laboratories	Job No.: 410-11539-1	
SDG No.:			
Matrix: Water		Level: Low	
GC Column (1): DB CLP1	ID: 0.32 (mm)	GC Column (2): DB CLP2	ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	TCX1	# TCX2 #	DCB1 #	DCB2 #
SOFB04_08212020	410-11539-1	71	69	14	14
	MB 410-38351/1-A	64	63	37	45
	LCS 410-38351/2-A	62	62	58	68
	LCSD 410-38351/3-A	65	62	62	70

QC LIMITS 33-137 10-148

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM II HERBICIDES SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11359-1
SDG	No.:					
Matr	ix: S	Solid			Level: Lo	WC

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB27_18-20	410-11359-1	44	44
SB27_10-12	410-11359-2	54	52
SB27_0-2	410-11359-3	55	55
SB30_30-32	410-11359-4	61	63
SB30_16-18	410-11359-5	50	50
SB12_1-3	410-11359-6	45	43
SB30_0-2	410-11359-8	60	58
SB12_6-8	410-11359-9	57	61
SB12_14-16	410-11359-10	51	47
SB37_12-14	410-11359-11	76	56
SB37_6-8	410-11359-12	49	47
SB37_2-4	410-11359-13	43	40
	MB 410-38264/1-A	26 X	25 X
	MB 410-38880/1-A	65	65
	LCS 410-38264/2-A	37	34
	LCS 410-38880/2-A	53	50
SB27_18-20 MS	410-11359-1 MS	52	49
SB27_18-20 MSD	410-11359-1 MSD	47	47

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster Laboratories				Job	No.: 410	No.: 410-11359-1					
SDG No.	:										
Matrix: Solid Level: Low			Low	Lab File ID: 36HERB20240001.050.D							
Lab ID:	ab ID: LCS 410-38264/2-A			Cli	ent ID: _						
			SPIKE			ICS	LCS	QC	щ		

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	왕	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	4.48	54	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: Eurofins Lancast	oratories	Job No.: 410-11359-1						
SDG No.	:								
Matrix: Solid Level: Low		: Low	Lab File ID: 36HERB20240001.162.D Client ID:						
Lab ID:	LCS 410-38880/2-A								
			SPIKE ADDED		_	CS ITRATION	LCS	QC LIMITS	#

[|] SPIKE | LCS | QC |
ADDED	CONCENTRATION	% LIMITS	#	
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC
Silvex (2,4,5-TP)	8.33	4.95	59	49-133

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11359-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20240001.164.D

Lab ID: 410-11359-1 MS Client ID: SB27_18-20 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	9.22	ND	5.37	58	70-130	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM III HERBICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11359-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 36HERB20240001.165.D

Lab ID: 410-11359-1 MSD Client ID: SB27_18-20 MSD

	SPIKE	MSD	MSD QC LIMITS				
	ADDED	CONCENTRATION	왕	용			#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
Silvex (2,4,5-TP)	9.25	5.15	56	4	50	70-130	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB27 18-20 MS Lab ID: 410-11359-1 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 89.5

Analyte	SSR	С	Sample Result (SE	R) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	3.80		1.6		1.94	115	75-125		6020B
Barium	28.2		17		9.73	114	75-125		6020B
Beryllium	1.00	J	0.24	J	0.788	97	75-125		6020B
Cadmium	1.05		ND		0.981	107	75-125		6020B
Chromium	22.8		11		9.85	119	75-125		6020B
Copper	21.3		12		9.81	96	75-125		6020B
Lead	4.53		2.9		0.965	173	75-125	F1	6020B
Manganese	80.8		78		9.85	32	75-125	4	6020B
Nickel	88.0		81		9.85	70	75-125	4	6020B
Selenium	2.01		ND		1.96	102	75-125		6020B
Silver	10.1		ND		9.86	102	75-125		6020B
Zinc	119		18	J	98.5	103	75-125		6020B
Mercury	0.161		ND		0.178	91	80-120		7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: SB27 18-20 MSD Lab ID: 410-11359-1 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 89.5

Analyte	(SDR)	С	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Arsenic	3.20		2.11	77	75-125	17	20		6020B
Barium	28.7		10.6	110	75-125	2	20		6020B
Beryllium	1.10	J	0.856	101	75-125	9	20		6020B
Cadmium	1.12		1.06	105	75-125	6	20		6020B
Chromium	19.2		10.7	76	75-125	17	20		6020B
Copper	20.8		10.6	85	75-125	2	20		6020B
Lead	3.70		1.05	80	75-125	20	20		6020B
Manganese	87.7		10.7	94	75-125	8	20	4	6020B
Nickel	66.5		10.7	-136	75-125	28	20	4 F2	6020B
Selenium	2.13		2.13	100	75-125	6	20		6020B
Silver	10.8		10.7	100	75-125	7	20		6020B
Zinc	128		107	103	75-125	7	20		6020B
Mercury	0.157		0.180	87	80-120	2	20		7471B

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5B-IN POST DIGESTION SPIKE SAMPLE RECOVERY METALS

Client ID: SB27 18-20 PDS Lab ID: 410-11359-1 PDS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11359-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

Analyte	SSR	С	Sample Result (SE	R) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	2.44		1.6		0.868	99	85-115		6020B
Barium	17.4		17		0.868	NC	85-115		6020B
Beryllium	0.438	J	0.24	J	0.217	92	85-115		6020B
Cadmium	0.255		ND		0.217	117	85-115	W	6020B
Chromium	11.4		11		0.434	NC	85-115		6020B
Copper	12.4		12		0.434	NC	85-115		6020B
Lead	3.01		2.9		0.217	NC	85-115		6020B
Manganese	76.7		78		0.868	NC	85-115		6020B
Nickel	79.2		81		0.434	NC	85-115		6020B
Selenium	0.453	J	ND		0.434	104	85-115		6020B
Silver	0.227		ND		0.217	105	85-115		6020B
Zinc	21.6	J	18	J	4.34	83	85-115	W	6020B
Mercury	0.153		ND		0.180	85	85-115		7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

6-IN DUPLICATES METALS

Client ID: SB27_18-20 DU Lab ID: 410-11359-1 DU

Lab Name: <u>Eurofins Lancaster Laboratories</u> Job No.: <u>410-11359-1</u>

SDG No.:

% Solids for Sample: 89.5 % Solids for Duplicate: 89.5

Matrix: Solid Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	С	Duplicate (D)) C	RPD	Q	Method
Arsenic	0.88	1.6		1.01		44	F5	6020B
Barium	0.88	17		30.8		58	F3	6020B
Beryllium	2.2	0.24	J	0.232	J	2		6020B
Cadmium	0.22	ND		ND		NC		6020B
Chromium	0.88	11		9.25		19		6020B
Copper	0.88	12		10.4		13		6020B
Lead	0.44	2.9		2.82		1		6020B
Manganese	0.88	78		82.5		6		6020B
Nickel	0.88	81		42.6		62	F3	6020B
Selenium	0.88	ND		ND		NC		6020B
Silver	0.22	ND		ND		NC		6020B
Zinc	66	18	J	21.2	J	17		6020B
Mercury	0.066	ND		ND		NC		7471B

Calculations are performed before rounding to avoid round-off errors in calculated results.



December 21, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for six soil samples, two field blanks, one trip blank, and one equipment blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-11539-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SOFB04_08212020	SB33_0-2	SB33_11-13	SB33_18-20
SB32_0-2	SB32_14-16	SB32_26-28	FB01-08212020
TD04 00040000	ED 00040000		

TB01_08212020 EB_08212020

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	No – See Section A.7.
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes

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	Data Usability Summary Report	
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data	
	package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

Volatile Organics

- The result for sec-butylbenzene in SB33_0-2 was qualified as estimated (UJ) with potential low bias, based on a decrease in sensitivity in the continuing calibration (CC) standard, when compared to the initial calibration (IC).
- Results for all target compounds in SB32_0-2 were qualified as estimated (J, UJ) with indeterminate bias, based on unacceptable surrogate recoveries.
- The result for acetone in SB33_0-2 was qualified as estimated (J+) with potential high bias, based on high recoveries in the laboratory control sample (LCS), LCS duplicate (LCSD), matrix spike (MS), and MS duplicate (MSD).
- o Results for n-butylbenzene and sec-butylbenzene in SB33_0-2 were qualified as estimated (J-, UJ) based on low recoveries in the MS.
- Results for n-butylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4trimethylbezene, and 1,3,5-trimethylbenzene in SB32_0-2 were qualified as estimated (J, UJ) based on unacceptable responses for the internal standard with which these compounds are calculated.
- The result for toluene in SB32_14-16 was corrected to not detected (U) at the reporting limit or reported concentration, whichever is greater, based on poor spectral match and/or unacceptable signal to noise (S/N) ratio.
- Based on the validator's professional judgment, and the laboratory's responses regarding this issue (see Section A.7.), results for all target analytes in SB32_0-2 and SB32_0-2 RA were rejected (R) as unusable. Two undiluted analyses of this sample were performed with vastly different results. The laboratory indicated that they assumed the re-analysis had been performed on an incorrect vial since the results were so different, however, this supposition could not be confirmed as the sample had been disposed of and could not be re-analyzed for confirmation.

o Semi-Volatile Organics (Full scan)

Results for all target compounds in SOFB04_08212020 were rejected (R) as unusable, due to extremely low surrogate recoveries (<10%). Results for all target compounds in the re-extraction, SOFB0408212020 RE, were qualified as estimated (UJ) based on low recoveries for the surrogate compounds and extraction beyond the method holding time. The results from the re-extraction are recommended for use.</p>

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The initial results are marked "reportable - no." The result for phenol in the initial extraction also warrants qualification based on low LCS recovery, however, the "R" qualifier takes precedence.

- Results for all acid extractable compounds, hexachlorobenzene, and naphthalene in SB33_0-2, SB33_11-13, and SB32_26-28 were qualified as estimated (J-, UJ) based on low recoveries for the associated surrogate compounds.
- Results for all acid-extractable compounds in SB32_14-16 were qualified as estimated (UJ) based on low recoveries for the surrogate compounds.
- Results for phenol, 2-methylphenol, and 4-methylphenol in SB32_0-2 were qualified as estimated (UJ) based on low recoveries for the surrogate compounds.
- Results for phenol, 2-methylphenol, and 4-methylphenol in all of the soil samples in this SDG were qualified as estimated (UJ) with potential low bias, based on low recoveries in the associated LCS.
- The result for phenol in SOFB04_08212020 was qualified as estimated (UJ) based on low recovery in the associated LCS.
- Results for acenaphthene, anthracene, naphthalene, 2-methylphenol, 4-methylphenol, dibenzofuran, hexachlorobenzene, phenol, phenanthrene, and pentachlorophenol in all of the soil samples were qualified as estimated (J-, UJ) with low bias, due to high RPD and/or low MS and/or MSD recoveries.
- Non-detect results for benzo(a)anthracene, benzo(b)fluoranthene, and chrysene in SB32_26-28 are rejected as unusable (R) and positive results for these analytes in all other soil samples were qualified as estimated (J-) with low bias, based on MSD recoveries below 10 percent.
- Results for acenaphthylene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, and pyrene in all of the soil samples were qualified as estimated (J, UJ) with no directional bias, based on low MS and/or MSD recoveries and poor precision between the MS and MSD.
- Results for fluoranthene in all of the soil samples in this SDG were qualified as estimated (J, UJ) based low and high recoveries in the MS and MSD, and poor precision between the MS and MSD.
- The validator corrected results for acenaphthene in SB33_11-13 and SB33_18-20 and for fluoranthene in SB32_26-28 to not detected at the RL based on low S/N ratio and/or poor spectral match.

Semi-Volatile Organics (SIM)

 Results for 1,4-dioxane in SB32_0-2 and SOFB04_08212020 were qualified as estimated (UJ) based on low recoveries for the associated surrogate compound. Mr. Joseph Yanowitz December 21, 2020 Page 4 of 21



 Results for 1,4-dioxane in all of the soil samples in this SDG and SOFB04_08212020 were qualified as estimated (UJ) based on low recovery in the LCS.

o Pesticides

- The result for alpha-chlordane in SB32_0-2 was qualified as estimated (J+) due to the high %D for this analyte in an associated CC standard on the column from which the result was reported.
- The results for all target pesticide compounds in SOFB04_08212020 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.
- The results for gamma-BHC, alpha-chlordane, dieldrin, 4,4'-DDD, and 4,4'-DDT in SB33_0-2 were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns.
- The results for aldrin and heptachlor in SOFB04_08212020 were qualified as estimated (UJ) due to low LCS recoveries.
- The results for aldrin, alpha-chlordane, beta-BHC, dieldrin, heptachlor, 4,4'-DDD, and 4,4'-DDT in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were qualified as estimated (J-, UJ) due to low MS and/or MSD recoveries (J-, UJ).
- The results for alpha-BHC, endosulfan I, and endosulfan sulfate in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were qualified as estimated (J, UJ) due to low MS/MSD recoveries and imprecision between MS/MSD results.
- Non-detect results for delta-BHC, endosulfan II, and gamma-BHC in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were rejected (R) and positive results were qualified as estimated (J) because these analytes were not recovered in the MS and/or MSD.
- Results for gamma-BHC and dieldrin in SB33_0-2, gamma-BHC and beta-BHC in SB33_11-13, gamma-BHC and delta-BHC in SB33_18-20, 4,4'-DDT in SB32_0-2, alpha-BHC, gamma-BHC, aldrin, alpha-chlordane, and 4,4'-DDT in SB32_14-16, and alpha-BHC, delta-BHC, and 4,4'-DDD in SB32_26-28 were qualified as estimated (J) due to lack of agreement between the two column measurements.

o PCBs

 The results for all Aroclors in SOFB04_08212020 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

Herbicides

The results for Silvex in SOFB04_08212020, SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

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 The results for Silvex in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, and SB32_14-16 were qualified as estimated (UJ) due to low LCS recoveries.

o Per- and Polyfluoroalkyl Substances (PFAS)

- The result for PFDoDA in EB_08212020 was qualified as estimated (UJ) due to the low recovery of the associated labeled analog.
- The result for perfluorohexanesulfonic acid (PFHxS) in SB33_11-13 was qualified as estimated (J) and presumptively present (N) because the ion ratio was outside the laboratory's acceptance limits.

Chromium, Hexavalent and Trivalent

 Results for hexavalent and trivalent chromium in all of the soil samples were qualified as estimated (J, UJ) based on poor precision between the field duplicate results.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- · Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - Trip Blanks
 - Surrogate recoveries
 - o LCS/LCSD recoveries
 - o MS/MSD recoveries
 - o Internal standards
 - Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

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In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- One of four internal standards (IS) was unacceptable in the initial analysis of sample SB32_0-2. The sample was re-analyzed. The chromatogram for the initial analysis was very "clean" with only acetone and a trace of tetrachloroethene present. The chromatogram for the re-analysis indicated a high concentration of a light to mid-weight distillate that was not present in the initial analysis. The laboratory responded to a request for investigation that the re-analysis was reported in error and the report was revised with the data for the re-analysis, and the narrative comment, removed. The laboratory was asked to further clarify the reasons for the removal of these data and replied that it was assumed that an incorrect vial had been analyzed for this sample, since the results were so very different. Because the sample had been disposed of, this supposition could not be confirmed by re-analysis of the sample. Based on the vastly different results for the two analyses and the uncertainty regarding which, if either, of the analyses represents the sample constituents, results for all target analytes in both analyses were rejected (R) as unusable. It is the validator's professional opinion that no reliable results were provided in the data package for this sample.
- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the SVOCs analyses are recommended for use.
- A "T" flag was present in the EDD for a number of results. This data flag was not present
 on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs
 are formatted with NYSDEC-specific data qualifiers for submission to the agency, although
 this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the higher concentration IC standards and/or some samples, for the full-scan SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification on this issue, the laboratory stated that flagged peaks are examined by the analyst for impact, and by the second level reviewer.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did
 not match the responses found in the raw data. According to the laboratory, the
 discrepancies are because peak heights are reported in the raw data, but peak areas are
 reported on the summary forms. Corrected documentation was not provided by the time

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this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.

- The laboratory reported the lower concentrations for target analytes in several samples and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration. This policy should have been noted in the case narrative.
- Results for two ICV standards for toxaphene and one ICV standard for technical chlordane were included with the pesticides data. Since toxaphene and technical chlordane are not target analytes for these analyses, the data are not relevant and were not reviewed.
- For PCBs laboratory control sample 410-38341/2-A in the data package as received, the laboratory quantified the wrong fifth selected peak for Aroclor 1260 on the DB CLP1 column and the wrong fourth selected peak for Aroclor 1260 on the DB CLP2 column. On request, the laboratory corrected these results and provided a revised data package.
- The result for Silvex in SB34_10-12 was reported from a re-analysis of the sample. The laboratory did not explain why the re-analysis was determined to be necessary.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening continuing calibration verifications (CCVs) and continuing calibration blanks (CCBs). The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the method blank (MB) and LCS take the place of the CCB and CCV for this manual wet chem method.
- Method detection limits (MDLs) for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply.

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It should be noted that a run log with raw data was generated and provided for the field sample analyses.

• No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

A copy of the applicable chain of custody (COC) record was included in the data package, documenting a collection date of August 21, 2020. The samples were received by the laboratory on the same day as sample collection. The cooler temperatures on receipt at the laboratory (3.7°C and 4.5°C) were acceptable (QC 4°C ±2°C). All samples were properly preserved and were prepared and/or analyzed within method-specified holding times, with one exception.

The aqueous field blank, SOFB_08212020, exhibited exceptionally low (<10%) recoveries in the initial extraction for SVOCs. This QC sample was re-extracted beyond the seven-day holding time for waters and all results were qualified as estimated (UJ) on this basis.

A. Volatile Organics

1. Calibration

Four ICs were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable. Second-source ICV standards were analyzed following each IC and all %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
9953 – 8/24/20 @ 10:03	1,1-Dichloroethene	+25.5	SB33_18-20 SB32_0-2 SB32_26-28	None
9953 – 8/27/20 @ 8:52	1,1-Dichloroethene	+21.6	SB33_0-2	None
	1,4-Dioxane	+36.1		
	sec-Butylbenzene	-23.6		UJ

The %Ds for 1,1-dichloroethene and 1,4-dioxane represent an increase in instrument sensitivity. Neither compound was detected in the associated samples, therefore, no action was necessary. A decrease in sensitivity was indicated by the high %D for sec-butylbenzene, therefore, the result for sec-butylbenzene in SB33_0-2 was qualified as estimated (J-).

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2. Surrogates

Surrogate recoveries were acceptable (70-130%), with the following exceptions:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB32_0-2	Toluene-d ₈	131	All target compounds	J, UJ
	Bromofluorobenzene	63		

Results for all target compounds in SB32_0-2 were qualified as estimated (J, UJ) with indeterminate bias, based on unacceptable surrogate recoveries.

3. LCS/LCSD

Recoveries and precision for the LCS/LCSD pairs prepared and analyzed with the site samples in this dataset were acceptable (70-130 %R; <30 RPD) with the exceptions noted below:

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS/LCSD 36677-35/36					
Acetone	142	141	а	SB33_0-2	J+

a-acceptable

High recovery indicates the potential for high bias, therefore, the positive result for acetone in SB33_0-2 was qualified as estimated (J+).

4. MS/MSD

One project-related MS/MSD pair, from a different SDG, was prepared and analyzed in association with the samples in batch 36677. Recoveries and precision (70-130%R; 50 RPD) were acceptable for all compounds with the following exceptions:

Parent Sample SB31_0-2 (SDG 11717 – another SDG from this project)					
Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Acetone	240	193	а	SB33_0-2	J+
1,1-Dichloroethene	132	а	а		None
1,4-Dioxane	138	а	а		
sec-Butylbenzene	67	а	а		J-, UJ
n-Butylbenzene	65	а	а		

a-acceptable

The positive result for acetone in SB33_0-2 was qualified as estimated (J+) based on the potential for high bias indicated by high recoveries in the MS and MSD. Results for sec-butylbenzene and

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n-butylbenzene were qualified as estimated (J-, UJ) based on the potential for low bias or false negatives indicated by low recoveries in the MS.

5. Internal Standards

Sample	IS	Area as % of CC	Compounds Affected	Qualifiers Applied
SB36_0-2	1,4-Dichlorobenzene-d4	34.0	n-butylbenzene	J, UJ
SB36_0-2 RA	1,4-Dichlorobenzene-d ₄	49.9	n-propylbenzene sec-butylbenzene tert-butylbenzene 1,2-dichlorobenzene 1,3-dichlorobenzene 1,4-dichlrobenzene 1,2,4-trimethylbenzene 1,3,5-trimethylbenzene	

Based on unacceptable responses in SB36_0-2 and SB36_0-2 RA, for the internal standard 1,4-dichlorobenzene-d₄, the results for the compounds detailed above are qualified as estimated (J, UJ).

6. Compound Identification

The result for toluene in SB32_14-16, was corrected to not detected (U) at the reporting limit, based on poor spectral match and/or unacceptable signal/noise (S/N) ratio.

7. Quantitation

One of four internal standards (IS) was unacceptable in the initial analysis of sample SB32 0-2. According to the data package as originally provided, the sample was re-analyzed. The laboratory chose the initial analysis as the reportable one. The chromatogram for the initial analysis was very "clean" with only acetone and a trace of tetrachloroethene present. The chromatogram for the re-analysis indicated a high concentration of a light to mid-weight distillate that was not present in the initial analysis. Concentrations of alkylbenzenes ranging from 46 to >230 ug/kg were reported in the re-analysis. The laboratory was contacted to request investigation into the disparity. The laboratory responded that the re-analysis was reported in error and that the report would be revised with the data for the re-analysis, and the associated narrative comment, removed. The laboratory was asked to further clarify the rationale for the removal of these data and replied that it was assumed that an incorrect vial had been analyzed for this sample, since the results were so very different. Because the sample had been disposed of, this supposition could not be confirmed by re-analysis of the sample. Based on the vastly different results for the two analyses and the uncertainty regarding which, if either, of the analyses represents the sample constituents, results for all target analytes in both analyses were rejected (R) as unusable. It is the validator's professional opinion that no reliable results were provided in the data package for this sample.

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B. Semi-Volatile Organics (Full Scan)

1. Calibration

Three ICs (Instrument HP23296 – soils; HP20296 and HP23264 – waters) were reported in support of sample analyses. All RRFs and RSDs or correlation coefficients (r²) for the project target analytes were acceptable. An ICV standard was analyzed following each IC and all %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D).

2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SOFB04_08212020	2-Fluorophenol	3	All target compounds	R
	Phenol-d ₅	4		
	2,4,6-	9		
	Tribromophenol			
	Nitrobenzene-d₅	0.05		
	2-Fluorobiphenyl	0.03		
	Terphenyl-d ₁₄	13		
SOFB04_08212020 RE	2-Fluorophenol	33	All target compounds	J-, UJ
	Phenol-d ₅	23		
	Nitrobenzene-d ₅	64		
	2-Fluorobiphenyl	64		
SB33_0-2	2-Fluorophenol	56	All acid-extractable	
	Phenol-d ₅	63	compounds	
	2,4,6-	58		
	Tribromophenol			
	Nitrobenzene-d ₅	64	List 2**	
SB33_11-13	2-Fluorophenol	63	All acid-extractable	
	Phenol-d ₅	68	compounds	
	Nitrobenzene-d ₅	67	List 2**	
SB32_0-2	2-Fluorophenol	69	List 1*	
SB32_14-16	2-Fluorophenol	64	All acid-extractable	
	Phenol-d ₅	68	compounds	
SB32_26-28	2-Fluorophenol	62		

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Sample	Surrogate	%R Compounds Affected		Qualifiers Applied
	Phenol-d ₅	66	All acid-extractable compounds	
	Nitrobenzene-d ₅	63	List 2**	

^{*}List 1: phenol, 2-methylphenol, and 4-methylphenol

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries. Where the surrogate recovery was less than 10%, results for associated target compounds were rejected (R) as unusable.

3. LCS/LCSD

Results for two LCSs (1 soil, 1 water) were reported in the data package. Percent recoveries were acceptable (70-130%R) with the exceptions below:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
LCS 36827/2			
Phenol	65	All soil sample in this SDG	J-, UJ
2-Methylphenol	68		
4-Methylphenol	67		
LCS 37277/2			
Phenol	48	SOFB04_08212020	UJ

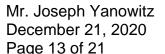
Results, as detailed above, were qualified as estimated (J-, UJ) with the potential for low bias or false negatives based on the low recoveries observed in the LCSs.

4. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported in the data package for SDG J11717. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<30) with the exceptions below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB31_0-2					
Acenaphthene	66	44	а	All soil samples in this	J-, UJ
Anthracene	а	42	а	SDG	
Naphthalene	58	44	а		
2-Methylphenol	55	51	а		
4-Methylphenol	58	49	а		
Dibenzofuran	а	53	а		
Hexachlorobenzene	а	64	а		

^{**}List 2: hexachlorobenzene and naphthalene





Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Phenol	57	51	а		
Phenanthrene	52	-73	46		
Pentachlorophenol	53	37	35		
Benzo(a)anthracene	а	9	45		R, J-
Benzo(b)fluoranthene	а	8	40		
Chrysene	а	3	47		
Acenaphthylene	а	57	34		J, UJ
Benzo(a)pyrene	а	20	40		
Benzo(g,h,i)perylene	а	43	36		
Benzo(k)fluoranthene	а	44	39		
Fluoranthene	144	-42	47		
Fluorene	а	51	32		
Indeno(1,2,3-cd)pyrene	а	42	40		
Pyrene	а	-44	47		

a-acceptable

Results for acenaphthene, anthracene, naphthalene, 2-methylphenol, 4-methylphenol, dibenzofuran, hexachlorobenzene, phenol, phenanthrene, and pentachlorophenol in all of the soil samples were qualified as estimated (J-, UJ) with low bias due to high RPD and/or low MS and/or MSD recoveries.

Non-detect results for benzo(a)anthracene, benzo(b)fluoranthene, and chrysene in SB32_26-28 are rejected as unusable (R) and positive results for these analytes in all other soil samples were qualified as estimated (J-) with low bias based on MSD recoveries below 10 percent.

Results for acenaphthylene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, and pyrene in all of the soil samples were qualified as estimated (J, UJ) with no directional bias, based on low and/or high MS and/or MSD recoveries and poor precision between the MS and MSD.

5. Internal Standards

Retention times for the CC standard analyzed in association with the soil samples were early for all six of the IS compounds. As the shifts appear similar for all six IS, it is assumed that column trimming, or other minor maintenance gave rise to the shift. All IS RTs associated with the CC were acceptable and matched the standard well. The RT for the final IS (perylene-d₁₂) in the CC associated with the re-extraction analysis of SOFB04 was early by 0.03 minutes when compared to the mid-point standard in the IC. Identification and quantitation of the target compounds associated with this IS in the CC were unaffected by this shift, and the shift was reflected in the associated sample analysis, therefore, no action was warranted based on the review.



6. Target Compound Identification

The validator corrected results for acenaphthene in SB33_11-13 and SB33_18-20 and for fluoranthene in SB32_26-28 to not detected at the RL, based on low S/N ratio and/or poor spectral match.

7. Quantitation

Sample SB33_0-2 was analyzed at a five-times dilution due to the sample matrix. Results were reported from the dilution and RLs were adjusted accordingly by the laboratory. Sample SOFB_08212020 was re-extracted beyond holding time, due to unacceptable surrogate recoveries in the initial analysis. The re-extraction also exhibited poor surrogate recoveries, but, improved from the initial analysis. The initial extraction results were reported by the laboratory. The validator rejected all results in the initial analysis due to extremely low (<10%) surrogate recoveries, and marked these "reportable – no". Results for all compounds in the re-extraction were qualified as estimated (UJ) based on the low surrogate recoveries and holding time exceedance.

B. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Surrogate

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane; therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

Sample	%R	Qualifier Applied
SB32_0-2	52	UJ
SOFB04_08212020	68	

Results for 1,4-dioxane in the samples listed above were qualified as estimated (UJ) with a potential low bias, based on low recovery observed in the associated surrogate compound.

2. LCS/LCSD

A soil LCS and a water LCS/LCSD pair were analyzed with this SDG. Recoveries of 1,4-dioxane in the LCS and LCS/LCSD were low (QC 70-130%), as follows:

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied	
LCS 36828/2						
1,4-Dioxane	29	na	na	All soil samples in the SDG	UJ	
LCS 38355/2&3						
1,4-Dioxane	43	48	а	SOFB04_08212020	UJ	

na-not analyzed a-acceptable

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Results for 1,4-dioxane in all of the soil samples and the aqueous field blank were qualified as estimated (UJ) based on low recovery in the LCS.

D. Pesticides

1. Calibration

Two ICs were reported in support of sample analyses. All calibration factors (CFs) and relative standard deviations (RSDs) were acceptable. A second-source ICV standard was analyzed following each IC and all %Ds were acceptable (<20%D).

Five CC standards were analyzed, and all percent differences were acceptable (<20%D) with the following exceptions:

СС	Compound	%D	Affected Samples	Qualifiers Applied
8/29/20 @ 16:30 -	alpha-Chlordane	21.2	SB32_0-2	J+
instrument 9191,	alpha-BHC	21.3	None	None
Column 2	Heptachlor	21.4		
	Endosulfan I	21.2		
	4,4'-DDE	24.4		
	Dieldrin	21.9		
	Endrin	24.7		
	4,4'-DDD	29.7		
	Endosulfan II	21.3		
	Endosulfan Sulfate	23.6		

The percent differences represent an increase in instrument sensitivity. The result for alphachlordane in SB32_0-2 was qualified as estimated (J+) due to the high %D for this analyte in an associated CC standard on the column from which the result was reported. For alpha-chlordane in all other samples and the remaining listed compounds in all samples, the analyte was either not detected or the positive result was reported from Column 1. Therefore, no additional qualifiers were necessary on this basis.

2. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate / Column									
Sample	TCX/1	TCX/2	DCB/1	DCB/2						
SB33_0-2	а	а	197	197						
SB33_11-13DL	299	а	а	181						
SB33_18_20DL	а	а	а	153						
SB32_26-28	а	69	а	а						

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Sample		Surrogate / Column									
Sample	TCX/1	TCX/2	DCB/1	DCB/2							
SOFB04_08212020	a	а	40	44							

a-acceptable

The results for all target pesticide compounds in SOFB04_08212020 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns. The results for gamma-BHC, alpha-chlordane, dieldrin, 4,4'-DDD, and 4,4'-DDT in SB33_0-2 were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns. Samples SB33_11-13DL and SB33_18-20DL were analyzed at 100-fold dilutions, which reduced the surrogate concentration to below the lower limit of the calibration range. Accurate surrogate recoveries would not be expected in this situation, and no additional action was taken on this basis. Since three of four surrogate recoveries were acceptable for SB33_18-20DL and SB32_26-28, no action was taken based on the single unacceptable surrogate recovery for each sample.

3. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for two LCS analyses associated with the sample analyses were reported in the data package. Percent recoveries were acceptable (70-130%R) with the exceptions below:

LCS 410-36264/2-	A			
Analyte	LCS %R Column 1	LCS %R Column 2	Sample Affected	Qualifiers Applied
Aldrin	47	50	SOFB04_08212020	UJ
Heptachlor	65	65		

The results for aldrin and heptachlor in SOFB04_08212020 were qualified as estimated (UJ) due to low LCS recoveries.

4. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB33_0-2 was prepared as an MS/MSD pair with this data set. Percent recoveries and RPDs were acceptable (70-130%R, RPD<30) with the exceptions below:

Parent Sample: SB33_0-2											
Parameter	MS %R Column 1 / 2	MSD %R Column 1 / 2	RPD Col. 1 / 2	Samples Affected	Qualifiers Applied						
Aldrin	68 / 68	58 / 60	a/a	SB33_0-2	J-, UJ						
alpha-Chlordane	61 / 65	49 / 57	a/a	SB33_11-13							
beta-BHC	57 / 58	48 / 52	a/a	SB33_18-20							
Dieldrin	68 / 57	51 / 39	a/a	SB32_0-2 SB32_14-16							
Endrin	a/a	67 / a	a/a	SB32 26-28							
Heptachlor	a / 64	a / 55	a/a	_							
4,4'-DDD	68/ a	52 /66	a/a								
4,4'-DDT	a / 54	41 / 13	a/a								
alpha-BHC	61 / 64	18 / 20	103 / 110		J, UJ						



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Parent Sample: SB33_0-2											
Parameter	MS %R Column 1 / 2			Samples Affected	Qualifiers Applied						
Endosulfan I	58 / 60	19 / 22	91 / 103								
Endosulfan sulfate	66 / a	25 / 30	74 / 95								
delta-BHC	21 / 24	0/0	NC		J, R						
Endosulfan II	53 / 57	0/0	NC								
gamma-BHC	-36 / -86	- 59 / -76	NC								

a-acceptable

NC - not calculated

The results for aldrin, alpha-chlordane, beta-BHC, dieldrin, heptachlor, 4,4'-DDD, and 4,4'-DDT in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were qualified as estimated (J-, UJ) due to low MS and/or MSD recoveries (J-, UJ). The results for alpha-BHC, endosulfan I, and endosulfan sulfate in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were qualified as estimated (J, UJ) due to low MS/MSD recoveries and imprecision between MS/MSD results. Nondetect results for delta-BHC, endosulfan II, and gamma-BHC in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were rejected (R) and positive results were qualified as estimated (J) because these analytes were not recovered in the MS and/or MSD.

Since three of four MS/MSD recoveries were acceptable for endrin, no action was taken based on the low MSD recovery.

5. Compound Identification and Quantitation

The relative percent difference (RPD) between the two column measurements columns was acceptable (≤40 RPD) for compounds detected in each sample, with the exception noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB33_0-2	gamma-BHC	5.2	3.3	45
	Dieldrin	1.6 J	0.38 J	123
SB33_11-13	gamma-BHC	4.0	1.4	97
	beta-BHC	2.8	1.1 J	87
SB33_18-20	gamma-BHC	1.2	0.39 J	99
	delta-BHC	1.6	0.83 J	61
SB32_0-2	4,4'-DDT	5.2	3.3	43
SB32_14-16	alpha-BHC	6.8	1.0	146
	gamma-BHC	3.9	0.31 J	171
	Aldrin	0.25 J	01.6	146
	alpha-Chlordane	1.3	18	174
	4,4'-DDT	6.6	0.39 J	178
SB32_26-28	alpha-BHC	8.7 E	0.44 J	181
	delta-BHC	3.8	2.2	53
	4,4'-DDD	1.9 J	0.57 J	106

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Results for gamma-BHC and dieldrin in SB33_0-2, gamma-BHC and beta-BHC in SB33_11-13, gamma-BHC and delta-BHC in SB33_18-20, 4,4'-DDT in SB32_0-2, alpha-BHC, gamma-BHC, aldrin, alpha-chlordane, and 4,4'-DDT in SB32_14-16, and alpha-BHC, delta-BHC, and 4,4'-DDD in SB32_26-28 were qualified as estimated (J) due to lack of agreement between the two column measurements.

Samples SB33_11-13 and SB33_18-20 were analyzed at 100-fold dilutions "due to the nature of the sample matrix." For SB33_11-13, results for aldrin, alpha-chlordane, delta-BHC, endosulfan I, and heptachlor were reported from the 100-fold dilution, and for SB33_18-20, results for aldrin, alpha-chlordane, endosulfan I, and heptachlor were reported from the 100-fold dilution. None of these compounds was detected in the diluted analysis.

The laboratory reported the lower concentration for gamma-BHC and dieldrin in SB33_0-2, alpha-BHC, gamma-BHC, and beta-BHC in SB33_11-13, gamma-BHC and delta-BHC in SB33_18-20, 4,4'-DDD, and 4,4'-DDT in SB32_0-2, alpha-BHC, gamma-BHC, delta-BHC, aldrin, alpha-chlordane, and 4,4'-DDD in SB32_14-16, and alpha-BHC, delta-BHC, and 4,4'-DDD in SB32_26-28 and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column										
Sample	TCX/1	TCX/2	DCB/1	DCB/2							
SB33_0-2	а	а	а	207							
SB33_11-13	а	а	56	а							
SB33_18-20	а	а	69	а							
SOFB04_08212020	а	69	14	14							

a-acceptable

The results for all Aroclors in SOFB04_08212020 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

For SB33_0-2, SB33_11-15, and SB33_18-20, since three of four surrogate recoveries were acceptable, no action was taken due to the single unacceptable DCB recovery.

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F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column								
Sample	DCPAA / 1	DCPAA / 2							
SOFB04_08212020	64	63							
SB33_0-2	63	58							
SB33_11-13	59	62							
SB33_18-20	66	63							
SB32_0-2	63	60							
SB32_14-16	57	54							
SB33_27-28	53	57							

The results for Silvex in SOFB04_08212020, SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, SB32_14-16, and SB32_26-28 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for two solid-matrix LCSs and one aqueous-matrix LCS associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCS analyses were acceptable (QC 70-130%R), except as noted below:

Parameter	LCS %R LCS %R Column 1 Column		Samples Affected	Qualifier Applied
LCS 410-39026/2	A			
Silvex	67	66	SB33_0-2 SB33_1-13 SB33_18-20 SB32_0-2 SB32_14-16	UJ

The results for Silvex in SB33_0-2, SB33_11-13, SB33_18-20, SB32_0-2, and SB32_14-16 were qualified as estimated (UJ) due to low LCS recoveries.

G. Metals

Based on the validation effort, all metals results were determined to be valid as reported by the laboratory. The user is cautioned that metals were detected in the soil field blank for most analytes and may impact results. However, it is ddms' professional opinion to qualify data of like matrices.

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H. Per- and Polyfluoroalkyl Substances (PFAS)

1. Surrogates (Extracted Internal Standards/ Labeled Analogs):

All labeled analog recoveries were acceptable (40-140%R) with the following exception:

Sample	Labeled Analog	%R
EB_08212020	Perfluoro[13C2]dodecanoic acid	30

The result for PFDoDA in EB_08212020 was qualified as estimated (UJ) due to the low recovery of the associated labeled analog.

2. Compound Identification

With one exception, PFAS were correctly identified in the samples in which they were detected. Ion ratios were determined during initial calibration, using the integrated areas for the primary and secondary ions from their reference standard mass chromatograms. Confirmation in samples is made by verifying the ratio against the acceptance limits established by the laboratory. The result for PFHxS in SB33_11-13 was qualified as estimated (J) and presumptively present (N) because the ion ratio was outside the laboratory's acceptance limits.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

a. Laboratory Duplicate

Sample SB33_18-20 was prepared and analyzed for hexavalent chromium as a laboratory duplicate pair. Poor precision was observed (54 % RPD; QC limit: 50 % RPD) between the paired results. Results for hexavalent and trivalent chromium in all of the soil samples were qualified as estimated (J, UJ) on this basis.

3. General Chemistry - Quantitation

No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

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Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-11539-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. 410-11539-1

Environmental Anal

Lancaster Laboratories Environmental

eurofins :



410-11539 Chain of Custody

n of Custody

itories Environmental use only

Sample #

COC #611568

Client Information	n								sis l	rsis Requested For Lab Use Only									
Client:	Acct. #:									P	reser	vatio	n and	Filtratio	n Cod	les	FSC:	-	
Langan					le l												SCR#:		
Project Name/#: 1	PWSID #:				Tissue	Ground			CBr,	including			6				Pres	ervation C	odes
250 Water St. / 17038 1202 Project Manager:	P.O. #:				F	irou			5,4	Lod	P						H=HCI		hiosulfate
Joseph Yanowitz	F.O. W.					0 0		S	NOCS, REBS,	incl.							N=HNO ₃		laOH
Sampler:	Quote #:		_	-	Ħ		-	nei	Sis	7	1		1.4				S=H ₂ SO ₄ F=Field F	Itered O=0	I ₃ PO ₄
Tyler Zom (TZ) Lexi Haley (LIF)					Sediment	9 8		Containers	8 2	met	2		寫		1		1 1 10 10 10	Remarks	2011/0/2017
State where samples were collected: For Compliance:				0	edi	Potable		Ö	73	1 . 6	0X		FZ						
New York Yes	No ⊠			Composite	Š	S A		5	N. S.	375/TAL	Dioxane	5	Part 375/						
0 1 11 11 11	Colle	ected		g.	X	6	1.	# =	375	375	-	PFA5	100						
Sample Identification	Date	Time	Grab	lo.	Soil	Water	Other:	Total #	324	Part	-	É	3						
SOFB04_08212020	08/21/2010	Owner, where the party of the last of the	-	0	(I)	×	0	14	X	X	V	X			+		-		-
\$833 - 0-2	1	11	V		×	^		1	7	1	1	7			+		-		
		12:30	7		T			6		+	-	\vdash			+		_		
SB33_ II-I3		12:33			+			H	1	+	+	H			+		_		
SB33_18-20		12:36	+		+			Н		1		H			+		-		_
SB 32 6-2		15:20	1		+			+		1	1	1			+		-		
SB32_14-16		15:25	-		+			Н	1	1	-	-			-				
SB32-26-28		15:30	1		علد			X	1	1	1	1							
FROI _ (182/2020	\vdash	1610				X		2	业	*	1	4							
TBO1 -08212020						X		3					×						
EB01-082/2020	V	1605	-			X		2				X							
Turnaround Time (TAT) Requested		e)	Helino	uished	Dy Z	in The	1	7		Date	0 -	Time	27	Received b	Sul			Date	Time
Standard R (Rush TAT is subject to laboratory approval and surcharge	ush		Beling	uished	by _	in al	1	8	~	Date	2020	Time	50	Received b		V		ZVJUGZO Date	1630
(Hush TAT is subject to laboratory approval and surcharge)			10.0	1	2/24/9	Vr.				VER20		020	THE CONTROL OF	,		/	Date	Hillia
Requested TAT in business days:			Relino	quished	by	, 0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Date		Time	-	Received b	у	/		Date	Time
									/					1	/				
E-mail address: jyanowitz@langan. Con			Relinc	quished	by			7		Date		Time		Received	٧ ,			Date	Time
Data Package Options (circle if required)							/							/	/				
Type I (EPA Level 3 Type VI (Raw Data Only)		Relino	quished	by	,	/			Date		Time		Received b	1/	/		Date I-2 John	7030	
Equivalent/non-CLP)				-	_	FDD D		10						71	Cul	1			du X
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	020200				-		MS/N	ISD/I	Dup)?) Y	es	No						2 11 -	4-
NYSDEC Category A or B MA MCP	CTF	RCP		Site-Specific QC (MS/MSD/Dup)? Yes No (If yes, indicate QC sample and submit triplicate sample volume.)									Temperature upon receipt 3.7-4 e 5						

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc
The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-11539-1

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11539-1

SDG No.:

Lab Sample ID: CCVIS 410-36677/3 Calibration Date: 08/27/2020 08:52

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25 (mm) Calib End Date: 0.7/29/2020 17:55

Lab File ID: bg24c50.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
N-Propylbenzene	Ave	4.222	4.002		47.4	50.0	-5.2	20.0
2-Chlorotoluene	Ave	0.9068	0.8758		48.3	50.0	-3.4	20.0
1,3,5-Trimethylbenzene	Ave	3.106	2.909		46.8	50.0	-6.4	20.0
4-Chlorotoluene	Ave	0.9382	0.9309		49.6	50.0	-0.8	20.0
tert-Butylbenzene	Ave	0.6998	0.6382		45.6	50.0	-8.8	20.0
Pentachloroethane	Ave	0.4566	0.5215		57.1	50.0	14.2	20.0
1,2,4-Trimethylbenzene	Ave	3.228	3.078		47.7	50.0	-4.6	20.0
sec-Butylbenzene	Lin1		3.409		38.0	50.0	-23.9*	20.0
1,3-Dichlorobenzene	Ave	1.792	1.704	0.6000	47.6	50.0	-4.9	20.0
p-Isopropyltoluene	Ave	3.274	2.973		45.4	50.0	-9.2	20.0
1,4-Dichlorobenzene	Ave	1.849	1.733	0.5000	46.9	50.0	-6.3	20.0
1,2,3-Trimethylbenzene	Ave	3.277	3.475		53.0	50.0	6.0	20.0
Benzyl chloride	Ave	1.598	1.543		48.3	50.0	-3.4	20.0
1,3-Diethylbenzene	Ave	2.122	2.336		55.0	50.0	10.1	20.0
1,4-Diethylbenzene	Ave	2.219	2.451		55.2	50.0	10.5	20.0
n-Butylbenzene	Ave	1.685	1.485		44.1	50.0	-11.8	20.0
1,2-Dichlorobenzene	Ave	1.740	1.629	0.4000	46.8	50.0	-6.4	20.0
1,2-Diethylbenzene	Ave	1.818	1.946		53.5	50.0	7.0	20.0
1,2-Dibromo-3-Chloropropane	Ave	0.1521	0.1289	0.0500	42.4	50.0	-15.3	20.0
1,3,5-Trichlorobenzene	Ave	1.309	1.119		42.8	50.0	-14.5	20.0
1,2,4-Trichlorobenzene	Ave	1.222	1.033	0.2000	42.3	50.0	-15.5	20.0
Hexachlorobutadiene	Lin		0.3688		29.7	50.0	-40.6*	20.0
Naphthalene	Ave	3.153	2.716		43.1	50.0	-13.9	20.0
1,2,3-Trichlorobenzene	Ave	1.192	0.998		41.9	50.0	-16.3	20.0
2-Methylnaphthalene	Ave	1.942	1.942		50.0	50.0	-0.0	20.0
Dibromofluoromethane (Surr)	Ave	0.2266	0.2326		51.3	50.0	2.6	20.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.0551	0.0547		49.7	50.0	-0.7	20.0
Toluene-d8 (Surr)	Ave	1.381	1.345		48.7	50.0	-2.6	20.0
4-Bromofluorobenzene (Surr)	Ave	0.4857	0.4929		50.7	50.0	1.5	20.0

FORM II GC/MS VOA SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.:	410-11539-1
--	-------------

SDG No.:

Matrix: Solid Level: Low

GC Column (1): R-624SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
SB33_0-2	410-11539-2	102	98	96	96
SB33_18-20	410-11539-4	100	99	96	100
SB32_0-2	410-11539-5	112	109	131	63
SB32_26-28	410-11539-7	100	99	96	98
	MB 410-36437/7	101	103	96	97
	MB 410-36677/7	101	101	94	97
	LCS 410-36437/4	101	103	98	101
	LCS 410-36677/35	100	100	97	100
	LCSD 410-36437/5	100	100	97	102
	LCSD 410-36677/36	101	99	97	101

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	50-141
DCA = 1,2-Dichloroethane-d4 (Surr)	54-135
TOL = Toluene-d8 (Surr)	52-141
BFB = 4-Bromofluorobenzene (Surr)	50-131

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II GC/MS VOA SURROGATE RECOVERY

lab N	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11539-1
an n	vanie.	EULULIIIS	Lancaster	Taboracories	00D NO	410-11333-1

SDG No.:

Matrix: Solid Level: Medium

GC Column (1): R-624SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
SB33_11-13	410-11539-3	88	91	100	95
SB32_14-16	410-11539-6	102	107	111	111
	MB 410-37091/8	98	101	97	95
	LCS 410-37091/5	104	104	103	100
	LCSD 410-37091/6	103	103	102	101

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	50-141
DCA = 1,2-Dichloroethane-d4 (Surr)	54-135
TOL = Toluene-d8 (Surr)	52-141
BFB = 4-Bromofluorobenzene (Surr)	50-131

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II GC/MS VOA SURROGATE RECOVERY

lab N	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11539-1
an n	vanie.	EULULIIIS	Lancaster	Taboracories	00D NO	410-11333-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): R-624SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
SOFB04_08212020	410-11539-1	99	99	100	99
TB01_08212020	410-11539-9	100	100	99	99
	MB 410-36673/6	100	100	99	99
	LCS 410-36673/4	100	99	100	100

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	80-120
DCA = 1,2-Dichloroethane-d4 (Surr)	80-120
TOL = Toluene-d8 (Surr)	80-120
BFB = 4-Bromofluorobenzene (Surr)	80-120

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: <u>Eurofins</u>	Lancaster Labora	tories Job	No.: 4	410-115	539-1	
SDG No.	:						
Matrix:	Solid	Level: L	ow Lab	File I	ID: bg2	24L52.D	

Lab ID: LCS 410-36677/35 Client ID:

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	%	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	20.0	22.2	111		
1,1-Dichloroethane	20.0	22.4	112		
1,1-Dichloroethene	20.0	24.3	122		
1,2,4-Trimethylbenzene	20.0	20.0	100		
1,2-Dichlorobenzene	20.0	19.4	97		
1,2-Dichloroethane	20.0	21.1	105		
1,3,5-Trimethylbenzene	20.0	20.4	102		
1,3-Dichlorobenzene	20.0	19.5	97		
1,4-Dichlorobenzene	20.0	19.4	97	80-120	
1,4-Dioxane	500	580	116	62-131	
2-Butanone	150	165	110	57-128	
Acetone	150	214	142	41-150	
Benzene	20.0	22.4	112	80-120	
Carbon tetrachloride	20.0	21.9	110	64-134	
Chlorobenzene	20.0	20.7	103	80-120	
Chloroform	20.0	22.5	112	80-120	
cis-1,2-Dichloroethene	20.0	23.9	120	80-125	
Ethylbenzene	20.0	20.4	102	78-120	
Methyl tertiary butyl ether	20.0	20.1	101	72-120	
Methylene Chloride	20.0	22.9	115	76-122	
n-Butylbenzene	20.0	22.1	111	71-121	
N-Propylbenzene	20.0	21.4	107	72-123	
sec-Butylbenzene	20.0	18.9	94	72-120	
tert-Butylbenzene	20.0	20.4	102	68-120	
Tetrachloroethene	20.0	19.0	95	73-120	
Toluene	20.0	20.7	103	80-120	
trans-1,2-Dichloroethene	20.0	23.4	117		
Trichloroethene	20.0	22.5	112		
Vinyl chloride	20.0	20.4	102		
Xylenes, Total	60.0	61.9	103		
4 77, 777				- == 9	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8260C}$

FORM III GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab	Name:	Eurofins Lancast	er Laboratories	Job No.:	410-11539-1
SDG	No.:				
	. ~	7	- 1 -	- 1 - 1	TD 1 04750 D

Matrix: Solid Level: Low Lab File ID: bg24L53.D

Lab ID: LCSD 410-36677/36 Client ID:

	SPIKE ADDED	LCSD CONCENTRATION	LCSD	00	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
1,1,1-Trichloroethane	20.0	22.0	110	1	30	69-123	
1,1-Dichloroethane	20.0	22.5	113	1	30	79-120	
1,1-Dichloroethene	20.0	24.4	122	0	30	73-129	
1,2,4-Trimethylbenzene	20.0	20.3	101	1	30	73-120	
1,2-Dichlorobenzene	20.0	19.3	97	0	30	76-120	
1,2-Dichloroethane	20.0	21.0	105	0	30	71-128	
1,3,5-Trimethylbenzene	20.0	20.5	102	0	30	73-120	
1,3-Dichlorobenzene	20.0	19.5	98	0	30	75-120	
1,4-Dichlorobenzene	20.0	19.7	99	2	30	80-120	
1,4-Dioxane	500	581	116	0	30	62-131	
2-Butanone	150	161	107	3	30	57-128	
Acetone	150	212	141	1	30	41-150	
Benzene	20.0	22.7	113	1	30	80-120	
Carbon tetrachloride	20.0	21.7	109	1	30	64-134	
Chlorobenzene	20.0	20.9	104	1	30	80-120	
Chloroform	20.0	22.6	113	0	30	80-120	
cis-1,2-Dichloroethene	20.0	24.1	120	1	30	80-125	
Ethylbenzene	20.0	20.6	103	1	30	78-120	
Methyl tertiary butyl ether	20.0	20.1	101	0	30	72-120	
Methylene Chloride	20.0	23.1	116	1	30	76-122	
n-Butylbenzene	20.0	22.0	110	1	30	71-121	
N-Propylbenzene	20.0	21.3	106	1	30	72-123	
sec-Butylbenzene	20.0	19.0	95	1	30	72-120	
tert-Butylbenzene	20.0	20.5	102	0	30	68-120	
Tetrachloroethene	20.0	18.8	94	1	30	73-120	
Toluene	20.0	20.9	104	1	30	80-120	
trans-1,2-Dichloroethene	20.0	23.2	116	1	30	80-126	
Trichloroethene	20.0	22.5	113	0	30	80-120	
Vinyl chloride	20.0	19.8	99	3	30	52-120	
Xylenes, Total	60.0	62.2	104	0	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8260C}$

FORM III GC/MS VOA MATRIX SPIKE RECOVERY

	Lab Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11717-1
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SDG No.:

Matrix: Solid Level: Low Lab File ID: bg27S14.D

Lab ID: 410-11717-8 MS Client ID: SB31_0-2 MS

	SPIKE	SAMPLE	MS	MS	OC	
	ADDED	CONCENTRATION	_	_	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)		REC	REC	#
1,1,1-Trichloroethane	(ug/kg) 21.1	(ug/kg) ND	(ug/Kg) 24.0	114	69-123	
	21.1	ND ND	25.2	119		
1,1-Dichloroethane			27.9		73-129	F1
1,1-Dichloroethene	21.1	ND		132		F.T
1,2,4-Trimethylbenzene	21.1	ND	22.6	107	73-120	1
1,2-Dichlorobenzene	21.1	ND	15.5	73	76-120	F1
1,2-Dichloroethane	21.1	ND	21.4	102	71-128	
1,3,5-Trimethylbenzene	21.1	ND	23.3	111	73-120	
1,3-Dichlorobenzene	21.1	ND	17.3	82	75-120	
1,4-Dichlorobenzene	21.1	ND	16.6	79	80-120	F1
1,4-Dioxane	527	ND	729	138		F1
2-Butanone	158	ND	188	119		
Acetone	158	16 J	396	240		F1
Benzene	21.1	ND	23.3	111		
Carbon tetrachloride	21.1	ND	23.0	109		
Chlorobenzene	21.1	ND	18.6	88	80-120	
Chloroform	21.1	ND	24.1	114	80-120	
cis-1,2-Dichloroethene	21.1	ND	25.4	120		
Ethylbenzene	21.1	ND	19.4	92	78-120	
Methyl tertiary butyl ether	21.1	ND	22.8	108	72-120	
Methylene Chloride	21.1	ND	26.1	124	76-122	F1
n-Butylbenzene	21.1	ND	16.6	79	71-121	
N-Propylbenzene	21.1	ND	24.2	115	72-123	
sec-Butylbenzene	21.1	ND	18.0	85	72-120	
tert-Butylbenzene	21.1	ND	22.5	107	68-120	
Tetrachloroethene	21.1	ND	20.9	99	73-120	
Toluene	21.1	ND	23.1	110	80-120	
trans-1,2-Dichloroethene	21.1	ND	24.8	117	80-125	
Trichloroethene	21.1	ND	21.5	102	80-120	
Vinyl chloride	21.1	ND	25.0	118	52-120	
Xylenes, Total	63.3	ND	57.3	91	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8260C}$

FORM III GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11717-	1
Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11717-	-

SDG No.: ____

Matrix: Solid Level: Low Lab File ID: bg27S15.D

Lab ID: 410-11717-8 MSD Client ID: SB31_0-2 MSD

	SPIKE	MSD	MSD	0	QC LI	IMITS	
COMPOUND	ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	% REC	% - RPD	RPD	REC	#
1,1,1-Trichloroethane	22.1	24.4	110		30	69-123	
1,1-Dichloroethane	22.1	25.2	114		30	79-120	
1,1-Dichloroethene	22.1	27.5	125	1	30	73-129	
1,2,4-Trimethylbenzene	22.1	17.6	80	25	30	73-120	
1,2-Dichlorobenzene	22.1	17.0	77	9	30	76-120	
1,2-Dichloroethane	22.1	22.7	103	6	30	71-128	
1,3,5-Trimethylbenzene	22.1	17.5	79	29	30	73-120	
1,3-Dichlorobenzene	22.1	16.5	75	5	30	75-120	
1,4-Dichlorobenzene	22.1	16.0	72	4	30	80-120	F1
1,4-Dioxane	553	599	108	20	30	62-131	
2-Butanone	166	206	125	9	30	57-128	
Acetone	166	337	193	16	30	41-150	F1
Benzene	22.1	23.8	108	2	30	80-120	
Carbon tetrachloride	22.1	23.8	108	3	30	64-134	
Chlorobenzene	22.1	18.8	85	1	30	80-120	
Chloroform	22.1	24.4	110	1	30	80-120	
cis-1,2-Dichloroethene	22.1	25.8	117	2	30	80-123	
Ethylbenzene	22.1	18.0	81	8	30	78-120	
Methyl tertiary butyl ether	22.1	23.6	107	4	30	72-120	
Methylene Chloride	22.1	26.6	120	2	30	76-122	
n-Butylbenzene	22.1	15.4	69		30	71-121	F1
N-Propylbenzene	22.1	17.4	79	33	30	72-123	F2
sec-Butylbenzene	22.1	14.8	67	19	30	72-120	F1
tert-Butylbenzene	22.1	16.9	77	29	30	68-120	
Tetrachloroethene	22.1	23.0	104	9	30	73-120	
Toluene	22.1	20.8	94	11	30	80-120	
trans-1,2-Dichloroethene	22.1	24.6	111	1	30	80-125	
Trichloroethene	22.1	22.6	102	5	30	80-120	
Vinyl chloride	22.1	23.6	107	6	30	52-120	
Xylenes, Total	66.3	53.9	81	6	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8260C}$

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Sample No.: CCVIS 410-36437/3

Date Analyzed: 08/24/2020 10:03

Instrument ID: 9953

GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg24C01.D

Heated Purge: (Y/N) N

Calibration ID: 7943

		DCBd	DCBd4				
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		440027	10.29				
UPPER LIMIT		880054	10.79				
LOWER LIMIT		220014	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-36437/4		441252	10.29				
LCSD 410-36437/5		450528	10.29				
MB 410-36437/7		414962	10.29				
410-11539-4	SB33_18-20	403302	10.29				
410-11539-5	SB32_0-2	97213*3	10.29				
410-11539-7	SB32_26-28	394045	10.29				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Sample No.: CCVIS 410-36677/3 Date Analyzed: 08/27/2020 08:52

Instrument ID: 9953 GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg24c50.D Heated Purge: (Y/N) N

Calibration ID: 7943

		TBAd10		FB		CBZd5	5
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		101623	3.05	1095867	5.39	828484	8.45
UPPER LIMIT		203246	3.55	2191734	5.89	1656968	8.95
LOWER LIMIT	LOWER LIMIT		2.55	547934	4.89	414242	7.95
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 410-36677/7		104781	3.05	1069860	5.39	820628	8.45
LCS 410-36677/35		113857	3.05	1097490	5.39	837811	8.45
LCSD 410-36677/36		113476	3.04	1113766	5.38	849594	8.45
410-11539-2	SB33_0-2	91489	3.05	1029559	5.39	784534	8.45
410-11539-5 RA	SB32_0-2 RA	28277*3	3.04	207693*3	5.38	159822*3	8.45

TBAd10 = t-Butyl alcohol-d10 (IS)

FB = Fluorobenzene (IS)

CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

 $\ensuremath{\text{\#}}$ Column used to flag values outside QC limits

FORM VIII 8260C

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Sample No.: CCVIS 410-36677/3

Date Analyzed: 08/27/2020 08:52

Instrument ID: 9953

GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg24c50.D

Heated Purge: (Y/N) N

Calibration ID: 7943

		DCBd.	DCBd4				
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		436171	10.29				
UPPER LIMIT		872342	10.79				
LOWER LIMIT	LOWER LIMIT		9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 410-36677/7		410849	10.29				
LCS 410-36677/35		439617	10.29				
LCSD 410-36677/36		446167	10.29				
410-11539-2	SB33_0-2	390349	10.29				
410-11539-5 RA	SB32_0-2 RA	116146*3	10.29				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

Report Date: 26-Aug-2020 11:16:47 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\7566\20200825-8925.b\Rg25s31.D \\Injection Date: 26-Aug-2020 04:59:30 \quad Instrument ID: 7566

Lims ID: 410-11539-B-6-A Lab Sample ID: 410-11539-6

Client ID: SB32_14-16

Operator ID: jdt31256 ALS Bottle#: 29 Worklist Smp#: 30

 Purge Vol:
 5.000 mL
 Dil. Factor:
 50.0000

 Method:
 MSV_SW_846HL_7566
 Limit Group:
 MSV - 8260C_D

Column: Rxi-624Sil MS Capillary Column (0.25) etero)tor MS Quad 78 Toluene CAS: 108-88-3 Raw Spec:Scan 2636(9.96) m/z 92.0 16 48 55 14 40 Y (X1000) 97 Y (X100) 12 32 41 10 24 91 8 16 39 6 2 9.7 10.0 9.4 10.3 Min 0 30 40 50 60 70 80 90 100 110 120 130 RT Amdis Enhanced Spec: Scan 2636(9.96), Qvalue=97 Sig Qvalue=97 91.0 m/z .962 91 12 14 10 12 Y (X1000) Y (X100) 109 10 92 8 6 n 81 **1**10 9.4 9.7 10.0 10.3 93 Min 0 80 40 50 60 70 90 100 110 120 130 RT Ref Spec: 78 Toluene (NIST98.L) m/z 65.0 10 37-91 31 Y (X100) 25 (X100) 92 19 13 9.4 9.7 10.0 10.3 39 Min 0 50 90 100 110 120 130 30 40 60 70 80 RT Differenc Spec:Scan 1 @ 9.960 min.(Qvalue: 97) m/z 92.0 100 m/z 91.0 75 m/z 65.0 Y (X1000) 109 m/z 39.0 50 50 25 40 30 -25 20 -50 -75⁻ 10 -100 -40 70 90 100 50 60 80 110 120 130 9.7 10.3 30 9.4 10.0

Report Date: 24-Aug-2020 18:22:03 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\9953\20200824-8783.b\bg24S15.D

 Injection Date:
 24-Aug-2020 17:25:30
 Instrument ID:
 9953
 Operator ID:
 jkh09052

 Lims ID:
 410-11539-D-5-A
 Lab Sample ID:
 410-11539-5
 Worklist Smp#:
 22

Lims ID: 410-11539-D-5-A Client ID: SB32 0-2

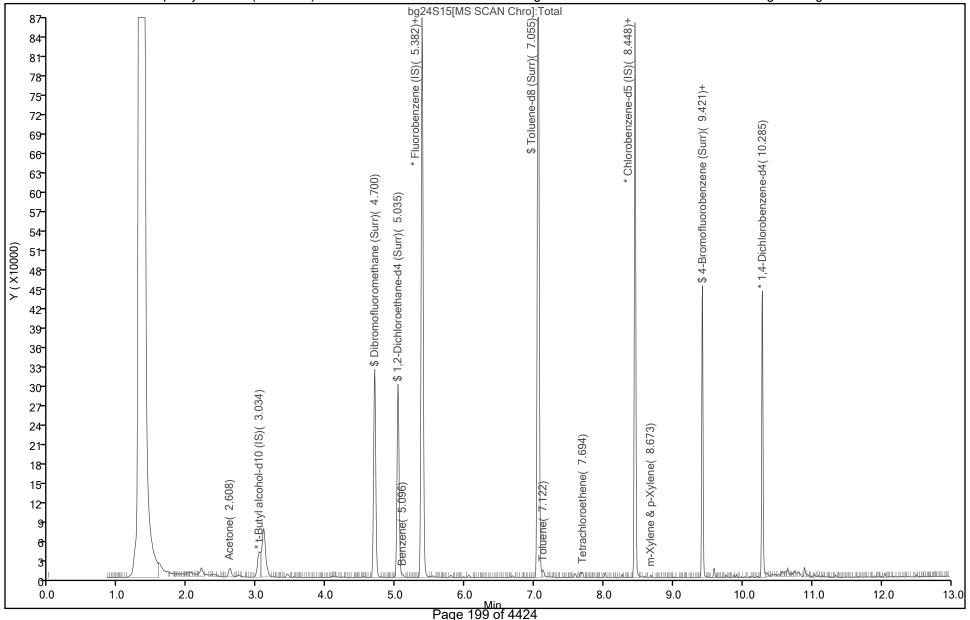
Purge Vol: 5.000 mL Dil. Factor: 1.0000 ALS Bottle#:

Method: MSV_SW_846DI_9953 Limit Group: MSV - 8260C_D

Column: Rxi-624Sil MS Capillary Column (0.25 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2

24



Report Date: 27-Aug-2020 15:07:49 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\9953\20200824-8841.b\bg27S07.D Injection Date: 27-Aug-2020 14:16:30 Instrument ID: 9953

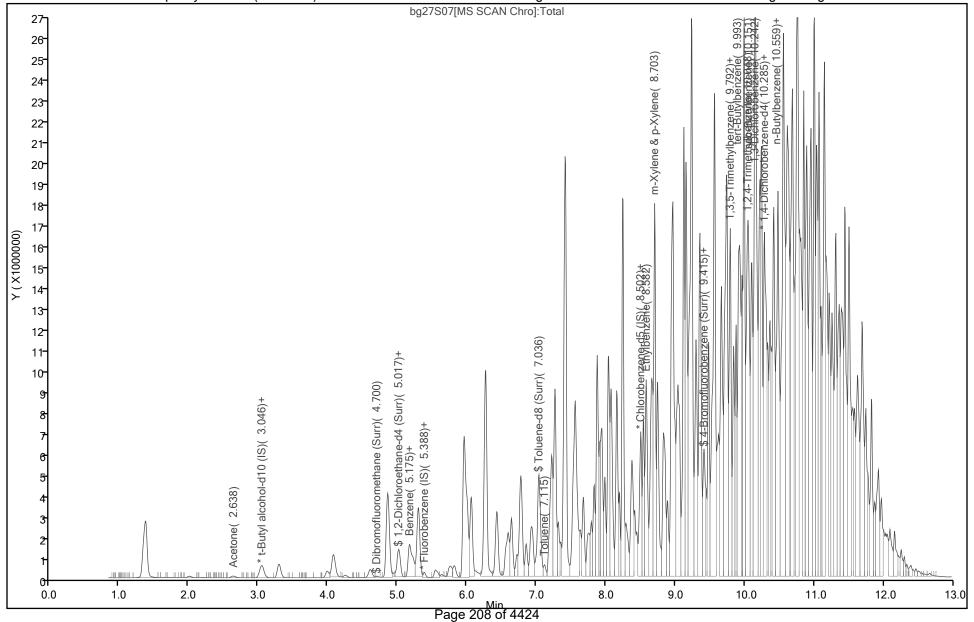
Client ID: SB32_0-2

Purge Vol: 5.000 mL Dil. Factor: 1.0000 ALS Bottle#: 16

Method: MSV_SW_846DI_9953 Limit Group: MSV - 8260C_D

Column: Rxi-624Sil MS Capillary Column (0.25 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Target: 2



FORM II GC/MS SEMI VOA SURROGATE RECOVERY

lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11539-1
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SDG No.:

Matrix: Solid Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP #	PHL #	NBZ #	FBP #	TBP #	TPHd14 #
SB33_0-2	410-11539-2	56	63	64	82	58	84
SB33_11-13	410-11539-3	63	68	67	82	71	94
SB33_18-20	410-11539-4	74	80	76	99	83	104
SB32_0-2	410-11539-5	69	75	70	92	91	95
SB32_14-16	410-11539-6	64	68	70	89	86	94
SB32_26-28	410-11539-7	62	66	63	84	80	88
	MB 410-36827/1-A	73	77	76	101	106	112
	LCS 410-36827/2-A	64	67	66	86	96	96

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories	Job No.:	410-11539-1
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SDG No.: ____

Matrix: Water Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP	#	PHL	#	NBZ	#	FBP	#	TBP	#	TPHd14	#
SOFB04_08212020	410-11539-1	3	Χ	4	Χ	0.05	Χ	0.03	Х	9	Х	13	Х
SOFB04_08212020 RE	410-11539-1 RE	33		23		64		64		76		81	
	MB 410-37277/1-A	46		35		87		75		96		86	
	LCS 410-37277/2-A	51		39		88		77		90		77	

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	10-84
PHL = Phenol-d5 (Surr)	10-67
NBZ = Nitrobenzene-d5 (Surr)	38-113
FBP = 2-Fluorobiphenyl (Surr)	44-102
TBP = 2, 4, 6-Tribromophenol (Surr)	18-141
TPHd14 = p-Terphenyl-d14 (Surr)	34-128

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8270D

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410-	-11539-1
SDG No.	:			
Matrix:	Solid	Level: Low	Lab File ID:	PH1304.D
Lab ID:	LCS 410-36827/2-A		Client ID:	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1670	1440	86	61-112	
Acenaphthylene	1670	1650	99	60-124	
Anthracene	1670	1690	101	67-120	
Benzo[a]anthracene	1670	1620	97	68-120	
Benzo[a]pyrene	1670	1760	105	68-119	
Benzo[b]fluoranthene	1670	1710	102	67-125	
Benzo[g,h,i]perylene	1670	1760	105	68-125	
Benzo[k]fluoranthene	1670	1760	105	66-122	
Chrysene	1670	1650	99	66-111	
Dibenz(a,h)anthracene	1670	1880	112	69-135	
Fluoranthene	1670	1820	109	65-114	
Fluorene	1670	1650	99	62-110	
Indeno[1,2,3-cd]pyrene	1670	1830	109	64-130	
Naphthalene	1680	1290	77	49-104	
2-Methylphenol	1670	1140	68	52-116	
Phenanthrene	1670	1690	101	67-116	
4-Methylphenol	1670	1120	67	52-121	
Dibenzofuran	1670	1550	93	62-113	
Pyrene	1680	1600	95	67-109	
Hexachlorobenzene	1670	1670	100	62-124	
Pentachlorophenol	1680	1610	96	40-131	
Phenol	1670	1090	65	57-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410	-11539-1
SDG No.	:			
Matrix:	Water	Level: Low	Lab File ID:	LH0864.D
Lab ID:	T.CS 410-37277/2-A		Client ID:	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
Acenaphthene	50.1	40.0	80	52-114	
Acenaphthylene	50.2	41.9	84	56-127	
Anthracene	50.1	44.3	88	67-116	
Benzo[a]anthracene	50.0	49.6	99	68-123	
Benzo[a]pyrene	50.2	43.9	88	71-117	
Benzo[b]fluoranthene	50.1	44.4	89	69-121	
Benzo[g,h,i]perylene	50.1	44.8	89	60-119	
Benzo[k]fluoranthene	50.1	43.6	87	69-122	
Chrysene	50.0	47.9	96	65-121	
Dibenz(a,h)anthracene	50.2	46.7	93	63-128	
Fluoranthene	50.1	48.9	98	63-122	
Fluorene	50.1	42.6	85	56-115	
Indeno[1,2,3-cd]pyrene	50.2	44.3	88	59-123	
Naphthalene	50.4	38.1	76	51-102	
2-Methylphenol	50.2	39.0	78	53-107	
Phenanthrene	50.2	45.9	92	65-113	
4-Methylphenol	50.1	40.0	80	49-108	
Dibenzofuran	50.0	42.3	85	60-112	
Pyrene	50.4	43.3	86	65-115	
Hexachlorobenzene	50.1	48.9	98	60-117	
Pentachlorophenol	50.4	49.1	97	54-131	
Phenol	50.2	23.9	48	19-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No	o.:	410-11717-1	
					'			

SDG No.:

Matrix: Solid Level: Low Lab File ID: PH1413.D

Lab ID: 410-11717-8 MS Client ID: SB31_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1840	380	1600	66	61-112	
Acenaphthylene	1840	490	2160	91	60-124	
Anthracene	1840	1100	2490	75	67-120	
Benzo[a]anthracene	1830	2800	4730	104	68-120	
Benzo[a]pyrene	1840	2500	4340	99	68-119	
Benzo[b]fluoranthene	1840	2800	4440	88	67-125	
Benzo[g,h,i]perylene	1840	1700	3560	103	68-125	
Benzo[k]fluoranthene	1840	1400	3200	100	66-122	
Chrysene	1830	2800	4540	97	66-111	
Dibenz(a,h)anthracene	1840	360	2010	90	69-135	
Fluoranthene	1840	6400	9060	144	65-114	F1
Fluorene	1840	430	1890	79	62-110	
<pre>Indeno[1,2,3-cd]pyrene</pre>	1840	1500	3480	105	64-130	
Naphthalene	1850	260	1320	58	49-104	
Phenanthrene	1840	5300	6220	52	67-116	F1
Pyrene	1850	5300	7240	105	67-109	
2-Methylphenol	1840	ND	1000	55	52-116	
4-Methylphenol	1840	ND	1060	58	52-121	
Dibenzofuran	1830	360	1680	72	62-113	
Hexachlorobenzene	1840	ND	1400	76	62-124	
Pentachlorophenol	1850	ND	984	53	40-131	
Phenol	1840	ND	1050	57	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Euro	fins Lancaster	Laboratories	Job No.:	410-11717-1	

SDG No.:

Matrix: Solid Level: Low Lab File ID: PH1414.D

Lab ID: 410-11717-8 MSD Client ID: SB31_0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	olc -	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Acenaphthene	1840	1190	44	29	30	61-112	F1
Acenaphthylene	1840	1530	57	34	30	60-124	F2 F1
Anthracene	1840	1890	42	27	30	67-120	F1
Benzo[a]anthracene	1830	2990	9	45	30	68-120	F2 F1
Benzo[a]pyrene	1840	2880	20	40	30	68-119	F2 F1
Benzo[b]fluoranthene	1840	2950	8	40	30	67-125	F2 F1
Benzo[g,h,i]perylene	1840	2460	43	36	30	68-125	F2 F1
Benzo[k]fluoranthene	1840	2160	44	39	30	66-122	F2 F1
Chrysene	1830	2810	3	47	30	66-111	F2 F1
Dibenz(a,h)anthracene	1840	1660	71	19	30	69-135	
Fluoranthene	1840	5640	-42	47	30	65-114	F2 F1
Fluorene	1840	1360	51	32	30	62-110	F2 F1
Indeno[1,2,3-cd]pyrene	1840	2320	42	40	30	64-130	F2 F1
Naphthalene	1850	1080	44	21	30	49-104	F1
Phenanthrene	1840	3910	-73	46	30	67-116	F2 F1
Pyrene	1850	4490	-44	47	30	67-109	F2 F1
2-Methylphenol	1840	946	51	6	30	52-116	F1
4-Methylphenol	1840	892	49	17	30	52-121	F1
Dibenzofuran	1830	1330	53	23	30	62-113	F1
Hexachlorobenzene	1840	1180	64	17	30	62-124	
Pentachlorophenol	1850	688 J	37	35	30	40-131	F2 F1
Phenol	1840	939	51	11	30	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

Report Date: 26-Aug-2020 11:34:43 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP23262\20200825-8947.b\PH1309.D Injection Date: 26-Aug-2020 03:04:30 Instrument ID: HP23262 Lims ID: 410-11539-I-3-B Lab Sample ID: 410-11539-3

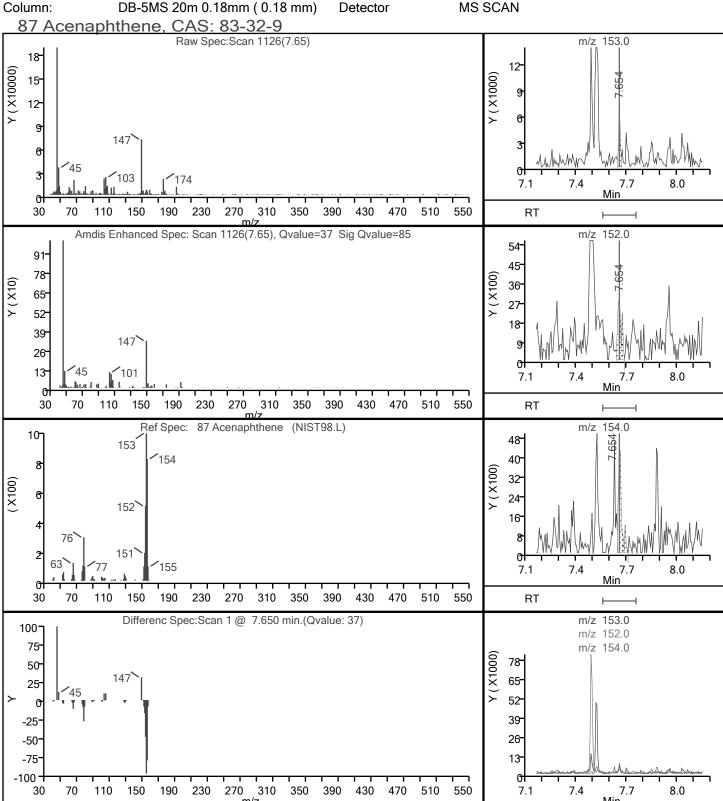
Client ID: SB33_11-13

Operator ID: sw30417 ALS Bottle#: 10 Worklist Smp#: 10

1.0 ul Dil. Factor: Injection Vol: 1.0000

MSSV - 8270D E Method: MSSemi HP23262 Limit Group:

Detector MS SCAN



Report Date: 26-Aug-2020 11:34:48 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP23262\20200825-8947.b\PH1310.D Injection Date: 26-Aug-2020 03:27:30 Instrument ID: HP23262 Lims ID: 410-11539-I-4-B Lab Sample ID: 410-11539-4

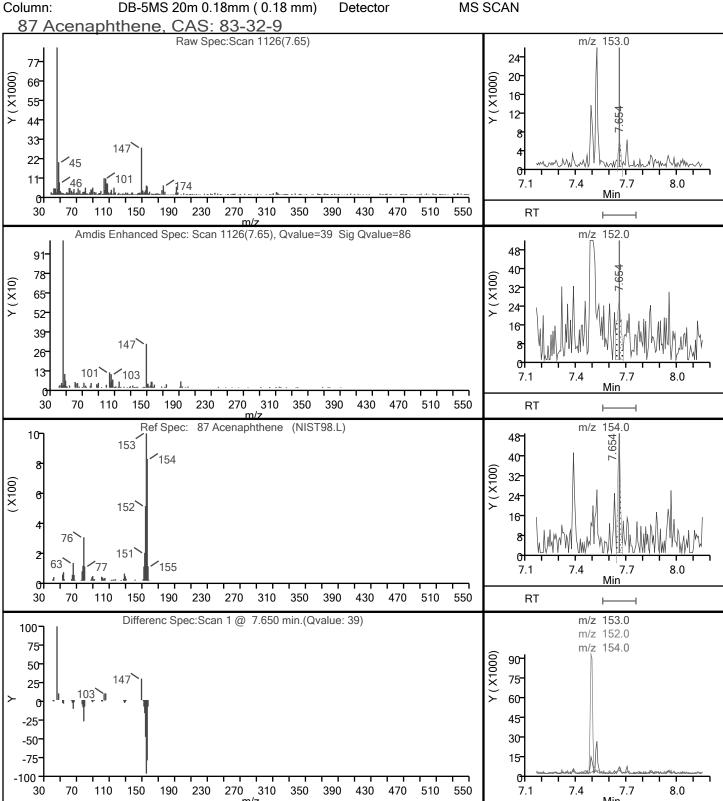
Client ID: SB33_18-20

Operator ID: sw30417 ALS Bottle#: 11 Worklist Smp#: 11

1.0 ul Dil. Factor: Injection Vol: 1.0000

MSSV - 8270D E Method: MSSemi HP23262 Limit Group:

Detector MS SCAN



Report Date: 26-Aug-2020 11:35:14 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

 Data File:
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 Injection Date:
 26-Aug-2020 04:34:30
 Instrument ID:
 HP23262

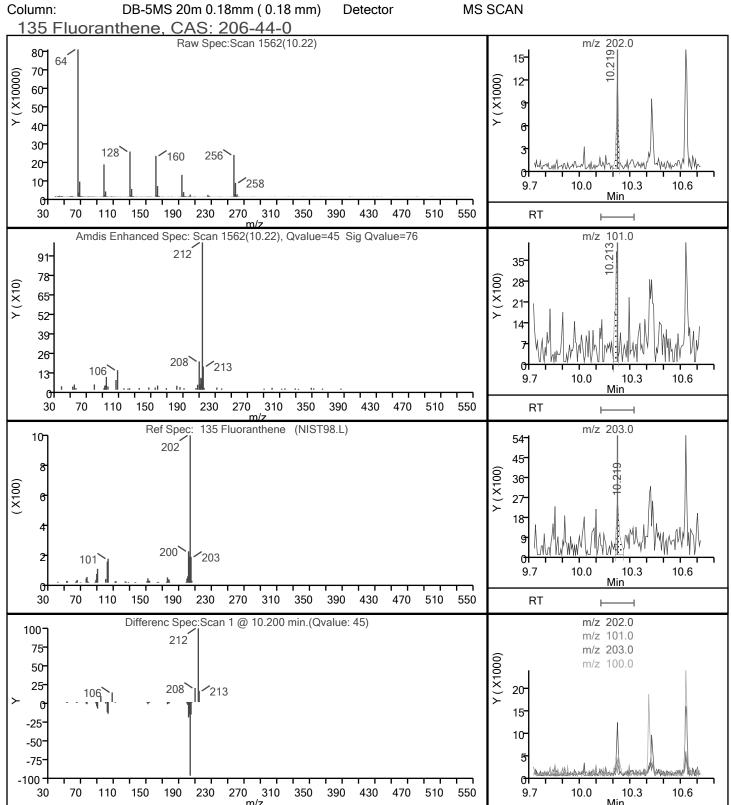
 Lims ID:
 410-11539-I-7-B
 Lab Sample ID:
 410-11539-7

Client ID: SB32_26-28

Operator ID: sw30417 ALS Bottle#: 14 Worklist Smp#: 14

Injection Vol: 1.0 ul Dil. Factor: 1.0000

Method: MSSemi_HP23262 Limit Group: MSSV - 8270D_E



FORM II GC/MS SEMI VOA SURROGATE RECOVERY

|--|

SDG No.:

Matrix: Solid Level: Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SB33_0-2	410-11539-2	94	69	59
SB33_11-13	410-11539-3	77	63	73
SB33_18-20	410-11539-4	83	94	79
SB32_0-2	410-11539-5	52	85	63
SB32_14-16	410-11539-6	87	69	73
SB32_26-28	410-11539-7	81	92	80
	MB 410-36828/1-A	83	88	78
	LCS 410-36828/2-A	96	83	86

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Nam	ne: Eurofins	Lancaster	Laboratories	Job No.:	410-11539-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): DB-5MS 30m ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SOFB04_08212020	410-11539-1	68	77	71
	MB 410-38355/1-A	76	83	70
	LCS 410-38355/2-A	64	76	74
	LCSD 410-38355/3-A	72	83	77

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancas	incaster Laboratories		Job No.: 410-11539-1							
SDG No.:										
Matrix: Solid	Level: Low	Lab	File ID: CH2012.D							
Lab ID: LCS 410-36828/2-A		Cli	ent ID:							
	SPIKE ADDED		LCS CONCENTRATION	LCS	QC LIMITS	#				

REC

REC

21-79

Column to be used to flag recovery and RPD values

FORM III 8270D SIM

COMPOUND

1,4-Dioxane

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job	No.: 410-11539-1				
SDG No.:	:							
Matrix:	Water	Level: Low	Lab	File ID: MH1107.D				
Lab ID:	LCS 410-38355/2-A		Cli	ent ID:				_
	COMPOUND	SPIKE ADDED		LCS CONCENTRATION	LCS %	QC LIMITS	#	

1.00

0.431

18-91

1,4-Dioxane

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Lab	oratories	Job No.: 4					
SDG No.:							
Matrix: Water Level	: Low	Lab File I	D: MH	1108.	D		
Lab ID: LCSD 410-38355/3-A		Client ID:					
	SPIKE	LCSD	LCSD	۰	QC LI	IMITS	ш
COMPOLIND		CONCENTRATION	REC	RPD	חחח	DEC	#
COMPOUND	(ug/L)	(ug/L)	KEC 10		RPD	REC	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM VII PESTICIDES CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11539-1

SDG No.:

Lab Sample ID: CCV 410-38743/33 Calibration Date: 08/29/2020 16:30

Instrument ID: 9191 Calib Start Date: 08/28/2020 03:47

Lab File ID: 10PEST20232017.027.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
alpha-BHC	Ave	243604036	295573908		12.1	10.0	21.3*	20.0
gamma-BHC (Lindane)	Ave	215043619	255725326		11.9	10.0	18.9	20.0
beta-BHC	Ave	95995660	107868697		11.2	10.0	12.4	20.0
Heptachlor	Ave	178221257	196809196		11.0	10.0	10.4	20.0
delta-BHC	Ave	208534458	253141866		12.1	10.0	21.4*	20.0
Aldrin	Ave	186561577	221105715		11.9	10.0	18.5	20.0
Heptachlor epoxide	Ave	175721483	205142909		11.7	10.0	16.7	20.0
gamma-Chlordane	Ave	176363302	221241595		12.7	10.1	25.4*	20.0
alpha-Chlordane	Ave	180082378	218304141		12.1	10.0	21.2*	20.0
Endosulfan I	Ave	168087200	203764322		12.1	10.0	21.2*	20.0
p,p'-DDE	Ave	187683474	233423512		25.0	20.1	24.4*	20.0
Dieldrin	Ave	181643494	221481640		24.4	20.0	21.9*	20.0
Endrin	Ave	162501903	202628280		25.1	20.1	24.7*	20.0
p,p'-DDD	Ave	144056051	186861513		26.1	20.1	29.7*	20.0
Endosulfan II	Ave	162753051	197346466		24.3	20.0	21.3*	20.0
p,p'-DDT	Ave	143828517	170196779		23.8	20.1	18.3	20.0
Endrin aldehyde	Ave	140740888	170882705		24.3	20.0	21.4*	20.0
Endosulfan sulfate	Ave	159570533	197180787		24.7	20.0	23.6*	20.0
Methoxychlor	Ave	71048064	84952792		120	100	19.6	20.0
Endrin ketone	Ave	187618770	216916597		23.1	20.0	15.6	20.0
Tetrachloro-m-xylene (Surr)	Ave	178900480	196588186		43.9	40.0	9.9	20.0
DCB Decachlorobiphenyl (Surr)	Ave	154950984	157735514		40.8	40.1	1.8	20.0

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11539-1 SDG No.:

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB33_0-2	410-11539-2	79		77		197	Х	197	X
SB33_11-13	410-11539-3	118		86		97		87	
SB33_11-13 DL	410-11539-3 DL	299	Х	90		93		181	Х
SB33_18-20	410-11539-4	128		83		102		92	
SB33_18-20 DL	410-11539-4 DL	129		90		94		153	Х
SB32_0-2	410-11539-5	77		70		104		93	
SB32_14-16	410-11539-6	107		88		103		97	
SB32_26-28	410-11539-7	106		69		90		86	
	MB 410-38342/1-A	57		61		91		95	
	LCS 410-38342/2-A	64		68		90		94	
SB33_0-2 MS	410-11539-2 MS	76		71		215	Х	215	Х
SB33_0-2 MSD	410-11539-2 MSD	63		59		195	Χ	182	Х

QC LIMITS TCX = Tetrachloro-m-xylene (Surr) 19-136 DCB = DCB Decachlorobiphenyl (Surr) 46-152

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II PESTICIDES SURROGATE RECOVERY

Job No.: 410-11539-1
Level: Low
GC Column (2): MR2 ID:

Client Sample ID	Lab Sample ID	TCX1 #	TCX2 #	DCB1 #	DCB2 #
SOFB04_08212020	410-11539-1	73	82	40	44
	MB 410-36264/1-A	71	82	58	66
	LCS 410-36264/2-A	68	78	46	53

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8081B

FORM III PESTICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name	Eurofins Lancast	er Laboratories	Job No.: 410-11539-1
SDG No.:			
Matrix:	Water	Level: Low	Lab File ID: 41PEST20221017.010.D
Lab ID:	LCS 410-36264/2-A		Client ID:

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	왕	LIMITS	#
COMPOUND	(ug/L)	(ug/L)	REC	REC	
Aldrin	0.100	0.0502	50	28-119	
alpha-BHC	0.101	0.0888	88	47-132	
alpha-Chlordane	0.100	0.0853	85	28-136	
beta-BHC	0.100	0.0942	94	27-143	
delta-BHC	0.100	0.0885	88	28-141	
Dieldrin	0.200	0.182	91	31-145	
Endosulfan I	0.100	0.0916	92	40-138	
Endosulfan II	0.200	0.189	94	27-138	
Endosulfan sulfate	0.200	0.195	98	41-133	
Endrin	0.200	0.190	95	35-143	
gamma-BHC (Lindane)	0.100	0.0921	92	29-136	
Heptachlor	0.100	0.0655	65	38-135	
p,p'-DDD	0.201	0.197	98	42-148	
p,p'-DDE	0.200	0.159	80	22-138	
p,p'-DDT	0.201	0.239	119	40-145	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11539-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 10PEST20232017.013.D

Lab ID: 410-11539-2 MS Client ID: SB33_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	"
COMPOUND	ADDED (ug/Kg)	CONCENTRATION (ug/Kg)		% REC	LIMITS REC	#
			(ug/Kg)			
Aldrin	3.65	ND	2.48	68	60-117	
alpha-BHC	3.69	ND	2.35	64	65-124	F1
alpha-Chlordane	3.65	0.69 J	2.97	63	73-131	F1
beta-BHC	3.65	ND	2.13	58	68-129	F1
delta-BHC	3.65	ND	0.887 J	24	45-151	F1
Dieldrin	7.29	0.38 J	5.75	74	63-126	
Endosulfan I	3.65	ND	2.19	60	62-119	F1
Endosulfan II	7.29	ND	4.12	57	65-126	F1
Endosulfan sulfate	7.29	ND	5.18	71	71-132	
Endrin	7.29	ND	5.63	77	86-135	F1
gamma-BHC (Lindane)	3.65	3.3	2.09	-33	68-133	F1
Heptachlor	3.65	ND	2.92	80	66-118	
p,p'-DDD	7.34	0.74 J	6.20	74	69-138	
p,p'-DDE	7.29	ND	7.54	103	68-146	
p,p'-DDT	7.34	4.5	9.95	74	67-135	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11539-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 10PEST20232017.014.D

Lab ID: 410-11539-2 MSD Client ID: SB33_0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	00	QC LI	IMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Aldrin	3.66	2.21	60	12	50	60-117	
alpha-BHC	3.70	0.756 J	20	103	50	65-124	F2 F1
alpha-Chlordane	3.66	2.69	55	10	50	73-131	F1
beta-BHC	3.66	1.91	52	11	50	68-129	F1
delta-BHC	3.66	ND	0	NC	50	45-151	F1
Dieldrin	7.31	4.48	56	25	50	63-126	F1
Endosulfan I	3.66	0.791 J	22	94	50	62-119	F2 F1
Endosulfan II	7.31	ND	0	NC	50	65-126	F1
Endosulfan sulfate	7.31	2.21	30	80	50	71-132	F2 F1
Endrin	7.31	5.72	78	2	50	86-135	F1
gamma-BHC (Lindane)	3.66	0.516 J	-76	121	50	68-133	p F2 F1
Heptachlor	3.66	2.00	55	37	50	66-118	p F1
p,p'-DDD	7.36	5.50	65	12	50	69-138	F1
p,p'-DDE	7.31	7.97	83	6	50	68-146	
p,p'-DDT	7.36	7.53	41	28	50	67-135	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Client Sample ID: <u>SB33_0-2</u> Lab Sample ID: 410-11539-2

Date Analyzed (1): 08/29/2020 13:25 Date Analyzed (2): 08/29/2020 13:25

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	TRATION	RPD
ANALITE	COL	PLAN	KI	FROM	TO	PEAK	MEAN	KPD
gamma-BHC (Lindane)	1		2.60	2.56	2.62	5.2		45.0
	2		3.00	3.00	3.06	3.3		
alpha-Chlordane	1		3.94	3.91	3.97	0.59		16.2
	2		4.52	4.49	4.55	0.69		
Dieldrin	1		4.21	4.19	4.25	1.6		123.1
	2		4.75	4.72	4.78	0.38		
p,p'-DDD	1		4.59	4.55	4.61	0.64		14.7
	2		5.03	5.01	5.07	0.74		
p,p'-DDT	1		4.79	4.76	4.82	4.5		4.2
	2		5.27	5.23	5.29	4.3		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Client Sample ID: <u>SB33_11-13</u> Lab Sample ID: <u>410-11539-3</u>

Instrument ID (1): 9191 Instrument ID (2): 9191

Date Analyzed (1): 08/29/2020 14:02 Date Analyzed (2): 08/29/2020 14:02

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	RATION	RPD
ANALITE	COL		KI	FROM	TO	PEAK	MEAN	KPD
alpha-BHC	1		2.29	2.26	2.32	0.59		14.3
	2		2.74	2.71	2.77	0.51		
gamma-BHC (Lindane)	1		2.59	2.56	2.62	4.0		96.7
	2		3.01	3.00	3.06	1.4		
beta-BHC	1		2.79	2.76	2.82	2.8		87.3
	2		3.27	3.24	3.30	1.1		
Heptachlor	1		2.89	2.86	2.92	1700		199.9
	2		3.58	3.55	3.61	0.44		
delta-BHC	1		3.03	3.02	3.08	7.6		145.4
	2		3.51	3.48	3.54	1.2		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Client Sample ID: <u>SB33_18-20</u> Lab Sample ID: <u>410-11539-4</u>

Instrument ID (1): 9191 Instrument ID (2): 9191

Date Analyzed (1): 08/29/2020 14:39 Date Analyzed (2): 08/29/2020 14:39

ANALYTE	COL	DEVA	PEAK RT -	RT WINDOW		CONCENTRATION		RPD
	COL	FEAN		FROM	TO	PEAK	MEAN	IXI D
gamma-BHC (Lindane)	1		2.59	2.56	2.62	1.2		99.1
	2		3.01	3.00	3.06	0.39		
delta-BHC	1		3.03	3.02	3.08	1.6		61.1
	2		3.52	3.48	3.54	0.83		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1 SDG No.:

Client Sample ID: <u>SB32_0-2</u> Lab Sample ID: <u>410-11539-5</u>

Date Analyzed (1): 08/29/2020 15:16 Date Analyzed (2): 08/29/2020 15:16

ANALYTE	COL	PEAK	RT -	RT WINDOW		CONCENTRATION		RPD
	COL	FEAN		FROM	TO	PEAK	MEAN	KFD
alpha-Chlordane	1		3.94	3.91	3.97	2.0		4.3
	2		4.52	4.49	4.55	2.0		
p,p'-DDD	1		4.58	4.55	4.61	2.2		21.4
	2		5.03	5.01	5.07	1.7		
p,p'-DDT	1		4.79	4.76	4.82	5.2		42.9
	2		5.27	5.23	5.29	3.3		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Date Analyzed (1): 08/29/2020 15:28 Date Analyzed (2): 08/29/2020 15:28

ANALYTE	COL	PEAK	RT	RT W	INDOW	CONCENT	TRATION	RPD
ANALITE	COL	PEAN	KI	FROM	TO	PEAK	MEAN	RPD
alpha-BHC	1		2.30	2.26	2.32	6.8		146.3
	2		2.72	2.71	2.77	1.0		
gamma-BHC (Lindane)	1		2.58	2.56	2.62	3.9		170.9
	2		3.00	3.00	3.06	0.31		
delta-BHC	1		3.02	3.02	3.08	3.0		23.6
	2		3.52	3.48	3.54	2.3		
Aldrin	1		3.17	3.14	3.20	0.25		146.1
	2		3.87	3.83	3.89	1.6		
alpha-Chlordane	1		3.92	3.91	3.97	1.3		173.6
	2		4.51	4.49	4.55	18		
p,p'-DDD	1		4.58	4.55	4.61	6.6		177.8
	2		5.01	5.01	5.07	0.39		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11539-1

SDG No.:

Client Sample ID: <u>SB32_26-28</u> Lab Sample ID: <u>410-11539-7</u>

Instrument ID (1): 9191 Instrument ID (2): 9191

Date Analyzed (1): 08/29/2020 15:40 Date Analyzed (2): 08/29/2020 15:40

ANALYTE	COL	PEAK	RT -	RT WI	INDOW	CONCENTRATION		RPD
ANALITE	СОП	FEAN		FROM	TO	PEAK	MEAN	T KED
alpha-BHC	1		2.30	2.26	2.32	8.7		180.9
	2		2.73	2.71	2.77	0.44		
gamma-BHC (Lindane)	1		2.58	2.56	2.62	1.0		22.5
	2		3.00	3.00	3.06	0.81		
delta-BHC	1		3.02	3.02	3.08	3.8		52.9
	2		3.52	3.48	3.54	2.2		
p,p'-DDD	1		4.58	4.55	4.61	1.9		106.4
	2		5.02	5.01	5.07	0.57		

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-11539-1				
SDG No.:						
Matrix: Water		Level: Low				
GC Column (1) · DB CLP1	TD: 0 32 (mm)	GC Column (2): DB CLP2	TD: 0 32 (mm)			

Client Sample ID	Lab Sample ID	TCX1	# TCX2 #	DCB1 #	DCB2 #
SOFB04_08212020	410-11539-1	71	69	14	14
	MB 410-38351/1-A	64	63	37	45
	LCS 410-38351/2-A	62	62	58	68
	LCSD 410-38351/3-A	65	62	62	70

QC LIMITS 33-137 10-148

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: 410-11539-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB33_0-2	410-11539-2	63	58
SB33_11-13	410-11539-3	59	62
SB33_18-20	410-11539-4	66	63
SB32_0-2	410-11539-5	63	60
SB32_14-16	410-11539-6	57	54
SB32_26-28	410-11539-7	53	57
	MB 410-39026/1-A	59	58
	MB 410-39478/1-A	56	55
	LCS 410-39026/2-A	60	56
	LCS 410-39478/2-A	61	59

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: 410-11539-1	
SDG No.:			
Matrix: Water		Level: Low	
GC Column (1): ZB-35	TD: 0 32 (mm)	GC Column (2): 7B-XLB	TD: 0 32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SOFB04_08212020	410-11539-1	64	63
	MB 410-36770/1-A	47	49
	LCS 410-36770/2-A	71	67

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{34-142}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name	e: <u>Eurofins Lancast</u>	er Lab	oratories	Job	No.: 410	-11539-1			
SDG No.	:								
Matrix:	Solid	Level	: Low	Lab	File ID:	36HERB2024	0001.	191.D	
Lab ID:	LCS 410-39026/2-A			Cli	ent ID: _				
			SPIKE		I	JCS	LCS	QC	.,

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

FORM II LCMS SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11539-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	C3PFBS #	13C5PHA#	C4PFHA #	C3PFHS #	M262FTS #	C8PFOA #
EB01_08212020	410-11539-10	81	85	89	85	85	83	100	85

	QC LIMITS
PFBA = 13C4 PFBA	41-132
PFPeA = 13C5 PFPeA	33-155
C3PFBS = 13C3 PFBS	19-178
13C5PHA = 13C5 PFHxA	31-142
C4PFHA = 13C4 PFHpA	30-144
C3PFHS = 13C3 PFHxS	32-145
M262FTS = M2-6:2 FTS	29-189
C8PFOA = 13C8 PFOA	49-127

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 537 (Mod)

FORM II LCMS SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11539-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	C8PFOS #	C9PFNA #	C6PFDA #	M282FTS #	PFOSA #	d3NMFOS#	13C7PUA#	d5NEFOS #
EB01_08212020	410-11539-10	85	84	81	106	67	60	52	47

	LIMITS
C9PFNA = 13C9 PFNA 47	9-126
	7-136
C6PFDA = 13C6 PFDA 47	7-128
M282FTS = M2-8:2 FTS 34	1-182
PFOSA = 13C8 FOSA 10	143
d3NMFOS = d3-NMeFOSAA 32	2-151
13C7PUA = 13C7 PFUnA 40	-135
d5NEFOS = d5-NEtFOSAA 37	7-164

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 537 (Mod)

FORM II LCMS SURROGATE RECOVERY

	lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11539-	.1
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SDG No.:

Matrix: Water Level: Low

GC Column (1): Gemini C18 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFDoDA #	PFTDA #
EB01_08212020	410-11539-10	30	66

PFDoDA = 13C2-PFDoDA PFTDA = 13C2 PFTeDA QC LIMITS 28-136 10-144 Report Date: 25-Aug-2020 14:56:15 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC Target Compound Quantitation Report

Data File: \\chromfs\Lancaster\ChromData\30731\20200824-8813.b\20AUG24-12.d

Lims ID: 410-11539-F-3-B Client ID: SB33_11-13

Sample Type: Client

Inject. Date: 24-Aug-2020 15:31:43 ALS Bottle#: 17 Worklist Smp#: 6

Injection Vol: 4.0 ul Dil. Factor: 1.0000

Sample Info: 410-11539-F-3-B WL8813

Misc. Info.: Plate: 1 Rack: 1 410-0008813-006

Operator ID: US19_USR_INS20262 Instrument ID: 30731

Method: \\chromfs\Lancaster\ChromData\30731\20200824-8813.b\PFAS_30731.m

Limit Group: LC - PFC IDA

Last Update: 25-Aug-2020 14:56:00 Calib Date: 24-Aug-2020 10:13:07

Integrator: Picker

Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\chromfs\Lancaster\ChromData\30731\20200824-8754.b\20AUG24MCAL-15.d

Column 1: Gemini C18 50X3 50mm 3mm (3.00 mm) Det: EXP1

Process Host: CTX1021

First Level Reviewer: fellenbauma Date: 24-Aug-2020 19:52:38

Ratio Calibration: Average of Initial Calibration

Ratio Calibration: Average of Initial Calibration										
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Re	c S/N	Flags
1 Perfluorobutan	oic acid									
213.00 > 169.00			-0.015	1.000	8892	0.0308			11.6	
D 2 13C4 PFBA										
217.00 > 172.00	3.696	3.711	-0.015	0.998	3271692	10.1		101	46909	
* 3 13C3-PFBA										
216.00 > 172.00	3.704	3.718	-0.014		1416349	5.00			2190	
4 Perfluoropenta	noic aci	d								
263.00 > 219.00	4.240	4.253	-0.013	0.998	13506	0.0455			33.1	
D 5 13C5 PFPeA										
268.00 > 223.00	4.248	4.260	-0.012	1.147	3056211	9.85		98.5	57884	
6 Perfluorobutan	esulfoni	ic acid								
299.00 > 80.00		4.312				ND				
299.00 > 99.00		4.312								
D 7 13C3 PFBS										
302.00 > 80.00	4.299	4.312	-0.013	1.161	3311560	9.27		99.0	155178	
10 Perfluorohexa										
313.00 > 269.00			-0.034		41346	0.1279	Target=14.07		42.9	
313.00 > 119.00		4.680	-0.034	0.995	4579		9.03(7.03-21.10)		63.0	
D 11 13C5 PFHxA		4.000	0.044	0.050	0040000	0.70		07.0	E 4000	
318.00 > 273.00		4.680	-0.011	0.856	3843309	9.72		97.2	54830	
D 18 13C4 PFHpA		E 07E	0.000	0.000	0504440	0.00		00.0	100010	
367.00 > 322.00			-0.003	0.930	3581442	9.80		98.0	108912	
17 Perfluorohepta			0.000	0.000	00700	0.0405	T . 0.40		00.0	R
363.00 > 319.00			-0.009		20782	0.0495	Target=3.42		28.2	R
285.00 > 169.00			-0.015	0.998	1695		12.26(1.71-5.13)		25.9	Б
16 Perfluorohexa 399.00 > 80.00		nic acid 5.081	0.028	1.007	44794	0.1351	Target-2 42		353	R R
285.00 > 185.00	5.084		0.028	1.007	2399	0.1331	Target=3.42 18.67(1.71-5.13)		353 870	П
200.00 - 100.00	0.004	0.001	0.000	1.002	Page 3222 of	4424	10.07(1.71-0.10)		070	

6-IN DUPLICATE GENERAL CHEMISTRY

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11539-1

SDG No.:

Matrix: Solid

Method	Client Sample ID	Lab Sample ID	Analyte	Result Unit RPD Limi	D t Qual
Batch ID:	37739 Date:	08/26/2020 22:45	Prep Batch: 36748	Date: 08/25/2020 01:32	
7196A	SB33_18-20	410-11539-4	Cr (VI)	0.46 mg/Kg	J
7196A	SB33_18-20	410-11539-4 DU	Cr (VI)	0.792 mg/Kg 54 2	0 F5

Calculations are performed before rounding to avoid round-off errors in calculated results.



December 21, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report - Eurofins Lancaster Laboratories - Soil Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for nine soil samples, one equipment blank, and one trip blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-11717-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB36_0-2	SB36_16-18	SB36_22-24	SB26_6-8
SB26_13-15	SODUP05_08242020	SB31_0-2	SB31_18-20
SB31 30-32	EB01-082420	TB01 082420	

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes

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	Data Usability Summary Report	
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data	
	package been attached to the DUSR?	

Based on the data review effoaXrt, the results are usable, with the following qualifications:

Volatile Organics

- The result for sec-butylbenzene in SB36_0-2 RA was qualified as estimated (J-) based on a decrease in sensitivity between the continuing calibration (CC) and initial calibration (IC) standards.
- Positive results for acetone in SB36_0-2, SB36_22-24, SB26_6-8, SB26_13-15, SB31_0-2 and SODUP05_08242020 were qualified as estimated (J+) with potential high bias, based on high recoveries in the associated laboratory control sample (LCS) and LCS duplicate (LCSD).
- Results for acetone in SB36_16-18, SB31_18-20, and SB31_30-32 were qualified as estimated (UJ) with potential low bias based on low recovery in the associated LCSD.
- Positive results for acetone in SB26_13-15, SB31_0-2, SB36_16-18, SB26_6-8, SB36_0-2, SB36_0-2 RA, SB36_22-24, and SOPDUP05_08242020 were qualified as estimated (J+) based on the potential for high bias indicated by high recoveries in the matrix spike (MS) and/or matrix spike duplicate (MSD).
- Results for sec-butylbenzene and n-butylbenzene in all of the soil samples were qualified as estimated (J-, UJ) based on the potential for low bias or false negatives indicated by low recoveries in the MS.
- Results for n-butylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene in SB36_0-2 and SB36_0-2 RA were qualified as estimated (J, UJ) based on low responses for the internal standard (IS) compound 1,4-dichlorobenzene-d₄.
- Results for acetone in all of the soil samples in this SDG were qualified as estimated (J, UJ) based on poor precision between the field duplicate pair.

Semi-Volatile Organics (Full Scan)

Results for all acid-extractable compounds in SB26_6-8, SB31_18-20, SB31_30-32, SB36_0-2, and SB36_16-18 were qualified as estimated (J-, UJ) based on low recoveries for the associated surrogate compounds.

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- Results for phenol, 2-methylphenol, and 4-methylphenol in SB26_13-15, SB31_0-2, and SB31_18-20 DL were qualified as estimated (J-, UJ) based on low recoveries for the associated surrogate compounds.
- Results for hexachlorobenzene and naphthalene in SB26_6-8, SB31_0-2, SB31_30-32, SB36_0-2, and SB36_16-18 were qualified as estimated (J-, UJ) based on low recoveries for the associated surrogate compounds.
- Results for phenol, 2-methylphenol, and 4-methylphenol in all of the soil samples in this SDG were qualified as estimated (J-, UJ) based on low recoveries for these compounds in the associated LCS.
- Results for acenaphthene, anthracene, naphthalene, 2-methylphenol, 4-methylphenol, dibenzofuran, hexachlorobenzene, phenol, phenanthrene, and pentachlorophenol in all of the soil samples were qualified as estimated (J-, UJ) with low bias due to low MS and/or MSD recoveries and poor precision between the paired results.
- Non-detect results for benzo(a)anthracene and benzo(b)fluoranthene in SB2_13-15 and SODUP05_08242020 and benzo(a)anthracene, benzo(b)fluoranthene, and chrysene in SB36_22-24 are rejected as unusable (R) and positive results for these analytes in all other soil samples were qualified as estimated (J-) with low bias based on MSD recoveries below 10 percent.
- Results for acenaphthylene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, and pyrene in all of the soil samples were qualified as estimated (J, UJ) with no directional bias, based on low or low and high MS and/or MSD recoveries, and poor precision between the MS and MSD.
- The validator corrected results for acenaphthene, acenaphthylene, and benzo(k)fluoranthene in SB36_16-18 and for 4-methylphenol in SB31_30-32 to not detected at the reporting limit (RL) based on low signal-to-noise (S/N) ratio and/or poor spectral match
- Results for acenaphthene, acenaphthylene, anthracene, chrysene, dibenzofuran, fluoranthene, fluorene, hexachlorobenzene, naphthalene, phenanthrene, and pyrene in all soil samples in this SDG were qualified as estimated (J, UJ) based on poor precision between the field duplicate results.

o Semi-Volatile Organics (SIM)

- Results for 1,4-dioxane in SB36_0-2, SB26_6-8, SB31_0-2, and SB31_18-20 were
 qualified as estimated (J-, UJ) based on low recoveries for the associated
 surrogate compound.
- Non-detect results for 1,4-dioxane in the soil samples in this SDG were rejected as unusable (R) based on an exceptionally low recovery (<10%) recovery observed in the associated MSD and low recoveries observed in the LCS and MS.

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o Pesticides

- The results for all pesticide target analytes in SB26_6-8, SB26_13-15, and SB31_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns.
- Non-detect results for delta-BHC, endosulfan I, endosulfan II, gamma-BHC, 4,4'-DDD, and heptachlor in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were rejected (R) and detects were qualified as estimated (J) because these analytes were not recovered, or recovered at less than 10%, in the MS and/or MSD.
- Results for aldrin, alpha-BHC, alpha-chlordane, beta-BHC, dieldrin, endosulfan sulfate, and endrin in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (J, UJ) due to unacceptable MS and/or MSD recoveries and/or RPDs.
- Results for alpha-chlordane in SB36_0-2, 4,4'-DDE, dieldrin, and endosulfan sulfate in SB26_6-8, endrin in SB31_0-2, and alpha-chlordane and 4,4'-DDD in SB31_30-32 were qualified as estimated (J) due to lack of agreement between the two column measurements.
- Results for endosulfan I in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

o <u>PCBs</u>

- The results for all Aroclors in SB36_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns.
- The results for Aroclor 1242 and Aroclor 1254 in SB36_0-2 and Aroclor 1260 in SB26_6-8 were qualified as estimated (J) due to low MS/MSD recoveries on the column from which these results were reported.

Herbicides

o The results for Silvex in SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

Metals

 Results for chromium, copper, and zinc in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and Mr. Joseph Yanowitz December 21, 2020 Page 5 of 20



SB31_30-32 were qualified as estimated (J) due to elevated MS/MSD recoveries. Results for nickel in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (J) due to low MS/MSD recoveries.

- Results for chromium in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (J) due to poor precision between the laboratory duplicate pair.
- Results for barium, copper, lead, manganese, nickel, and zinc in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20 and SB31_30-32 were qualified as estimated (J) due to poor precision between the sample and its serial dilution.

o Per- and Polyfluoroalkyl Substances (PFAS)

 Results for N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) and Nethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) in SB36_0-2 were qualified as not detected (U) at the reporting limit (RL) or reported value, whichever is higher, based on associated initial calibration blank (ICB) contamination.

o Chromium, Hexavalent and Trivalent

Results for trivalent chromium in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20 and SB31_30-32 were qualified as estimated (J) due to qualification of the total chromium results from which the trivalent chromium results are calculated.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - Trip Blanks

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- Surrogate recoveries
- LCS/LCSD recoveries
- MS/MSD recoveries
- o Internal standards
- Duplicate
- Instrument related quality control data:
 - o Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions. Results for this analyte from the VOCs analyses are recommended for use due to unacceptable spike recovery in the SVOCs analyses.
- A "T" flag was present in the EDD for a number of results. This data flag was not present
 on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs
 are formatted with NYSDEC-specific data qualifiers for submission to the agency, although
 this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the higher concentration IC standards and/or some samples, for the full-scan SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory stated that such peaks are examined by the analyst and the second-level data reviewer.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did not match the responses found in the raw data. According to the laboratory, the discrepancies are because peak heights are reported in the raw data, but peak areas are reported on the summary forms. Corrected documentation was not provided by the time this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.
- The laboratory reported the lower concentrations for target analytes in several samples and was contacted for explanation. The laboratory responded that where the RPD

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between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration. This policy should have been noted in the case narrative.

- Data for an initial calibration performed on August 26, 2020, for herbicides was included in the data package. Since none of the samples was associated with this IC, the results are not relevant to this set of samples and the data were not reviewed.
- The Form VIII internal standard summaries for herbicides found on pages 2414 and 2415
 of the original data package incorrectly listed responses for the August 26, 2020, IC, which
 is not relevant to the samples. The applicable sample results were evaluated by the
 validator using responses from the correct IC performed August 27, 2020 and were
 acceptable.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a
 calculation only, performed by subtracting any Cr VI detected in the sample from the total
 chromium result. There is no analysis performed specifically to determine Cr III. The
 laboratory responded to a question on this issue stating that "a batch is created as a place
 to hold the calculations."
- Run logs for hexavalent chromium do not include opening continuing calibration verifications (CCVs) and continuing calibration blanks (CCBs). The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- Method detection limits (MDLs) for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.
- No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

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Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 24, 2020. The samples were received by the laboratory on the same day as sample collection. Two of the cooler temperatures on receipt at the laboratory were acceptable (2.5°C and 4.3°C; QC 4°C ±2°C); the third cooler temperature (1.1°C) was slightly below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

1. Calibration

Three ICs were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable. Second-source ICV standards were analyzed following each IC and all %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
9953 - 8/27/20 @	1,1-Dichloroethene	21.6	SB36_0-2 RA	None
8:52	1,4-Dioxane	36.1		
	sec-Butylbenzene	23.9]	J-, UJ

The %Ds for 1,1-dichloroethene and 1,4-dioxane represent an increase in instrument sensitivity. Neither compound was detected in the associated sample, therefore, no action was necessary. A decrease in sensitivity was indicated by the high %D for sec-butylbenzene; therefore, the result for sec-butylbenzene in SB36_0-2 RA was qualified as estimated (J-).

2. LCS/LCSD

Recoveries and precision for the LCS/LCSD pairs prepared and analyzed with the site samples in this dataset were acceptable (70-130 %R; <30 RPD) with the exceptions noted below:

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
LCS/LCSD 36677-35/36					
Acetone	142	141	а	SB36_0-2 SB36_22-24 SB26_6-8 SB26_13-15 SB31_0-2 SODUP05_08242020	J+
LCS/LCSD 38146-5/6			•		

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Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Acetone	а	68	а	SB36_16-18	J-
				SB31_18-20 SB31_30-32	

a-acceptable

Where high recovery indicates the potential for high bias or false positives, positive results for acetone in the samples detailed above were qualified as estimated (J+). Where low recovery shows the potential for low bias or false negatives, results for acetone in the associated samples were qualified as estimated (J-).

3. MS/MSD

Sample SB31_0-2 was prepared as an MS/MSD pair. Recoveries were within the acceptance limits of 70-130% and relative percent differences (RPDs) were less than 50%, with the following exceptions:

Parent Sample SB31_0-2					
Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Acetone	240	193	а	SB36_0-2	J+
1,1-Dichloroethene	132	а	а	SB36_22-24 SB26_22-24	None
1,4-Dioxane	138	а	а	SB26_6-8	
sec-Butylbenzene	67	а	а	SB26_13-15 SB31_0-2	J-, UJ
n-Butylbenzene	65	а	а	SODUP05_08242020 SB36_16-18 SB31_18-20 SB31_30-32	

a-acceptable

Positive results for acetone in SB26_13-15, SB31_0-2, SB36_16-18, SB26_6-8, SB36_0-2, SB36_0-2 RA, SB36_22-24, and SOPDUP05_08242020 were qualified as estimated (J+) based on the potential for high bias indicated by high recoveries in the MS and/or MSD. Results for secbutylbenzene and n-butylbenzene in all of the soil samples were qualified as estimated (J-, UJ) based on the potential for low bias or false negatives indicated by low recoveries in the MS. 1,1-Dichloroethene and 1,4-dioxane were not detected in any of the soil samples; therefore, no action was necessary based on the high MS recoveries.

4. Internal Standards

Internal standard areas and retention times were acceptable, with the following exceptions:

Sample	IS	Area as % of CC	Compounds Affected	Qualifiers Applied
SB36_0-2	1,4-Dichlorobenzene-d4	34.0	n-butylbenzene	J, UJ
SB36_0-2 RA	1,4-Dichlorobenzene-d ₄	49.9	n-propylbenzene	



Sample	IS	Area as % of CC	Compounds Affected	Qualifiers Applied
			sec-butylbenzene tert-butylbenzene 1,2-dichlorobenzene 1,3-dichlorobenzene 1,4-dichlrobenzene 1,2,4-trimethylbenzene 1,3,5-trimethylbenzene	

Based on unacceptable responses in the initial analysis and re-analysis (see documentation section below) of SB36_0-2, for the internal standard 1,4-dichlorobenzene-d₄, the results in both analysis for the compounds detailed above are qualified as estimated (J, UJ).

5. Field Duplicates

SODUP05_082420 was collected as a field duplicate of sample SB26_13-15. Results for acetone in the field duplicate pair showed poor precision (7.1 µg/kg and 18 µg/kg). Results for acetone in all of the associated samples were qualified as estimated (J, UJ) on this basis. No other VOC target analytes were reported in either sample of the duplicate pair.

B. Semi-Volatile Organics (Full Scan)

1. Calibration

One IC (Instrument HP23262) was reported in support of sample analyses. All RRFs and RSDs or correlation coefficients (r²) for the project target analytes were acceptable. One ICV standard was analyzed following the IC and all %Ds were acceptable.

CC standards were analyzed at the appropriate frequency and all percent differences were acceptable (<20%D) with the following exceptions:

Instrument/CC	Compound	%D	Affected Samples	Qualifiers Applied
8/27/20 @ 02:06	Phenol	-21.4	SB31_18-20 DL	UJ

Only the diluted analysis of SB31_18-20 was associated with this CC standard and only the result from naphthalene was reported from the dilution.

2. Surrogates

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:



Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB26_13-15	2-Fluorophenol	68	List 1*	ÜJ
SB26_6-8	2-Fluorophenol	55	All acid-extractable	UJ
	Phenol-d ₅	62	compounds	
	2,4,6-Tribromophenol	64		
	Nitrobenzene-d ₅	53	List 2*	J-, UJ
SB31_0-2	2-Fluorophenol	62	List 1	UJ
	Nitrobenzene-d ₅	63	List 2	J-, UJ
SB31_18-20	2-Fluorophenol	64	All acid-extractable	UJ
	Phenol-d ₅	68	compounds	
SB31_18-20 DL	2-Fluorophenol	65	List 1	UJ
SB31_30-32	2-Fluorophenol	57	All acid-extractable	J-, UJ
	Phenol-d ₅	63	compounds	
	Nitrobenzene-d ₅	63	List 2	J-, UJ
SB36_0-2	2-Fluorophenol	54	All acid-extractable	J-, UJ
	Phenol-d ₅	60	compounds	
	2,4,6-Tribromophenol	61		
	Nitrobenzene-d₅	61	List 2	
SB36_16-18	2-Fluorophenol	64	All acid-extractable	UJ
	2,4,6-Tribromophenol	67	compounds	
	Nitrobenzene-d₅	67	List 2	J-, UJ

^{*}List 1: phenol, 2-methylphenol, and 4-methylphenol

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on associated low surrogate recoveries.

3. LCS/LCSD

LCS recoveries were acceptable (70-130%), with the following exceptions:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
Phenol	65	All soil sample in this SDG	J-, UJ
2-Methylphenol	68		
4-Methylphenol	67		

Results as detailed above in all of the soil samples in this SDG were qualified s estimated (J-, UJ) based on the low recoveries observed in the associated LCS.

4. Matrix Spike Sample (MS)/MS Duplicate (MSD)

Results for one MS/MSD pair associated with the sample analyses were reported in the data package. Percent recoveries and relative percent differences (RPDs) were acceptable (70-130%R. RPD<30) with the exceptions below:

^{**}List 2: hexachlorobenzene and naphthalene



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Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB31_0-2					
Acenaphthene	66	44	а	All soil samples in this	J-, UJ
Anthracene	а	42	а	SDG	
Naphthalene	58	44	а		
2-Methylphenol	55	51	а		
4-Methylphenol	58	49	а		
Dibenzofuran	а	53	а		
Hexachlorobenzene	а	64	а		
Phenol	57	51	а		
Phenanthrene	52	-73	46		
Pentachlorophenol	53	37	35		
Benzo(a)anthracene	а	9	45		R, J-
Benzo(b)fluoranthene	а	8	40		
Chrysene	а	3	47		
Acenaphthylene	а	57	34		J, UJ
Benzo(a)pyrene	а	20	40		
Benzo(g,h,i)perylene	а	43	36		
Benzo(k)fluoranthene	а	44	39		
Fluoranthene	144	-42	47		
Fluorene	а	51	32		
Indeno(1,2,3-cd)pyrene	а	42	40		
Pyrene	а	-44	47]	

a-acceptable

Results for acenaphthene, anthracene, naphthalene, 2-methylphenol, 4-methylphenol, dibenzofuran, hexachlorobenzene, phenol, phenanthrene, and pentachlorophenol in all of the soil samples were qualified as estimated (J-, UJ) with low bias due to low MS and/or MSD recoveries.

Non-detect results for benzo(a)anthracene and benzo(b)fluoranthene in SB2_13-15 and SODUP05_08242020 and benzo(a)anthracene, benzo(b)fluoranthene, and chrysene in SB36_22-24 are rejected as unusable (R) and positive results for these analytes in all other soil samples were qualified as estimated (J-) with low bias based on MSD recoveries below 10 percent.

Results for acenaphthylene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, and pyrene in all of the soil samples were qualified as estimated (J, UJ) with no directional bias, based on low or low and high MS and/or MSD recoveries and poor precision between the MS and MSD.

5. Target Compound Identification

The validator corrected results for acenaphthene, acenaphthylene, and benzo(k)fluoranthene in SB36_16-18 and for 4-methylphenol in SB31_30-32 to not detected at the RL based on low S/N ratio and/or poor spectral match.



6. Field Duplicates

SODUP05_082420 was collected as a field duplicate of sample SB26_13-15. Results for the compounds listed below showed poor precision in the FD pair. Results for these compounds in all soil samples in the SDG were qualified as estimated based on poor precision exhibited in the FD analyses.

Analyte	Sample	FD	Qualifier
Acenaphthene	ND	27	J, UJ
Acenaphthylene	ND	24	
Anthracene	ND	23	
Chrysene	4.0 J	9.7 J	
Dibenzofuran	ND	37 J	
Fluoranthene	7.3 J	17 J	
Fluorene	ND	34	
Hexachlorobenzene	ND	39	
Naphthalene	ND	25	
Phenanthrene	4.9 J	25	
Pyrene	5.8 J	12 J	

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. Surrogate

Of the three surrogates employed, only 1-methylnaphthalene is closely associated with 1,4-dioxane, therefore, only recoveries for this surrogate compound were assessed against the results for the target compound. Recoveries were acceptable (70-130%) with the exceptions listed below:

Sample	%R	Qualifier Applied
SB36_0-2	62	UJ
SB26_6-8	64	
SB31_0-2	68	
SB31_18-20	54	

Results for 1,4-dioxane in the samples listed above were qualified as estimated (UJ) with a potential low bias, based on low recovery observed in the associated surrogate compound.

2. LCS/LCSD

LCS recoveries were acceptable (70-130%), with the following exception:

Parameter	LCS %R	Samples Affected	Qualifiers Applied
LCS 36828/2			
1,4-Dioxane	29	All soil samples in the SDG	UJ

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Results for 1,4-dioxane in all of the soil samples were qualified as estimated (UJ) due to the low LCS recovery.

3. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported in the data package. Acceptance criteria (70-130%R. RPD<30) were not met, as detailed below.

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Parent Sample SB31_0-2					
1,4-Dioxane	26	ND	nc	All soil samples in the SDG	R

nc – not calculated

Results for 1,4-dioxane in all soil samples in this SDG were rejected as unusable (R) based on recovery less than 10 percent (0% R) observed in the MSD.

It should be noted that 1,4-dioxane was included as a target analyte in the volatiles analyses performed on the samples in this SDG. Recoveries for QC spikes, as well as surrogates were acceptable in the volatiles analyses. 1,4-Dioxane was not detected in any of the soil samples in the volatiles analyses. For this SDG, results for 1,4-dioxane are the more usable results for this compound.

4. Field Duplicates

SODUP05_082420 was collected as a field duplicate of sample SB26_13-15. 1,4-dioxane was not detected in either sample. Both results were rejected (R) as unusable based on poor performance of the associated quality control elements (LCS and MS/MSD).

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene {TCX} and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column				
Sample	TCX/1	TCX/2	DCB/1	DCB/2	
SB36_0-2	а	61	245	364	
SB36_16-18	а	144	а	а	
SB36_22-24	а	64	а	а	
SB26_6-8	а	65	176	234	
SB26_13-15	53	49	57	55	
SB31_0-2	а	69	137	225	
SB31_18-20	179	179	168	а	
SB31_30-32	а	57	а	а	

a-acceptable

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The results for all pesticide target analytes in SB26_6-8, SB26_13-15, and SB31_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns. Since three of four surrogate recoveries were acceptable for SB36_22-24 and SB31_30-32, no action was taken on this basis. SB36_0-2, SB36_16-18, and SB31_18-20 were analyzed at 100-fold or 200-fold dilutions, which reduced the surrogate concentration to below the lower limit of the calibration range. Accurate surrogate recoveries would not be expected in this situation, and no additional action was taken on this basis.

2. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB31_0-2 was prepared as an MS/MSD pair in association with the pesticides analyses reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R, RPD<50) with the exceptions below:

Analyte	MS %R - Column 1 / 2	MSD %R - Column 1 / 2	RPD	Samples Affected	Qualifier Applied
alpha-BHC	a / 59	40 / 38	85 / 45	SB36_0-2	J, UJ
alpha-Chlordane	a / 41	a/a	a / 54	SB36_16-18	
beta-BHC	66 / 66	a/a	a/a	SB36_22-24 SB26 6-8	
Dieldrin	423 / 55	199 / 60	72 / a	SB26_0-0 SB26_13-15	
Endosulfan sulfate	26 / 34	42 / 44	47 / a	SODUP05_08242020 SB31 0-2	
Endrin	167 / 32	27 / 23	a / 43	SB31 18-20	
4,4'-DDE	a/a	a / 66	a/a	SB31_30-32	None
Aldrin	a / 52	a/a	a/a		
delta-BHC	0/0	0/0	NC		R, J
Endosulfan I	0/0	0/0	NC		
Endosulfan II	0/0	0/0	NC		
gamma-BHC	189 / a	- 52 / - 52	а		
Heptachlor	0/0	167 / a	NC		
4,4'-DDD	176 / a	1/1	66 / a		

a-acceptable

NC – not calculated

Non-detect results for delta-BHC, endosulfan I, endosulfan II, gamma-BHC, 4,4'-DDD, and heptachlor in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were rejected (R) and detects were qualified as estimated (J) because these analytes were not recovered, or were recovered at less than 10%, in the MS and/or MSD.

Results for, alpha-BHC, alpha-chlordane, beta-BHC, dieldrin, endosulfan sulfate, and endrin in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (J, UJ) due to unacceptable MS and/or MSD recoveries and/or RPDs. Since the RPDs and three of four MS/MSD recoveries for aldrin and 4,4'-DDE were acceptable, no action was taken based on the low MS or MSD recovery.



3. Compound Identification and Quantitation

The RPD between the two column measurements was acceptable (≤40 RPD) for compounds detected in each sample, with the exceptions noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB36_0-2	alpha-Chlordane	76 J	45 J	51
SB26_6-8	4,4'-DDE	3.3 J	1.8 J	128
	Dieldrin	16	3.5 J	128
	Endosulfan sulfate	10	2.5 J	123
SB31_0-2	Endrin	4.3 J	8.7 J	68
SB31_30-32	alpha-Chlordane	1.2	28	184
	4,4'-DDD	2.0 J	0.47 J	124

Results for alpha-chlordane in SB36_0-2, 4,4'-DDE, dieldrin, and endosulfan sulfate in SB26_6-8, endrin in SB31_0-2, and alpha-chlordane and 4,4'-DDD in SB31_30-32 were qualified as estimated (J) due to lack of agreement between the two column measurements.

The laboratory reported the lower concentration for alpha-chlordane in SB36_0-2, 4,4'-DDE, dieldrin, and endosulfan sulfate in SB26_6-8, endrin in SB31_0-2, and alpha-chlordane and 4,4'-DDD in SB31_30-32 and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

4. Field Duplicate

Sample SODUP05_08242020 was submitted as a field duplicate of SB26_13-15. Endosulfan I was reported at a low concentration in SB26_13-15 (0.43 J μ g/kg) but was not detected in SODUP05_08242020 (0.97 U μ g/kg). Results for endosulfan I in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (J, UJ) due to lack of confirmation at a low concentration in the field duplicate analysis.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Comple	Surrogate / Column				
Sample	TCX/1 TCX/2 DCB/1 DCB/2				
SB36_0-2	56	49	197	205	
SB26_6-8	а	а	а	134	

a-acceptable

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The results for all Aroclors in SB36_0-2 were qualified as estimated (J, UJ) due to unacceptable surrogate recoveries on both analytical columns. Since three of four surrogate recoveries were acceptable for SB26_6-8, no action was taken based on the slightly high DCB recovery.

2. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB31_0-2 was prepared as an MS/MSD pair in association with the PCBs analyses reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R, RPD<50) with the exceptions below:

Analyte	MS %R - Column 2	MSD %R – Column 2	Samples Affected	Qualifier Applied
Aroclor 1016	63	69	SB36_0-2	J
Aroclor 1260	66	а	SB26_6-8	

a-acceptable

The results for Aroclor 1242 and Aroclor 1254 in SB36_0-2 and Aroclor 1260 in SB26_6-8 were qualified as estimated (J) due to low MS/MSD recoveries on the column from which these results were reported. Since no other other Aroclors were detected in the samples and MS/MSD recoveries were acceptable on Column 1, no additional qualifiers were applied on this basis.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid [DCPAA]) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate	/ Column
Sample	DCPAA / 1	DCPAA / 2
SB36_16-18	38	36
SB36_22-24	56	56
SB26_6-8	51	48
SB26_13-15	57	58
DUP05_08242020	60	57
SB31_0-2	59	57
SB31_18-20	55	55
SB31_30-32	57	57

The results for Silvex in SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

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G. Metals

1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD) / Post Digestion Spike (PS)

Results for one MS/MSD pair and PS, performed on SB31_0-2, and associated with the sample analyses, were reported in the data package. Percent recoveries and relative percent differences were acceptable (75-125%R; 50% RPD) with the following exceptions:

Analyte	MS %R	MSD %R	MS/MSD RPD	PS %R	Affected Samples	Qualifiers Applied
Chromium	а	128	а	а	SB36_0-2	J
Copper	250	135	а	а	SB36_16-18	
Nickel	74	41	а	а	SB36_22-24	
Zinc	а	146	а	а	SB26_6-8 SB26_13-15 SODUP05_08242020 SB31_0-2 SB31_18-20 SB31_30-32	

a – acceptable

NC - Not Calculated

Results for chromium, copper, and zinc were qualified as estimated (J) due to high MS and/or MSD recoveries, with acceptable post digestion spike recoveries. Results for nickel were qualified as estimated (J) due to low MS/MSD recoveries, with acceptable post digestion spike recovery.

2. Laboratory Duplicate

A laboratory duplicate analysis was performed on sample SB31_0-2. All relative percent differences (RPDs) were acceptable (50% limit) except for chromium (88%RPD). The results for SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20, and SB31_30-32 were qualified as estimated (J) due to elevated RPD between the original sample and its laboratory duplicate.

3. Serial Dilution

A serial dilution was performed on sample SB31_0-2. Percent differences were acceptable (<10%D) with the following exceptions:

Analyte	Serial Dilution %D	Samples Affected	Qualifiers Applied
Barium	61	SB36_0-2	J
Copper	17	SB36_16-18	
Lead	14	SB36_22-24	
Manganese	17	SB26_6-8	
Nickel	16	SB26_13-15	
Zinc	17	SODUP05_08242020	
		SB31_0-2	
		SB31_18-20	
		SB31_30-32	

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Results for barium, copper, lead, manganese, nickel, and zinc were qualified as estimated (J) due to elevated percent difference between the sample and serial dilution results.

H. Per- and Polyfluoroalkyl Substances (PFAS)

1. Blanks

One equipment blank was submitted with the samples. Two method blanks (MBs) and one ICB were prepared and analyzed with the samples. The following target analytes were detected in associated blanks:

Blank	Analyte	Concentration (ng/mL)	Affected Sample	Qualifiers Applied
ICB 8/25/20	NEtFOSAA	0.287 J	SB36_0-2	U
	NMeFOSAA	0.372 J		

Results for NEtFOSAA and NMeFOSAA in SB36_0-2 were qualified as not detected (U) at the RL or reported value, whichever is higher, due to associated ICB contamination.

I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent chromium were qualified as a result of the data validation. All reported results for hexavalent chromium were determined to be usable as reported.

Results for trivalent chromium in SB36_0-2, SB36_16-18, SB36_22-24, SB26_6-8, SB26_13-15, SODUP05_08242020, SB31_0-2, SB31_18-20 and SB31_30-32 were qualified as estimated (J) due to qualification of the total chromium results from which the trivalent chromium results are calculated (see Section G).

3. General Chemistry - Quantitation

No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

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Sincerely,

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-11717-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-11717-1

Environmental Analysis R

ustody

ntal use only

neurofins :

Lancaster Laboratories

Acct. #_

410-11717 Chain of Custody

COC #611569

Client Information	n			T		Matrix					-	naly	sis F	lequest	ed		For Lab U	se Only	
Client:	Acct. #:						П	1		Pr				Filtratio		es	FSC:		
Langan					0				ã								SCR#:		
Project Name/#: 0	PWSID #:				Tissue	ace			D,	ishin								ervation (odes
250 Water Street / 70381202	P.O. #:			-	F	Ground			L VOCS, SVOCs, PC	includin	>						H=HCI		Thiosulfate
Joseph Yanowitz					\Box			ŝ	NS'S	江西							N=HNO ₃ S=H ₂ SO ₄		NaOH H₃PO₄
Sampler:	Quote #:			\neg	it l			ine	83	metals	7						The second secon	Itered O=0	
Tyler Zom (TZ), Lexi Haley (LH) State where samples were collected: For Obmpliance:					in	ble ES		onta	Par L	100	3							Remarks	3
New York Yes	No 🗵		1	site	Sediment	Potable NPDES		Total # of Containers	5/TC	S/TAL m	Dibkane		25	2					
Sample Identification	Colle	ected	Grab	Composite	Soil X	Water	Other:	tal #	37	4.4	4	PFAS	Lerann			1			
and the second s	Date	Time	5	ပိ	So	N N	ott	10	Part	Part	1	7	Z						
5B36-0-Z	812412020	10:45	X	1	X		6	6	X	X	X	X							
SB 36-16-18		10:50			1		8	6											
SB 36 - 22-24		10:55					6	6											
SB 26_ 0-2		12105					0	6											
SB26_6-8		12:10					6	6											
SB26-13-15		12:15			П	0,	6	6											
SODUP05_08242020		12:20					4	6	1	业	Sk	1							
SB36- 2-4		10:47					1	1					X				*ON H	10LD#	
SB31 - 0-2		15:00			1			18	X	X	X	X						AS/MSD	*
SB31_ 18-20	*	15105	不		上			le	1	X	X	X							
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Requested TAT in business days:			Relinquis	shed by	y					Date	_	Time		Received by			_	Date	Time
E-mail address: _ j yanowitz@ langan.com			Relinquis	shed by	ý		_	_		Date		Time		Received by				Date	Time
Data Package Options (circle if r	equired)				_														
Type I (EPA Level 3 Equivalent/non-CLP) Type VI	(Raw Data C	Only)	Relinquis	thed by						Date		Time	-	Received by	il	B	1	BILA ZU	20.03
Type III (Reduced non-CLP) NJ DKQ	TXT	RRP-13				EDD Req format:				No			4	Relinquis UPS_		Commi FedEx_	ercial Carrie Other	r:	
NYSDEC Category A or B MA MCF	CTR	RCP	(1			ecific QC (I ate QC sample			7.7		ple vo			T	emper	ature up	on receipt _	1-4-3	°C

Environmental Analysis Request/Chain of Custody

eurofins	Lancaster Laborat Environmental	tories	Acct. #			Eurofii Group		ncaster Labo		ies En ample		nental	use o	nly			C	OC #61	11570
	Client In	nformation						Matrix								Requested		For Lab Use Only	у
Client: Langan			Acct. #:									Pr	eser	vation	and	Filtration Codes	3	FSC:	
Project Name/#:	7		PWSID #:			21 1	ens	P 9				63						SCR#:	Codes
250 Water	er street/17039	81202					Tissue	Ground Surface.			C.B.	including						Preservation H=HCI	T=Thiosulfate
Project Manager: Joseph Yan			P.O. #:					Su Su		rs	1, 2,00	tale incl	2					N=HNO ₃ S=H ₂ SO ₄	B=NaOH P=H ₃ PO ₄
Sampler	(TZ), Lexi Hall	ley (LH)	Quote #:				ment	e S		ntaine	erbiodes	TAL metals	2		106s			F=Field Filtered	O=Other
State where samples were New York	collected: For 0	Compliance:	No 🗵			site	Soil X Sediment	Potable NPDES		Total # of Containers		24 375/TAL met	ioxane		3751			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	411.0
Samp	le Identification		Colle	ected	ap	Composite		Water	Other:	tal # c	Pesticides, He	-375, (mis)	4-Die	PFTAS	PR/13				
		AND A DES	Date	Time	Grab	ပိ	So	Wa	ott	Tot	202	Pert Pex	-	P	Q				
SB31-30-3Z			8/24/2020		×		X			6	X	×	X	X					
EBO1-082			384/200					X		2				X					
180012082			Shakoso	4545				DKI		12					24				
JB01-985	420		8/24/2020		-			X		3					X				
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	nd Time (TAT) Re			e) .	Relino	uished	by	0	-	2		Date		Time	76	Received by		Date	Time
(Bush TAT is subje	ndard ect to laboratory approval a		ush		Remo	uished	ZOY!	n Sy	2	5		8/24/ Date	2420	V6	00	Received by	m	- 24Al	1600 Time
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Requested TAT in b	ousiness days:				Relino	quished	by					Date		Time		Received by		Date	Time
E-mail address:j	yanowitz@lan	gan.com			Relina	quished	by					Date		Time		Received by		Date	Time
Data	Package Option		quired)						_	_					10				
Type I (EPA Le Equivalent/non		Type VI (I	Raw Data (Only)	Reling	quished	by					Date		Time		Received by	an	i B24	H20 20:03
Type III (Reduc	ced non-CLP)	NJ DKQP	TXT	TRRP-13			If yes	EDD Rec	quirec	1?	Yes	No				Relinquished by to UPS F	Commer edEx	rcial Carrier: Other	
NYSDEC Cate	egory A or B	MA MCP	CT F	RCP				ecific QC (ate QC samp				-				Temperat	ure upor	n receipt 1 · 1 -4	<u>-3</u> °c

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc
The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0919



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-11717-1

FORM VII GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Lancaster Laboratories Env Job No.: 410-11717-1

SDG No.:

Lab Sample ID: CCVIS 410-36677/3 Calibration Date: 08/27/2020 08:52

Instrument ID: 9953 Calib Start Date: 07/29/2020 15:41

GC Column: R-624SilMS 30m ID: 0.25 (mm) Calib End Date: 0.7/29/2020 17:55

Lab File ID: bg24c50.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
N-Propylbenzene	Ave	4.222	4.002		47.4	50.0	-5.2	20.0
2-Chlorotoluene	Ave	0.9068	0.8758		48.3	50.0	-3.4	20.0
1,3,5-Trimethylbenzene	Ave	3.106	2.909		46.8	50.0	-6.4	20.0
4-Chlorotoluene	Ave	0.9382	0.9309		49.6	50.0	-0.8	20.0
tert-Butylbenzene	Ave	0.6998	0.6382		45.6	50.0	-8.8	20.0
Pentachloroethane	Ave	0.4566	0.5215		57.1	50.0	14.2	20.0
1,2,4-Trimethylbenzene	Ave	3.228	3.078		47.7	50.0	-4.6	20.0
sec-Butylbenzene	Lin1		3.409		38.0	50.0	-23.9*	20.0
1,3-Dichlorobenzene	Ave	1.792	1.704	0.6000	47.6	50.0	-4.9	20.0
p-Isopropyltoluene	Ave	3.274	2.973		45.4	50.0	-9.2	20.0
1,4-Dichlorobenzene	Ave	1.849	1.733	0.5000	46.9	50.0	-6.3	20.0
1,2,3-Trimethylbenzene	Ave	3.277	3.475		53.0	50.0	6.0	20.0
Benzyl chloride	Ave	1.598	1.543		48.3	50.0	-3.4	20.0
1,3-Diethylbenzene	Ave	2.122	2.336		55.0	50.0	10.1	20.0
1,4-Diethylbenzene	Ave	2.219	2.451		55.2	50.0	10.5	20.0
n-Butylbenzene	Ave	1.685	1.485		44.1	50.0	-11.8	20.0
1,2-Dichlorobenzene	Ave	1.740	1.629	0.4000	46.8	50.0	-6.4	20.0
1,2-Diethylbenzene	Ave	1.818	1.946		53.5	50.0	7.0	20.0
1,2-Dibromo-3-Chloropropane	Ave	0.1521	0.1289	0.0500	42.4	50.0	-15.3	20.0
1,3,5-Trichlorobenzene	Ave	1.309	1.119		42.8	50.0	-14.5	20.0
1,2,4-Trichlorobenzene	Ave	1.222	1.033	0.2000	42.3	50.0	-15.5	20.0
Hexachlorobutadiene	Lin		0.3688		29.7	50.0	-40.6*	20.0
Naphthalene	Ave	3.153	2.716		43.1	50.0	-13.9	20.0
1,2,3-Trichlorobenzene	Ave	1.192	0.998		41.9	50.0	-16.3	20.0
2-Methylnaphthalene	Ave	1.942	1.942		50.0	50.0	-0.0	20.0
Dibromofluoromethane (Surr)	Ave	0.2266	0.2326		51.3	50.0	2.6	20.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.0551	0.0547		49.7	50.0	-0.7	20.0
Toluene-d8 (Surr)	Ave	1.381	1.345		48.7	50.0	-2.6	20.0
4-Bromofluorobenzene (Surr)	Ave	0.4857	0.4929		50.7	50.0	1.5	20.0

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: Eurofins Lanc	aster Laboratories	Job No.: 410-	11717-1	
SDG No.	:				
Matrix:	Solid	Level: Low	Lab File ID:	bg24L52.D	
Tah ID.	TCC /110_36677/3	5	Cliont ID.		

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	20.0	22.2	111	69-123	
1,1-Dichloroethane	20.0	22.4	112	79-120	
1,1-Dichloroethene	20.0	24.3	122	73-129	
1,2,4-Trimethylbenzene	20.0	20.0	100	73-120	
1,2-Dichlorobenzene	20.0	19.4	97	76-120	
1,2-Dichloroethane	20.0	21.1	105	71-128	
1,3,5-Trimethylbenzene	20.0	20.4	102	73-120	
1,3-Dichlorobenzene	20.0	19.5	97	75-120	
1,4-Dichlorobenzene	20.0	19.4	97		
1,4-Dioxane	500	580	116	62-131	
2-Butanone	150	165	110	I	
Acetone	150	214	142	41-150	
Benzene	20.0	22.4	112	80-120	
Carbon tetrachloride	20.0	21.9	110	64-134	
Chlorobenzene	20.0	20.7	103		
Chloroform	20.0	22.5	112	80-120	
cis-1,2-Dichloroethene	20.0	23.9	120		
Ethylbenzene	20.0	20.4	102	78-120	
Methyl tertiary butyl ether	20.0	20.1	101		
Methylene Chloride	20.0	22.9	115	I	
n-Butylbenzene	20.0	22.1	111		
N-Propylbenzene	20.0	21.4	107	72-123	
sec-Butylbenzene	20.0	18.9	94	l l	
tert-Butylbenzene	20.0	20.4	102	l l	
Tetrachloroethene	20.0	19.0	95	73-120	
Toluene	20.0	20.7	103	l l	
trans-1,2-Dichloroethene	20.0	23.4	117	80-126	
Trichloroethene	20.0	22.5	112	l l	
Vinyl chloride	20.0	20.4	102		
Xylenes, Total	60.0	61.9	103	75-120	

[#] Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.: 410-11717-1	
SDG No.	:			
Matrix:	Solid	Level: Low	Lab File ID: bg24L53.D	
Lab ID:	LCSD 410-36677/36		Client ID:	

	SPIKE ADDED	LCSD CONCENTRATION	LCSD	00	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
1,1,1-Trichloroethane	20.0	22.0	110	1	30	69-123	
1,1-Dichloroethane	20.0	22.5	113	1	30	79-120	
1,1-Dichloroethene	20.0	24.4	122	0	30	73-129	
1,2,4-Trimethylbenzene	20.0	20.3	101	1	30	73-120	
1,2-Dichlorobenzene	20.0	19.3	97	0	30	76-120	
1,2-Dichloroethane	20.0	21.0	105	0	30	71-128	
1,3,5-Trimethylbenzene	20.0	20.5	102	0	30	73-120	
1,3-Dichlorobenzene	20.0	19.5	98	0	30	75-120	
1,4-Dichlorobenzene	20.0	19.7	99	2	30	80-120	
1,4-Dioxane	500	581	116	0	30	62-131	
2-Butanone	150	161	107	3	30	57-128	
Acetone	150	212	141	1	30	41-150	
Benzene	20.0	22.7	113	1	30	80-120	
Carbon tetrachloride	20.0	21.7	109	1	30	64-134	
Chlorobenzene	20.0	20.9	104	1	30	80-120	
Chloroform	20.0	22.6	113	0	30	80-120	
cis-1,2-Dichloroethene	20.0	24.1	120	1	30	80-125	
Ethylbenzene	20.0	20.6	103	1	30	78-120	
Methyl tertiary butyl ether	20.0	20.1	101	0	30	72-120	
Methylene Chloride	20.0	23.1	116	1	30	76-122	
n-Butylbenzene	20.0	22.0	110	1	30	71-121	
N-Propylbenzene	20.0	21.3	106	1	30	72-123	
sec-Butylbenzene	20.0	19.0	95	1	30	72-120	
tert-Butylbenzene	20.0	20.5	102	0	30	68-120	
Tetrachloroethene	20.0	18.8	94	1	30	73-120	
Toluene	20.0	20.9	104	1	30	80-120	
trans-1,2-Dichloroethene	20.0	23.2	116	1	30	80-126	
Trichloroethene	20.0	22.5	113	0	30	80-120	
Vinyl chloride	20.0	19.8	99	3	30	52-120	
Xylenes, Total	60.0	62.2	104	0	30	75-120	

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM III GC/MS VOA MATRIX SPIKE RECOVERY

	Lab Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11717-1
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SDG No.:

Matrix: Solid Level: Low Lab File ID: bg27S14.D

Lab ID: 410-11717-8 MS Client ID: SB31_0-2 MS

	SPIKE	SAMPLE	MS	MS	oc	
	ADDED	CONCENTRATION		_	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)		REC	REC	#
1,1,1-Trichloroethane	(ug/kg) 21.1	(ug/kg) ND	(ug/Kg) 24.0	114	69-123	
	21.1	ND ND	25.2	119		
1,1-Dichloroethane				I		1
1,1-Dichloroethene	21.1	ND	27.9	132	73-129	F1
1,2,4-Trimethylbenzene	21.1	ND	22.6	107	73-120	
1,2-Dichlorobenzene	21.1	ND	15.5	73	76-120	F1
1,2-Dichloroethane	21.1	ND	21.4	102	71-128	
1,3,5-Trimethylbenzene	21.1	ND	23.3	111	73-120	
1,3-Dichlorobenzene	21.1	ND	17.3	82	75-120	
1,4-Dichlorobenzene	21.1	ND	16.6	79	80-120	F1
1,4-Dioxane	527	ND	729	138		F1
2-Butanone	158	ND	188	119		
Acetone	158	16 J	396	240		F1
Benzene	21.1	ND	23.3	111		
Carbon tetrachloride	21.1	ND	23.0	109		
Chlorobenzene	21.1	ND	18.6	88	80-120	
Chloroform	21.1	ND	24.1	114	80-120	
cis-1,2-Dichloroethene	21.1	ND	25.4	120	80-123	
Ethylbenzene	21.1	ND	19.4	92	78-120	
Methyl tertiary butyl ether	21.1	ND	22.8	108	72-120	
Methylene Chloride	21.1	ND	26.1	124	76-122	F1
n-Butylbenzene	21.1	ND	16.6	79	71-121	
N-Propylbenzene	21.1	ND	24.2	115	72-123	
sec-Butylbenzene	21.1	ND	18.0	85	72-120	
tert-Butylbenzene	21.1	ND	22.5	107	68-120	
Tetrachloroethene	21.1	ND	20.9	99	73-120	
Toluene	21.1	ND	23.1	110	80-120	
trans-1,2-Dichloroethene	21.1	ND	24.8	117	80-125	
Trichloroethene	21.1	ND	21.5	102	80-120	
Vinyl chloride	21.1	ND	25.0	118	52-120	
Xylenes, Total	63.3	ND	57.3	91	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8260C}$

FORM III GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

7-1

SDG No.: ____

Matrix: Solid Level: Low Lab File ID: bg27S15.D

Lab ID: 410-11717-8 MSD Client ID: SB31_0-2 MSD

	SPIKE	MSD	MSD	0	QC LI	IMITS	
COMPOUND	ADDED (ug/Kg)	CONCENTRATION (ug/Kg)	% REC	% - RPD	RPD	REC	#
1,1,1-Trichloroethane	22.1	24.4	110		30	69-123	
1,1-Dichloroethane	22.1	25.2	114		30	79-120	
1,1-Dichloroethene	22.1	27.5	125	1	30	73-129	
1,2,4-Trimethylbenzene	22.1	17.6	80	25	30	73-120	
1,2-Dichlorobenzene	22.1	17.0	77	9	30	76-120	
1,2-Dichloroethane	22.1	22.7	103	6	30	71-128	
1,3,5-Trimethylbenzene	22.1	17.5	79	29	30	73-120	
1,3-Dichlorobenzene	22.1	16.5	75	5	30	75-120	
1,4-Dichlorobenzene	22.1	16.0	72	4	30	80-120	F1
1,4-Dioxane	553	599	108	20	30	62-131	
2-Butanone	166	206	125	9	30	57-128	
Acetone	166	337	193	16	30	41-150	F1
Benzene	22.1	23.8	108	2	30	80-120	
Carbon tetrachloride	22.1	23.8	108	3	30	64-134	
Chlorobenzene	22.1	18.8	85	1	30	80-120	
Chloroform	22.1	24.4	110	1	30	80-120	
cis-1,2-Dichloroethene	22.1	25.8	117	2	30	80-123	
Ethylbenzene	22.1	18.0	81	8	30	78-120	
Methyl tertiary butyl ether	22.1	23.6	107		30	72-120	
Methylene Chloride	22.1	26.6	120		30	76-122	
n-Butylbenzene	22.1	15.4	69		30	71-121	F1
N-Propylbenzene	22.1	17.4	79	33	30	72-123	F2
sec-Butylbenzene	22.1	14.8	67	19	30	72-120	F1
tert-Butylbenzene	22.1	16.9	77	29	30	68-120	
Tetrachloroethene	22.1	23.0	104	9	30	73-120	
Toluene	22.1	20.8	94		30	80-120	
trans-1,2-Dichloroethene	22.1	24.6	111	1	30	80-125	
Trichloroethene	22.1	22.6	102	5	30	80-120	
Vinyl chloride	22.1	23.6	107	6	30	52-120	
Xylenes, Total	66.3	53.9	81	6	30	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8260C}$

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Sample No.: CCVIS 410-36677/3

Date Analyzed: 08/27/2020 08:52

GC Column: R-624SilMS 30m ID: 0.25(mm)

Instrument ID: 9953 Lab File ID (Standard): bg24c50.D

Heated Purge: (Y/N) N

Calibration ID: 7943

		DCBd4	1				
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		436171	10.29				
UPPER LIMIT		872342	10.79				
LOWER LIMIT		218086	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 410-36677/7		410849	10.29				
LCS 410-36677/35		439617	10.29				
LCSD 410-36677/36		446167	10.29				
410-11717-1	SB36_0-2	148086*3	10.29				
410-11717-3	SB36_22-24	441559	10.29				
410-11717-5	SB26_6-8	347565	10.29				
410-11717-6	SB26_13-15	420973	10.29				
410-11717-7	SODUP05_08242020	411627	10.29				
410-11717-8	SB31_0-2	368411	10.29				
410-11717-8 MS	SB31_0-2 MS	223237	10.29				
410-11717-8 MSD	SB31 0-2 MSD	402886	10.29				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Sample No.: CCVIS 410-38219/3 Date Analyzed: 08/27/2020 22:22

Instrument ID: 9953 GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg27c50.D Heated Purge: (Y/N) N

Calibration ID: 7943

		TBAd1	0	FB		CBZd5	5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD		122251	3.05	1164055	5.39	842116	8.45	
UPPER LIMIT		244502	3.55	2328110	5.89	1684232	8.95	
LOWER LIMIT	LOWER LIMIT		2.55	582028	4.89	421058	7.95	
LAB SAMPLE ID	CLIENT SAMPLE ID							
LCS 410-38219/4		122593	3.05	1214466	5.39	889277	8.45	
LCSD 410-38219/5		107445	3.04	1136926	5.39	831341	8.45	
MB 410-38219/7		100986	3.04	1134000	5.38	827662	8.45	
410-11717-1 RA	SB36_0-2 RA	70278	3.05	1165084	5.39	717846	8.45	

TBAd10 = t-Butyl alcohol-d10 (IS)

FB = Fluorobenzene (IS)

CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

 $\ensuremath{\text{\#}}$ Column used to flag values outside QC limits

FORM VIII 8260C

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Sample No.: CCVIS 410-38219/3

Date Analyzed: 08/27/2020 22:22

Instrument ID: 9953

GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg27c50.D

Heated Purge: (Y/N) N

Calibration ID: 7943

		DCBd	1				
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		430293	10.29				
UPPER LIMIT		860586	10.79				
LOWER LIMIT		215147	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-38219/4		456330	10.29				
LCSD 410-38219/5		427699	10.29				
MB 410-38219/7		413698	10.29				
410-11717-1 RA	SB36_0-2 RA	214879*3	10.29				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-	-11717-1	_
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SDG No.:

Matrix: Solid Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP ‡	PHL #	NBZ #	FBP #	TBP #	TPHd14 #
SB36_0-2	410-11717-1	54	60	61	75	61	79
SB36_16-18	410-11717-2	64	71	67	86	67	90
SB36_22-24	410-11717-3	73	78	78	106	103	113
SB26_6-8	410-11717-5	55	62	53	74	64	78
SB26_13-15	410-11717-6	68	73	71	92	93	94
SODUP05_08242020	410-11717-7	75	77	80	106	109	108
SB31_0-2	410-11717-8	62	70	63	81	86	87
SB31_18-20	410-11717-9	64	68	71	86	75	92
SB31_18-20 DL	410-11717-9 DL	65	72	71	92	81	99
SB31_30-32	410-11717-10	57	63	63	79	80	91
	MB 410-36827/1-A	73	77	76	101	106	112
	LCS 410-36827/2-A	64	67	66	86	96	96
SB31_0-2 MS	410-11717-8 MS	50	55	56	75	59	76
SB31_0-2 MSD	410-11717-8 MSD	45	48	45	56	62	63

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2,4,6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Laboratories	Job No.: 410	-11717-1
SDG No.	:			
Matrix:	Solid	Level: Low	Lab File ID:	PH1304.D
Lab ID:	LCS 410-36827/2-A		Client ID:	

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1670	1440	86	61-112	
Acenaphthylene	1670	1650	99	60-124	
Anthracene	1670	1690	101	67-120	
Benzo[a]anthracene	1670	1620	97	68-120	
Benzo[a]pyrene	1670	1760	105	68-119	
Benzo[b]fluoranthene	1670	1710	102	67-125	
Benzo[g,h,i]perylene	1670	1760	105	68-125	
Benzo[k]fluoranthene	1670	1760	105	66-122	
Chrysene	1670	1650	99	66-111	
Dibenz(a,h)anthracene	1670	1880	112	69-135	
Fluoranthene	1670	1820	109	65-114	
Fluorene	1670	1650	99	62-110	
Indeno[1,2,3-cd]pyrene	1670	1830	109	64-130	
Naphthalene	1680	1290	77	49-104	
Phenanthrene	1670	1690	101	67-116	
Pyrene	1680	1600	95	67-109	
2-Methylphenol	1670	1140	68	52-116	
4-Methylphenol	1670	1120	67	52-121	
Dibenzofuran	1670	1550	93	62-113	
Hexachlorobenzene	1670	1670	100	62-124	
Pentachlorophenol	1680	1610	96	40-131	
Phenol	1670	1090	65	57-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No	o.:	410-11717-1	
					'			

SDG No.:

Matrix: Solid Level: Low Lab File ID: PH1413.D

Lab ID: 410-11717-8 MS Client ID: SB31_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1840	380	1600	66	61-112	
Acenaphthylene	1840	490	2160	91	60-124	
Anthracene	1840	1100	2490	75	67-120	
Benzo[a]anthracene	1830	2800	4730	104	68-120	
Benzo[a]pyrene	1840	2500	4340	99	68-119	
Benzo[b]fluoranthene	1840	2800	4440	88	67-125	
Benzo[g,h,i]perylene	1840	1700	3560	103	68-125	
Benzo[k]fluoranthene	1840	1400	3200	100	66-122	
Chrysene	1830	2800	4540	97	66-111	
Dibenz(a,h)anthracene	1840	360	2010	90	69-135	
Fluoranthene	1840	6400	9060	144	65-114	F1
Fluorene	1840	430	1890	79	62-110	
<pre>Indeno[1,2,3-cd]pyrene</pre>	1840	1500	3480	105	64-130	
Naphthalene	1850	260	1320	58	49-104	
Phenanthrene	1840	5300	6220	52	67-116	F1
Pyrene	1850	5300	7240	105	67-109	
2-Methylphenol	1840	ND	1000	55	52-116	
4-Methylphenol	1840	ND	1060	58	52-121	
Dibenzofuran	1830	360	1680	72	62-113	
Hexachlorobenzene	1840	ND	1400	76	62-124	
Pentachlorophenol	1850	ND	984	53	40-131	
Phenol	1840	ND	1050	57	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Euro	fins Lancaster	Laboratories	Job No.:	410-11717-1	

SDG No.:

Matrix: Solid Level: Low Lab File ID: PH1414.D

Lab ID: 410-11717-8 MSD Client ID: SB31_0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD %	olc -	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Acenaphthene	1840	1190	44	29	30	61-112	F1
Acenaphthylene	1840	1530	57	34	30	60-124	F2 F1
Anthracene	1840	1890	42	27	30	67-120	F1
Benzo[a]anthracene	1830	2990	9	45	30	68-120	F2 F1
Benzo[a]pyrene	1840	2880	20	40	30	68-119	F2 F1
Benzo[b]fluoranthene	1840	2950	8	40	30	67-125	F2 F1
Benzo[g,h,i]perylene	1840	2460	43	36	30	68-125	F2 F1
Benzo[k]fluoranthene	1840	2160	44	39	30	66-122	F2 F1
Chrysene	1830	2810	3	47	30	66-111	F2 F1
Dibenz(a,h)anthracene	1840	1660	71	19	30	69-135	
Fluoranthene	1840	5640	-42	47	30	65-114	F2 F1
Fluorene	1840	1360	51	32	30	62-110	F2 F1
Indeno[1,2,3-cd]pyrene	1840	2320	42	40	30	64-130	F2 F1
Naphthalene	1850	1080	44	21	30	49-104	F1
Phenanthrene	1840	3910	-73	46	30	67-116	F2 F1
Pyrene	1850	4490	-44	47	30	67-109	F2 F1
2-Methylphenol	1840	946	51	6	30	52-116	F1
4-Methylphenol	1840	892	49	17	30	52-121	F1
Dibenzofuran	1830	1330	53	23	30	62-113	F1
Hexachlorobenzene	1840	1180	64	17	30	62-124	
Pentachlorophenol	1850	688 J	37	35	30	40-131	F2 F1
Phenol	1840	939	51	11	30	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

Report Date: 26-Aug-2020 11:35:21 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP23262\20200825-8947.b\PH1315.D Injection Date: 26-Aug-2020 05:19:30 Instrument ID: HP23262 Lims ID: 410-11717-I-2-B Lab Sample ID: 410-11717-2

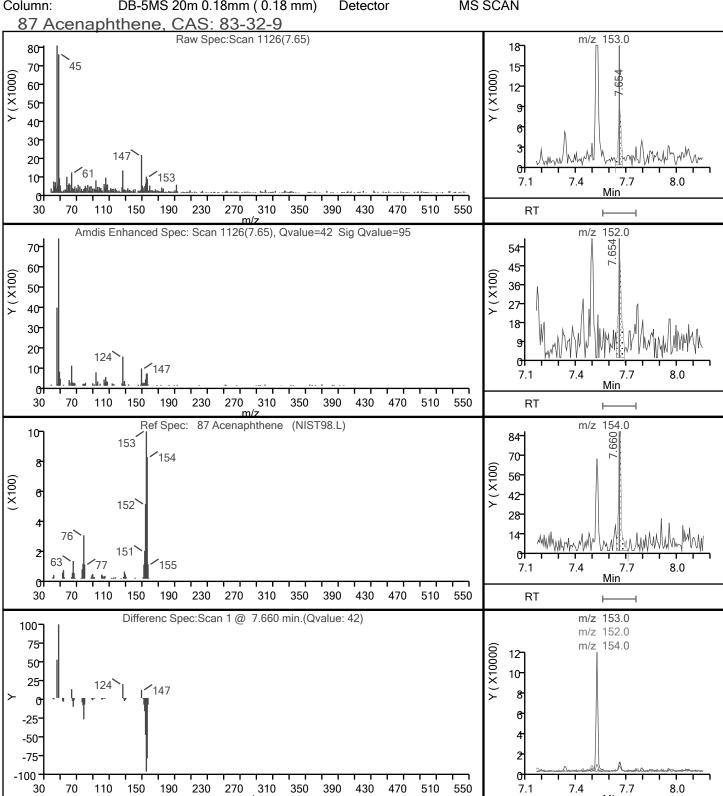
SB36_16-18 Client ID:

Operator ID: sw30417 ALS Bottle#: 16 Worklist Smp#: 16

1.0 ul Dil. Factor: Injection Vol: 1.0000

MSSV - 8270D E Method: MSSemi HP23262 Limit Group:

Column: DB-5MS 20m 0.18mm (0.18 mm) Detector MS SCAN



Report Date: 26-Aug-2020 11:35:21 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP23262\20200825-8947.b\PH1315.D Injection Date: 26-Aug-2020 05:19:30 Instrument ID: HP23262 Lims ID: 410-11717-I-2-B Lab Sample ID: 410-11717-2

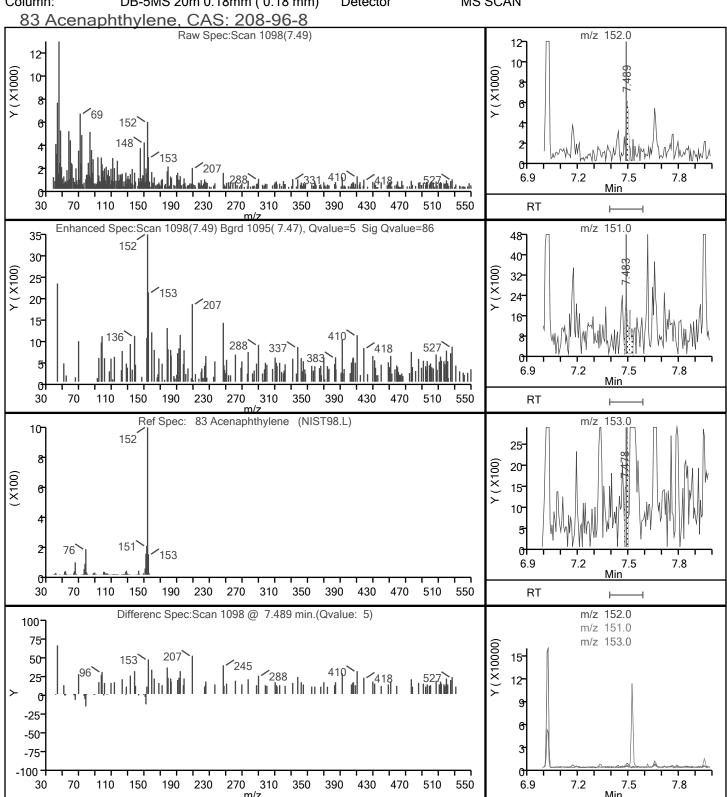
Client ID: SB36 16-18

Operator ID: sw30417 ALS Bottle#: 16 Worklist Smp#: 16

1.0 ul Dil. Factor: Injection Vol: 1.0000

MSSemi HP23262 MSSV - 8270D E Method: Limit Group:

Column: DB-5MS 20m 0.18mm (0.18 mm) Detector MS SCAN



Report Date: 26-Aug-2020 11:35:22 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

Data File: \\chromfs\Lancaster\ChromData\HP23262\20200825-8947.b\PH1315.D Injection Date: 26-Aug-2020 05:19:30 Instrument ID: HP23262 Lims ID: 410-11717-I-2-B Lab Sample ID: 410-11717-2

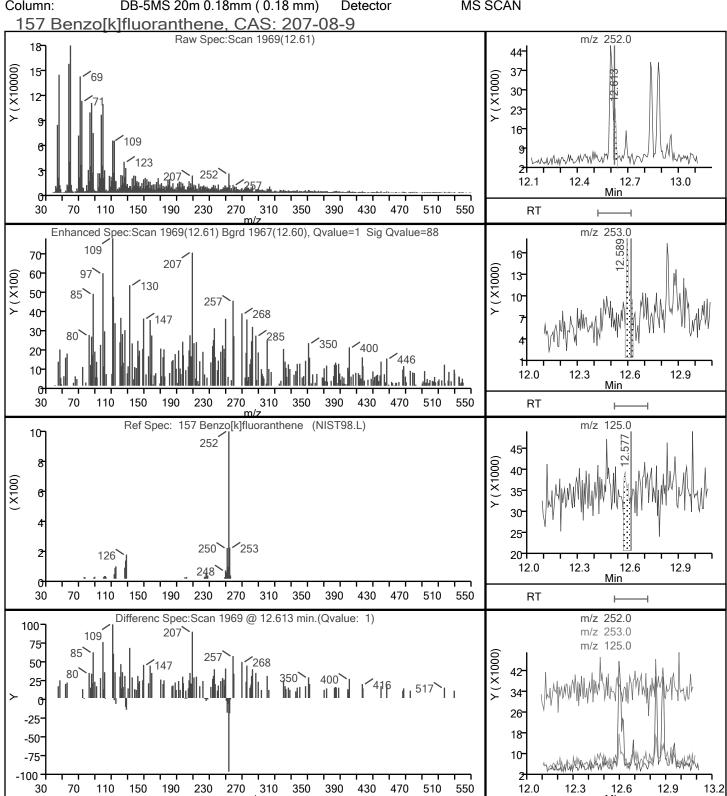
Client ID: SB36 16-18

Operator ID: sw30417 ALS Bottle#: 16 Worklist Smp#: 16

1.0 ul Dil. Factor: Injection Vol: 1.0000

Method: MSSemi HP23262 Limit Group: MSSV - 8270D E

Column: DB-5MS 20m 0.18mm (0.18 mm) Detector MS SCAN



Report Date: 26-Aug-2020 11:36:17 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

 Data File:
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 Injection Date:
 26-Aug-2020 07:56:30
 Instrument ID:
 HP23262

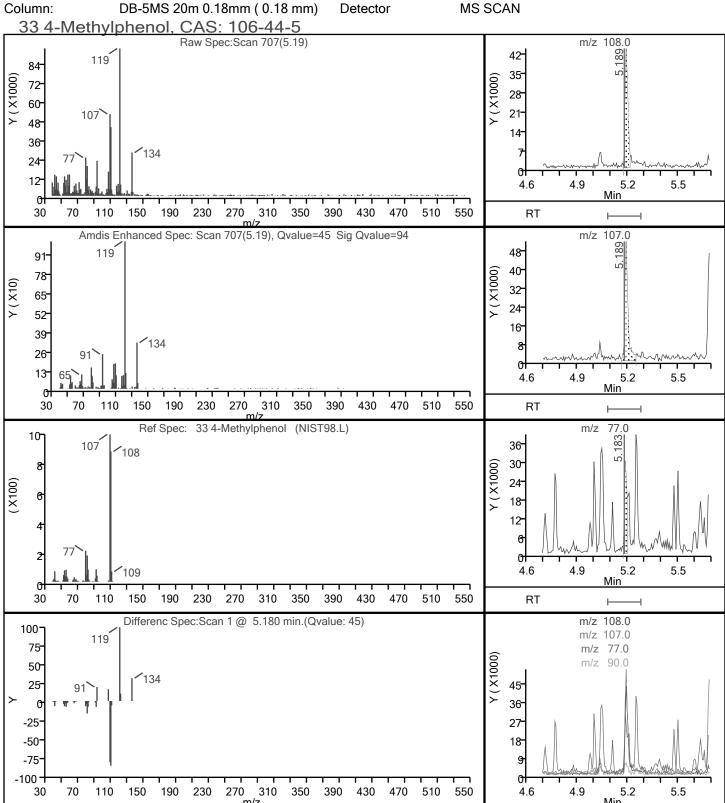
 Lims ID:
 410-11717-I-10-B
 Lab Sample ID:
 410-11717-10

Client ID: SB31_30-32

Operator ID: sw30417 ALS Bottle#: 23 Worklist Smp#: 23

Injection Vol: 1.0 ul Dil. Factor: 1.0000

Method: MSSemi_HP23262 Limit Group: MSSV - 8270D_E



FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11717-1		
SDG	No.:								

Matrix: Solid Level: Low

GC Column (1): Rxi-.5SilMS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	MNPd10 #	FLN10 #	BAPd12 #
SB36_0-2	410-11717-1	62	58	56
SB36_16-18	410-11717-2	84	75	83
SB36_22-24	410-11717-3	87	87	85
SB26_6-8	410-11717-5	64	71	71
SB26_13-15	410-11717-6	99	102	85
SODUP05_08242020	410-11717-7	83	116	79
SB31_0-2	410-11717-8	68	82	80
SB31_18-20	410-11717-9	54	89	81
SB31_30-32	410-11717-10	70	80	81
	MB 410-36828/1-A	83	88	78
	LCS 410-36828/2-A	96	83	86
SB31_0-2 MS	410-11717-8 MS	67	83	52
SB31_0-2 MSD	410-11717-8 MSD	68	81	81

	QC LIMITS
MNPd10 = 1-Methylnaphthalene-d10 (Surr)	27-107
FLN10 = Fluoranthene-d10 (Surr)	21-120
BAPd12 = Benzo(a)pyrene-d12 (Surr)	17-112

FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	ab Name: Eurofins Lancaster Lak		oratories Job		Job No.: 410-11717-1							
SDG No.	:											
Matrix: Solid		Level:	evel: Low		Lab File ID: CH2012.D							
Lab ID:	LCS 410-36828/2-A			Cli	ent ID:					_		
			SPIKE			LCS	LCS	QC		_		
	COMPOUND		ADDED (ug/Kg)			NTRATION g/Kg)	% REC	LIMITS REC	#			

33.3

9.52

1,4-Dioxane

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11717-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: CH2112.D

Lab ID: 410-11717-8 MS Client ID: SB31_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	36.8	ND	9.62 J	26	21-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11717-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: CH2113.D

Lab ID: 410-11717-8 MSD Client ID: SB31_0-2 MSD

	SPIKE MSD MS		MSD		QC LIMITS			
	ADDED	CONCENTRATION	용	용		l	#	
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC		
1,4-Dioxane	36.8	ND	0	NC	30	21-79	F1	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM II PESTICIDES SURROGATE RECOVERY

Lab	Name:	Eurofins Lancaster Laboratories	Job No.:	410-11717-1	
SDG	No.:				
	_				

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB36_0-2	410-11717-1	96		61	р	245	Х	364	Х
SB36_16-18	410-11717-2	130		144	Х	126		77	р
SB36_22-24	410-11717-3	78		64		77		77	
SB26_6-8	410-11717-5	78		65		176	Х	234	Х
SB26_13-15	410-11717-6	53		49		57		55	
SODUP05_08242020	410-11717-7	87		80		91		91	
SB31_0-2	410-11717-8	82		69		137	р	225	Х
SB31_18-20	410-11717-9	179	Х	179	Х	168	Х	104	р
SB31_30-32	410-11717-10	72		57		81		76	
	MB 410-37286/1-A	111		111		132		134	
	LCS 410-37286/2-A	102		102		113		114	
SB31_0-2 MS	410-11717-8 MS	97		108		168 p	Х	295	Х
SB31_0-2 MSD	410-11717-8 MSD	86		70		127		160	Х

Column to be used to flag recovery values

FORM III PESTICIDES LAB CONTROL SAMPLE RECOVERY

Lab Nam	e: Eurofins Lancast	er Laboratories	Job No.:	410	-11717-1	
SDG No.	:					
Matrix:	Solid	Level: Low	Lab File	ID:	35PEST20231011.038.D	
Lab ID:	LCS 410-37286/2-A		Client II):		

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Aldrin	3.33	3.65	109	60-117	
alpha-BHC	3.38	3.69	109	65-124	
alpha-Chlordane	3.33	3.49	105	73-131	
beta-BHC	3.33	3.57	107	68-129	
delta-BHC	3.33	3.69	111	45-151	
Dieldrin	6.67	7.27	109	63-126	
Endosulfan I	3.33	3.36	101	62-119	
Endosulfan II	6.67	7.12	107	65-126	
Endosulfan sulfate	6.67	7.62	114	71-132	
Endrin	6.67	7.53	113	86-135	
gamma-BHC (Lindane)	3.33	3.57	107	68-133	
Heptachlor	3.33	3.50	105	66-118	
p,p'-DDD	6.71	8.06	120	69-138	
p,p'-DDE	6.67	7.87	118	68-146	
p,p'-DDT	6.71	6.46	96	67-135	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Client Sample ID: <u>SB36_0-2</u> Lab Sample ID: 410-11717-1

Date Analyzed (1): 08/26/2020 22:52 Date Analyzed (2): 08/26/2020 22:52

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENT	RPD	
ANALITE	СОП			FROM	TO	PEAK	MEAN	INID
alpha-Chlordane	1		3.53	3.51	3.57	76		51.1
	2		4.14	4.11	4.17	45		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Client Sample ID: <u>SB26_6-8</u> Lab Sample ID: 410-11717-5

Date Analyzed (1): 08/26/2020 23:24 Date Analyzed (2): 08/26/2020 23:24

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	RATION	RPD
ANALITE	COL		KI	FROM	TO	PEAK	MEAN	KPD
gamma-BHC (Lindane)	1		2.32	2.28	2.34	11		5.9
	2		2.79	2.78	2.84	12		
p,p'-DDE	1		3.77	3.75	3.81	3.3		57.5
	2		4.27	4.24	4.30	1.8		
Dieldrin	1		3.86	3.82	3.88	16		128.2
	2		4.33	4.32	4.38	3.5		
p,p'-DDT	1		4.32	4.29	4.35	4.6		30.2
	2		4.75	4.71	4.77	6.3		
Endosulfan sulfate	1		4.51	4.46	4.52	10		122.5
	2		4.86	4.82	4.88	2.5		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Client Sample ID: <u>SB31_0-2</u> Lab Sample ID: 410-11717-8

Date Analyzed (1): 08/26/2020 23:57 Date Analyzed (2): 08/26/2020 23:57

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENT	RPD	
ANALITE	СОП	FEAN	KI	FROM	TO	PEAK	MEAN	KED
gamma-BHC (Lindane)	1		2.32	2.28	2.34	15		1.0
	2		2.79	2.78	2.84	15		
Endrin	1		4.07	4.03	4.09	4.3		68.0
	2		4.49	4.46	4.52	8.7		

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Date Analyzed (1): 08/27/2020 00:39 Date Analyzed (2): 08/27/2020 00:39

ANALYTE	COL	PEAK	RT -	RT WI	INDOW	CONCENT	RPD	
ANALITE	СОП			FROM	TO	PEAK	MEAN	INLD
alpha-Chlordane	1		3.52	3.51	3.57	1.2		184.0
	2		4.17	4.11	4.17	28		
p,p'-DDD	1		4.16	4.13	4.19	2.0		123.9
	2		4.59	4.54	4.60	0.47		

FORM II PCBS SURROGATE RECOVERY

Lab Name:	Eurofins Lancaster Laborate	ories Job No.: 4	410-11717-1
SDG No.:			
Matrix: S	olid	Level: Lov	N

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB36_0-2	410-11717-1	56		49	Х	197	Х	205	Х
SB36_16-18	410-11717-2	85		99		73		91	
SB36_22-24	410-11717-3	100		113		81		94	
SB26_6-8	410-11717-5	80		76		103		134	\neg
SB26_13-15	410-11717-6	104		114		83		95	\neg
SODUP05_08242020	410-11717-7	114		131		93		108	\neg
SB31_0-2	410-11717-8	77		73		74		89	\neg
SB31_18-20	410-11717-9	81		79		80		95	\neg
SB31_30-32	410-11717-10	101		100		96		114	\neg
	MB 410-37293/1-A	83		94		77		89	\neg
	MB 410-39518/1-A	100		102		104		104	\neg
	LCS 410-37293/2-A	91		102		86		99	
	LCS 410-39518/2-A	104		107		106		104	
SB31_0-2 MS	410-11717-8 MS	71		69		77		91	
SB31_0-2 MSD	410-11717-8 MSD	64		62		63		79	

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8082A

FORM III PCBS MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11717-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 07PCBS20223019.0014.D

Lab ID: 410-11717-8 MS Client ID: SB31_0-2 MS

		SAMPLE CONCENTRATION			QC LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
PCB-1016	184	ND	147	80	76-121	
PCB-1260	184	ND	162	84	79-130	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8082A}$

FORM III PCBS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11717-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 07PCBS20223019.0015.D

Lab ID: 410-11717-8 MSD Client ID: SB31_0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	o\c	QC L1	#	
COMPOUND	(ug/Kg) (ug/Kg)		REC	RPD	RPD	REC	#
PCB-1016	183	127	69	15	50	76-121	F1
PCB-1260	183	133	69	19	50	79-130	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8082A}$

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	Job No.: $410-11717-1$	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB36_0-2	410-11717-1	48	72
SB36_16-18	410-11717-2	38	36
SB36_22-24	410-11717-3	56	56
SB26_6-8	410-11717-5	51	48
SB26_13-15	410-11717-6	57	58
SODUP05_08242020	410-11717-7	60	57
SB31_0-2	410-11717-8	59	57
SB31_18-20	410-11717-9	55	55
SB31_30-32	410-11717-10	57	57
	MB 410-39478/1-A	56	55
	LCS 410-39478/2-A	61	59
SB31_0-2 MS	410-11717-8 MS	61	56
SB31_0-2 MSD	410-11717-8 MSD	65	59

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB31 0-2 MS Lab ID: 410-11717-8 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 90.3

Analyte	SSR	С	Sample Result (SI	R) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	8.40		6.3		1.51	141	75-125	4	6020B
Barium	108		75		7.58	430	75-125	4	6020B
Beryllium	0.948	J	0.39	J	0.614	92	75-125		6020B
Cadmium	1.10		0.14	J	0.764	125	75-125		6020B
Chromium	32.4		25		7.67	102	75-125		6020B
Copper	38.7		20		7.64	250	75-125	F1	6020B
Lead	579		56		0.752	69676	75-125	4	6020B
Manganese	456		470		7.67	-222	75-125	4	6020B
Nickel	23.9		18		7.67	74	75-125	F1	6020B
Selenium	1.46		ND		1.53	96	75-125		6020B
Silver	8.44		0.24		7.68	107	75-125		6020B
Zinc	176		64		76.7	146	75-125	F1	6020B
Mercury	2.35		1.7		0.173	363	80-120	4	7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: SB31 0-2 MSD Lab ID: 410-11717-8 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 90.3

Analyte	(SDR)	С	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Arsenic	6.98		1.96	37	75-125	18	20	F1	6020B
Barium	94.3		9.81	195	75-125	13	20	4	6020B
Beryllium	1.05	J	0.795	83	75-125	10	20		6020B
Cadmium	1.18		0.989	105	75-125	7	20		6020B
Chromium	37.3		9.93	128	75-125	14	20	F1	6020B
Copper	33.0		9.89	135	75-125	16	20	F1	6020B
Lead	70.4		0.973	1320	75-125	148	20	4 F2	6020B
Manganese	361		9.93	-1131	75-125	23	20	4 F2	6020B
Nickel	22.3		9.93	41	75-125	7	20	F1	6020B
Selenium	1.89		1.98	96	75-125	26	20	F2	6020B
Silver	10.1		9.95	99	75-125	17	20		6020B
Zinc	160		99.3	97	75-125	9	20		6020B
Mercury	1.29		0.179	-241	80-120	58	20	4 F2	7471B

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

5B-IN POST DIGESTION SPIKE SAMPLE RECOVERY METALS

Client ID: SB31 0-2 PDS Lab ID: 410-11717-8 PDS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11717-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

Analyte	SSR	С	Sample Result (SE	R) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	6.46		6.3		0.611	NC	85-115		6020B
Barium	71.2		75		0.611	NC	85-115		6020B
Beryllium	0.491	J	0.39	J	0.153	69	85-115	M	6020B
Cadmium	0.307		0.14	J	0.153	107	85-115		6020B
Chromium	24.4		25		0.305	NC	85-115		6020B
Copper	18.5		20		0.305	NC	85-115		6020B
Lead	55.0		58		0.153	NC	85-115		6020B
Manganese	452		470		0.611	NC	85-115		6020B
Nickel	17.2		18		0.305	NC	85-115		6020B
Selenium	0.400	J	ND		0.305	131	85-115	W	6020B
Silver	0.369		0.24		0.153	82	85-115	W	6020B
Zinc	63.1		64		3.05	NC	85-115		6020B
Mercury	2.52		1.7		0.893	90	85-115		7471B

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results. Note - Results and Reporting Limits have been adjusted for dry weight.

6-IN DUPLICATES METALS

Client ID: <u>SB31_0-2 DU</u> Lab ID: 410-11717-8 DU

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11717-1

SDG No.:

% Solids for Sample: 90.3 % Solids for Duplicate: 90.3

Matrix: Solid Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	С	Duplicate (D)) C	RPD	Q	Method
Arsenic	0.89	6.3		6.00		4		6020B
Barium	0.89	75		72.6		4		6020B
Beryllium	2.2	0.39	J	0.358	J	7		6020B
Cadmium	0.22	0.14	J	0.155	J	7		6020B
Chromium	0.89	25		63.6		88	F3	6020B
Copper	0.89	20		21.6		10		6020B
Lead	0.44	58		61.5		7		6020B
Manganese	0.89	470		550		15		6020B
Nickel	0.89	18		15.0		20		6020B
Selenium	0.89	ND		ND		NC		6020B
Silver	0.22	0.24		0.275		12		6020B
Zinc	66	64		59.5	J	7		6020B
Mercury	0.31	1.7		2.08		19		7471B

Calculations are performed before rounding to avoid round-off errors in calculated results.

$$8\mbox{-IN}$$ ICP-AES AND ICP-MS SERIAL DILUTIONS METALS

Lab ID: 410-11717-8

SDG No:

Lab Name: Eurofins Lancaster Laboratories Job No: 410-11717-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Samp Result (I)		Serial Dilution Result (S)	С	% Difference	Q	Method
Arsenic	6.3		5.01		NC		6020B
Barium	75		63.3		16	V	6020B
Beryllium	0.39	J	0.340	J	NC		6020B
Cadmium	0.14	J	ND		NC		6020B
Chromium	25		22.9		6.8		6020B
Copper	20		16.4		17	V	6020B
Lead	58		49.3		14	V	6020B
Manganese	470		394		17	V	6020B
Nickel	18		15.4		16	V	6020B
Selenium	ND		ND		NC		6020B
Silver	0.24		ND		NC		6020B
Zinc	64		52.8	J	17	V	6020B

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM I LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E	Job No.: 410-11717-1
SDG No.:	
Client Sample ID:	Lab Sample ID: <u>ICB 410-36952/8</u>
Matrix: Solid	Lab File ID: 20AUG25MCAL-17.d
Analysis Method: 537 (Mod)	Date Collected:
Extraction Method:	Date Extracted:
Sample wt/vol: 1(uL)	Date Analyzed: 08/25/2020 14:04
Con. Extract Vol.:	Dilution Factor: 1
Injection Volume: 4(uL)	GC Column: Gemini C18 50mm ID: 3(mm)
% Moisture:	GPC Cleanup: (Y/N) N
Analysis Batch No.: 36952	Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-73-5	Perfluorobutanesulfonic acid	ND		0.50	0.13
335-76-2	Perfluorodecanoic acid	ND		0.50	0.13
2991-50-6	NETFOSAA	0.287	J	1.3	0.13
375-85-9	Perfluoroheptanoic acid	ND		0.50	0.13
2355-31-9	NMeFOSAA	0.372	J	0.50	0.15
355-46-4	Perfluorohexanesulfonic acid	ND		0.50	0.13
307-24-4	Perfluorohexanoic acid	ND		0.50	0.13
375-95-1	Perfluorononanoic acid	ND		0.50	0.13
375-92-8	Perfluoroheptanesulfonic acid	ND		0.50	0.13
335-77-3	Perfluorodecanesulfonic acid	ND		0.50	0.13
1763-23-1	Perfluorooctanesulfonic acid	ND		0.50	0.13
754-91-6	Perfluorooctanesulfonamide	ND		0.50	0.13
335-67-1	Perfluorooctanoic acid	ND		0.50	0.13
375-22-4	Perfluorobutanoic acid	ND		1.3	0.50
376-06-7	Perfluorotetradecanoic acid	ND		0.50	0.13
72629-94-8	Perfluorotridecanoic acid	ND		0.50	0.13
2058-94-8	Perfluoroundecanoic acid	ND		0.50	0.13
307-55-1	Perfluorododecanoic acid	ND		0.50	0.13
27619-97-2	6:2 Fluorotelomer sulfonic acid	ND		1.3	0.50
39108-34-4	8:2 Fluorotelomer sulfonic acid	ND		0.75	0.25
2706-90-3	Perfluoropentanoic acid	ND		0.50	0.13



December 22, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Eurofins Lancaster Laboratories for seven soil samples and one equipment blank from the 250 Water Street site, which were reported in a single data package under Job No. 410-11826-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB35_0-2	SB35_8-10	SB35_26-28	SB34_4-6
SB34_10-12	SB34_12-14	SB34_18-20	EB01-08252020

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 7471B, 6020B, and 9012B and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

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Based on the data review effort, the results are usable, with the following qualifications:

o Volatile Organics

- Results for all VOC target analytes in SB34_4-6 RA (8/31/20) were qualified as estimated with no directional bias (J, UJ) based on unacceptable recoveries for two of the three surrogates used in the analysis.
- Positive results for n-butylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene in SB35_8-10 and SB35_8-10 RA were qualified as estimated with the potential for high bias (J+) based on high surrogate recoveries for an associated surrogate compound
- Results for acetone in SB34_10-12, SB34_12-14, SB34_18-20, and SB35_26-28 were qualified as estimated (J+) with potential high bias, based on high recoveries exhibited in the laboratory control sample (LCS) and LCS duplicate (LCSD).
- Results for the 8/31/20 analysis of SB34_4-6 are not recommended for use. These results were flagged as "reportable no," by the laboratory. Results from the 9/1/20 analysis are recommended. Results for n-butylbenzene, n-propylbenzene, secbutylbenzene, tert-butylbenzene 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were qualified as estimated (J, UJ), based on low recovery for the internal standard 1,4-dichlorobenzene-d4.

o Semi-Volatile Organics (Fullscan)

- Results for all acid-extractable target compounds in SB34_4-6, SR35_0-2, and SB35_8-10 were qualified as estimated (UJ) based on low recoveries for the associated surrogate compounds.
- Results for phenol, 2-methylphenol, and 4-methylphenoli n SB34_18-20 and SB35_26-28 were qualified as estimated (UJ) based on low recoveries of the associated surrogate compound.
- Results for hexachlorobenzene and naphthalene in SB35_8-10 were qualified as estimated (J-, UJ) based on low recoveries of the associated surrogate compound.
- Positive results for fluoranthene, phenanthrene, and pyrene in SB34_10-12, SB34_12-14, SB34_18-20, SB34_4-6, SB35_0-2, SB35_26-28, and SB35_8-10 were qualified as estimated (J) based on high recoveries in the MS and poor precision between the paired matrix spike/matrix spike duplicate (MS/MSD) spikes.
- Results for 4-methylphenol and pentachlorophenol in SB34_10-12, SB34_12-14, SB34_18-20, SB34_4-6, SB35_0-2, SB35_26-28, and SB35_8-10 were qualified as estimated (UJ) with potential low bias, based on low recoveries in the MS and/or MSD.

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 The validator corrected the result for fluorene in SB34_4-6 to not detected at the reporting limit (RL), based on low signal-to-noise (S/N) ratio and/or poor spectral match.

Semi-Volatile Organics (SIM)

Results for 1,4-dioxane in SB34_10-12, SB34_12-14, SB34_4-6, SB35_0-2, SB35_26-28, and SB35_8-10 were qualified as estimated (J-, UJ) based on low recoveries in the associated LCS, MS, and MSD.

o Pesticides

- The results for aldrin in SB35_0-2, alpha-BHC, aldrin, alpha-chlordane, 4,4'-DDE, and 4,4'-DDD in SB35_8-10, and alpha-BHC in SB34_12-14 were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns
- The results for aldrin, alpha-chlordane, beta-BHC, endosulfan I, endosulfan sulfate, gamma-BHC, and 4,4'-DDT in SB35_0-2, SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 were qualified as estimated (J, UJ) due to unacceptable MS/MSD recoveries and imprecision between MS/MSD results.
- The positive result for heptachlor in SB34_4-6 was qualified as estimated (J+) due to high MS/MSD recoveries.
- The positive results for alpha-BHC and 4,4'-DDD in SB35_8-10 and alpha-BHC in SB34_12-14 were qualified as estimated (J) and non-detect results for alpha-BHC SB35_0-2, SB35_26-28, SB34_4-6, and SB34_10-12, 4,4'-DDD in SB35_0-2, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14, and delta-BHC, endosulfan II, and endosulfan sulfate in SB35_0-2, SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 were rejected (R) because these analytes were not recovered in the MS and/or MSD.
- Results for aldrin in SB35_0-2, 4,4'-DDD in SB35_8-10, and heptachlor in SB34_4-6
 were qualified as estimated (J) due to lack of agreement between the two column
 measurements.

o PCBs

 The results for all Aroclors in SB35_0-2, S35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 qualified as estimated (J, UJ) due to low surrogate recoveries on both analytical columns.

Herbicides

The results for Silvex in SB35_0-2, SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 were qualified as estimated (UJ) due to low surrogate and LCS recoveries on both analytical columns.

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o Metals

 Results for mercury in SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, SB34_12-14 and SB34_18-20 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - o Internal standards
 - Duplicate
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

Results for 1,4-dioxane were reported in both the volatile and semi-volatile fractions.
 Results for this analyte from the SVOCs analyses are recommended for use.

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- The run-log for VOCs analyses lists SB34_4-6 with a run time of 9/1/2020 @ 01:18, while the re-analysis (RA) is listed with a run time of 8/31/2020 @ 22:30. The raw data and Form 1s included in the data package also reflect these same analysis times. In the EDD, both of the analyses performed on 8/31/2020 and 9/1/2020 are listed as re-analyses. The results from the 8/31/20 analysis appear to be the initial results, but are not reportable, due to internal standard response failures. The results from the 9/1/20 "re-analysis were reported by the laboratory." Based on the chronology of the analyses the 8/31/20 appears to be an initial analysis and re-analysis appear to have been reversed in the data package.
- A "T" flag was present in the EDD for a number of results. This data flag was not present on the Form 1s in the data package, nor was it listed in the definitions page. The EDDs are formatted with NYSDEC-specific data qualifiers for submission to the agency, although this qualifier format is not reflected in the data package.
- It was noted that "e" flags, indicating the potential for peak saturations, were displayed on one or more of the quantitation reports of the highest concentration IC standards for the SVOCs. There was no indication in the narrative or elsewhere in the data package that the laboratory acknowledged or addressed this issue. In response to a request for clarification, the laboratory responded that these peaks are checked both by the analyst and during a secondary level review of the calibration data.
- o The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- Responses on the pesticide performance evaluation mixture (PEM) summary forms did not match the responses found in the raw data. According to the laboratory, the discrepancies are because peak heights are reported in the raw data, but peak areas are reported on the summary forms. Corrected documentation was not provided by the time this report was issued; however, the data can be reassessed if corrections are subsequently provided. Based on the available raw data, endrin and 4,4'-DDT breakdown was less than the maximum acceptance limit of 15% in every case.
- The laboratory reported the lower concentrations for target analytes in a few samples and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration. This policy should have been noted in the case narrative.
- On the PCBs surrogate recovery summary form, only two of four surrogate recoveries were reported for SB34_4-6, method blank 410-39841/1-A, and laboratory control sample 410-39841/2-A. The missing recoveries could be verified using the available raw data for these samples and the recoveries were acceptable.
- On the PCBs identification summary form, responses for only five of the six selected peaks were included for Aroclor 1232 on the DB CLP2 column in SB35_0-2, even though the reported concentration was calculated using all six peaks. The missing responses were available in the raw data for this sample and the responses supported the reported result.
- The result for Silvex in SB34_10-12 was reported from a re-analysis of the sample. The laboratory did not explain why the re-analysis was determined to be necessary.
- A run log is included in the data package for Cr III. It should be noted that Cr III is a calculation only, performed by subtracting any Cr VI detected in the sample from the total

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chromium result. There is no analysis performed specifically to determine Cr III. The laboratory responded to a question on this issue stating that "a batch is created as a place to hold the calculations."

- Run logs for hexavalent chromium do not include opening continuing calibration verifications (CCVs) and continuing calibration blanks (CCBs). The sequence begins with a method blank and the LCS. The laboratory was requested to provide clarification on this issue and responded that the MB and LCS take the place of the CCB and CCV for this manual wet chem method.
- Method detection limits (MDLs) for all of the general chemistry parameters analyzed for this data set are dated 2018. The laboratory was requested to provide more recent MDLs to support the reported results. In response to an inquiry on this issue, the laboratory responded that the studies were performed in 2018 and that quarterly checks are performed according to the current procedure. No documentation was provided to demonstrate that these checks continue to support the reported MDLs. At the data user's discretion, such documentation may be requested from the laboratory if needed for support of low-level results (J) and non-detects (U).
- No date is provided on the IC summary for hexavalent chromium. The prep date for the IC included in the data package is from 5/30/20. The batch number from the prep log matches the data for the IC, so it is assumed that the curve represents the data from these standards. No run log or raw data for the analyses are provided. Responses recorded on the IC calibration summary were assessed as the only data provided for the IC. The laboratory responded to a request for clarification on this issue, stating that because hexavalent chromium is a manual wet chem method such documentation does not apply. It should be noted that a run log with raw data was generated and provided for the field sample analyses.
- No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision for this supporting parameter is available. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of this measurement. The laboratory responded to a request for clarification on this issue that when the determination is only made to provide dry weight correction, no batch duplicate analyses are performed.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 25, 2020. The samples were received by the laboratory on the same day as sample collection. The cooler temperatures on receipt at the laboratory (2.0°C and 4.1°C) were acceptable (QC 4°C ±2°C). All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

1. Surrogates

Surrogate recoveries were acceptable (70-130%), with the following exceptions:



Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB34_4-6 RA	Toluene-d ₈	156	All target analytes	J, UJ
	Bromofluorobenzene	53		
SB35_8-10 RA	Bromofluorobenzene	141	N-Propylbenzene	J+
SB35_8-10	Bromofluorobenzene	171	1,3,5-Trimethylbenzene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	

Results for all VOC target analytes in SB34_4-6 RA were qualified as estimated with no directional bias (J, UJ) based on unacceptable recoveries for two of the three surrogates used in the analysis.

Positive results for the compounds detailed above in SB35_8-10 and SB35_8-10 RA were qualified as estimated with the potential for high bias (J+) based on high surrogate recoveries for an associated surrogate compound

2. LCS/LCSD

Target analyte recoveries and relative percent differences (RPDs) were acceptable (QC 70-130%R; ≤20 RPD), with the following exceptions:

LCS/LCSD 36677-35	5/36				
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Acetone	141	142	а	SB34_10-12	J+
				SB34_12-14	
				SB34_18-20	
				SB35_26-28	

a-acceptable

Results for acetone in the samples listed above were qualified as estimated (J+) with potential high bias, based on high recoveries exhibited in the LCS and LCSD.

3. Internal Standards

Sample		IS	Area as % of CC	Compounds Affected	Qualifiers Applied
SB34_4-6	RA	t-Butyl alcohol	45	All VOCs	J, UJ
(8/31/20)*		Chlorobenzene-d₅	31		
		1,4-Dichlorobenzene-d4	8.5		
SB34_4-6		1,4-Dichlorobenzene-d ₄	29	n-butylbenzene	J, UJ
(9/1/20)*				n-propylbenzene	
				sec-butylbenzene	



Sample	IS	Area as % of CC	Compounds Affected	Qualifiers Applied
			tert-butylbenzene 1,2-dichlorobenzene 1,3-dichlorobenzene 1,4-dichlrobenzene 1,2,4-trimethylbenzene 1,3,5-trimethylbenzene	

^{*&}quot;RA" and initial analyses appear to be reversed

Based on unacceptable responses for three of the four internal standards used, in the 8/31/20 analysis of SB34_4-6, the results for this analysis are not recommended for use. These results were flagged as not reportable, by the laboratory and no further action was taken by the validator. Results from the 9/1/20 analysis are recommended for use. Based on low recovery for 1,4-dichlorobenzene-d₄ in the 9/1/20 analysis, results for n-butylbenzene, n-propylbenzene, secbutylbenzene, tert-butylbenzene 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were qualified as estimated (UJ).

B. Semi-Volatile Organics (Full Scan)

1. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. All surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate	%R	Compounds Affected	Qualifiers Applied
SB34_4-6	Phenol-d ₅	61	All acid-extractable	J-, UJ
	2-Fluorophenol	56	compounds	
	2,4,6-Tribromophenol	35		
SB34_18-20	2-Fluorophenol	67	List 1*	
SB35_0-2	Phenol-d ₅	69	All acid-extractable	
	2-Fluorophenol	59	compounds	
SB35_8-10	Phenol-d ₅	67	All acid-extractable	
	2-Fluorophenol	56	compounds	
	2,4,6-Tribromophenol	22		
	Nitrobenzene-d ₅	62	List 2**	
SB36_26-28	2-Fluorophenol	66	List 1	

^{*}List 1: phenol, 2-methylphenol, and 4-methylphenol

Sample results, as detailed above, were qualified as estimated (J-, UJ) with potential low bias, based on low recoveries exhibited for the associated surrogate compounds.

^{**}List 2: hexachlorobenzene and naphthalene

Mr. Joseph Yanowitz December 22, 2020 Page 9 of 14



2. Matrix Spike Sample (MS)/MS Duplicate (MSD):

Results for one MS/MSD pair associated with the sample analyses were reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R. RPD<30) with the exceptions below:

Parent Sample SB35_0-2					
Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Fluoranthene	193	а	47	SB34_10-12	J
Phenanthrene	157	а	42	SB34_12-14	
Pyrene	149	а	37	SB34_18-20	
4-Methylphenol	а	68	а	SB34_4-6 SB35 0-2	UJ
Pentachlorophenol	52	53	а	SB35_0-2 SB35_26-28 SB35_8-10	

a-acceptable

Positive results for target compounds identified above in associated samples are qualified as estimated (J) based on high MS recoveries and high RPDs. Results for 4-methylphenol and pentachlorophenol were qualified as estimated (UJ) due to low MS and/or MSD recoveries.

3. Target Compound Identification

The validator corrected the result for fluorene in SB34_4-6 to not detected at the RL, based on low S/N ratio and/or poor spectral match.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] for 1,4-Dioxane only)

1. LCS/LCSD

The recovery of 1,4-dioxane in the associated LCS was low (QC 70-130%):

Parameter	LCS %R	Samples Affected	Qualifiers Applied
1,4-Dioxane	40	SB34_10-12	J-, UJ
		SB34_12-14	
		SB34_4-6	
		SB35_0-2	
		SB35_26-28	
		SB35_8-10	

a-acceptable

Results for 1,4-dioxane in the samples listed above were qualified as estimated (J-, UJ) with potential low bias, based on low recovery in the LCS.



2. Matrix Spike Sample (MS)/MS Duplicate (MSD)

Results for one MS/MSD pair associated with the sample analyses were reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R. RPD<30) with the exceptions below:

Parent Sample SB35_0-2					
Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
1,4-Dioxane	34	30	а	SB34_10-12 SB34_12-14 SB34_4-6 SB35_0-2 SB35_26-28 SB35_8-10	J-, UJ

a-acceptable

Results for samples identified above were qualified as estimated (J-, UJ) with a potential for low bias based on low MS/MSD recoveries.

D. Pesticides

1. Surrogates

Two surrogates (tetrachloro-m-xylene [TCX] and decachlorobiphenyl [DCB]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample	Surrogate / Column				
Sample	TCX/1	TCX/2	DCB/1	DCB/2	
SB35_0-2	170	а	172	180	
SB35_8-10	51	а	173	147	
SB35_26-28	а	63	а	а	
SB34_4-6	а	145	422	251	
SB34_10-12	256	217	212	1	
SB34_12-14	141	138	201	208	

a-acceptable

The results for aldrin in SB35_0-2, alpha-BHC, aldrin, alpha-chlordane, 4,4'-DDE, and 4,4'-DDD in SB35_8-10, and alpha-BHC in SB34_12-14 were qualified as estimated (J+) due to high surrogate recoveries on both analytical columns.

Since three of four surrogate recoveries were acceptable for SB35_26-28, no results were qualified due to the low TCX recovery. Samples SSB34_4-6 and SB34_10-12 were analyzed at 20-fold or 50-fold dilutions, which reduced the surrogate concentration to at, or below, the lower limit of the calibration range. Accurate surrogate recoveries would not be expected in this situation, and no additional action was taken on this basis.

Mr. Joseph Yanowitz December 22, 2020 Page 11 of 14



2. Matrix Spike (MS)/MS Duplicate (MSD):

Sample SB35_8-10 was prepared as an MS/MSD pair with this data set. Percent recoveries and RPDs were acceptable (70-130%R, RPD<30) with the exceptions below:

Parent Sample: SB35_8-10							
Parameter	MS %R Column 1 / 2	MSD %R Column 1 / 2	RPD Col. 1 / 2	Samples Affected	Qualifiers Applied		
Aldrin	45 / 520	69 / a	a / 122	SB35_0-2	J, UJ		
alpha-Chlordane	a / 133	a / 32	a / 56	SB35_8-10			
beta-BHC	a / 547	189 / a	75 / 136	SB35_26-28			
Endosulfan I	198 / 153	269 / 36	a / 165	SB34_4-6 SB34_10-12			
Endosulfan sulfate	55 / a	46 / 33	a / 100	SB34 12-14			
gamma-BHC	197 / 275	193 / a	a / 107]			
4,4'-DDT	153 / 137	213 / a	a / 46				
4,4'-DDE	a / 138	a/a	a/a		None		
Endrin	a / 145	a/a	a/a				
alpha-BHC	a/31	0/0	NC		J, R		
delta-BHC	0/0	0/0	NC				
Dieldrin	a / 56	0/0	NC				
Endosulfan II	0/0	0/0	NC				
Endosulfan sulfate	30 / 43	0/0	NC				
4,4'-DDD	263 / -25	a / -101	a / 58				
Heptachlor	330 / 579	298 / 152	a/a	SB34_4-6	J+		

a-acceptable

NC – not calculated

The results for aldrin, alpha-chlordane, beta-BHC, endosulfan I, endosulfan sulfate, gamma-BHC, and 4,4'-DDT in SB35_0-2, SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 were qualified as estimated (J, UJ) due to unacceptable MS/MSD recoveries and imprecision between MS/MSD results.

The positive result for heptachlor in SB34_4-6 was qualified as estimated (J+) due to high MS/MSD recoveries.

The positive results for alpha-BHC and 4,4'-DDD in SB35_8-10 and alpha-BHC in SB34_12-14 were qualified as estimated (J) and non-detect results for alpha-BHC in SB35_0-2, SB35_26-28, SB34_4-6, and SB34_10-12, 4,4'-DDD in SB35_0-2, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14, and delta-BHC, endosulfan II, and endosulfan sulfate in SB35_0-2, SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 were rejected (R) because these analytes were not recovered in the MS and/or MSD.

Since three of four MS/MSD recoveries and both RPDs were acceptable for 4,4'-DDE and endrin, results for these analytes were not qualified due to the high MS recoveries.



3. Compound Identification and Quantitation

The relative percent difference (RPD) between the two column measurements columns was acceptable (<40 RPD) for compounds detected in each sample, with the exceptions noted below:

Sample	Compound	Column 1 Conc. (ug/kg)	Column 2 Conc. (ug/kg)	RPD
SB35_0-2	Aldrin	3.8 J	1.8 J	70
SB35_8-10	4,4'-DDD	17	29	51
SB34_4-6	Heptachlor	8.0 J	23	96

Results for aldrin in SB35_0-2, 4,4'-DDD in SB35_8-10, and heptachlor in SB34_4-6 were qualified as estimated (J) due to lack of agreement between the two column measurements.

The laboratory reported the lower concentration for aldrin in SB35_0-2, 4,4'-DDD in SB35_8-10, and heptachlor in SB34_4-6 and was contacted for explanation. The laboratory responded that where the RPD between the two column measurements is greater than 40%, it is laboratory policy to report the lower concentration.

E. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCB) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

Sample		Surroga	te / Columr	in					
Sample	TCX/1	TCX/2	DCB/1	DCB/2					
SB35_0-2	57	64	67	а					
SB35_8-10	68	а	68	а					
SB35_26-28	69	69	66	а					
SB34_4-6	55	57	а	а					
SB34_10-12	64	66	56	а					
SB34_12-14	63	67	64	а					

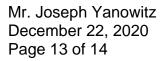
a-acceptable

The results for all Aroclors in SB35_0-2, S35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 qualified as estimated (J, UJ) due to low surrogate recoveries on both analytical columns.

F. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid (DCPAA) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:





Sample	Surrogate	/ Column
Sample	DCPAA / 1	DCPAA / 2
SB35_0-2	67	61
SB35_8-10	62	56
SB35_26-28	60	57
SB34_4-6	29	31
SB34_10-12	58	58
SB34_12-14	50	57

The results for Silvex in SB35_0-2, SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)

Results for one solid-matrix LCS associated with the sample analyses were reported in the data package. The percent recoveries of Silvex on both columns in the LCS were below the minimum acceptance limit (QC 70-130%R), as noted below:

Parameter	LCS %R Column 1	LCS %R Column 2	Samples Affected	Qualifier Applied						
LCS 410-38697/2A										
Silvex	65	66	SB35_0-2 SB35_8-10 SB35_26-28 SB34_4-6 SB34_10-12 SB34_12-14	UJ						

The results for Silvex in SB35_0-2, SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, and SB34_12-14 were qualified as estimated (UJ) due to low LCS recoveries.

G. Metals

1. Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

MS/MSD analyses were performed on SB35_0-2 and SB34_10-12. The MS/MSD recovery limits (80 – 120%) for mercury were not applicable for the MS/MSD performed on SB35_0-2 because the sample concentration was greater than four times the spike level. The MS/MSD analysis performed on SB34_10-12 recovered low (76%/72%) for mercury, outside the acceptable limits. The mercury results for samples SB35_8-10, SB35_26-28, SB34_4-6, SB34_10-12, SB34_12-14 and SB34_18-20 were qualified as estimated (J-, UJ) due to low MS/MSD recoveries.

H. Per- and Polyfluoroalkyl Substances (PFAS)

Based on the validation effort, all PFAS results were determined to be valid as reported by the laboratory.



I. General Chemistry

1. Total Cyanide

No results for total cyanide were qualified as a result of the data validation. All reported results for cyanide were determined to be usable as reported.

2. Chromium, Hexavalent and Trivalent

No results for hexavalent or trivalent chromium were qualified as a result of the data validation. All reported results for hexavalent and trivalent chromium were determined to be usable as reported.

3. General Chemistry - Quantitation

No duplicate analysis was documented for the percent solids/percent moisture determinations. Without these data, no assessment of precision can be made. The accuracy of all results calculated on a dry-weight basis are dependent on the accuracy of the percent solid/moisture measurement.

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

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ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-11826-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. 410-11826-1

Environmental Analys

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as Environmental use only

COC # C11 F71

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Joseph Yanowitz								ers	VOC., SVOC	4.60	2		8 E	5	-			S=H ₂ SC) ₄ P=	H ₃ PO ₄
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SB35_26-28		09:15							11		1									
5B34_4-6		10:27											F						140	
8834-10-12		10:30																		
SB34-12-14		10:32			T			×	14	1	V	1							6;	
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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-11826-1

FORM II GC/MS VOA SURROGATE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job No.:	410-11826-1
Jab	manie.	EULOLIIIS	Hancaster	Laboracorres	000 100.	410 11020 1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): R-624SilMS ID: 0.25(mm)

	T	1	1	1		
Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL	# BFB	#
SB35_0-2	410-11826-1	99	99	107	82	
SB35_8-10	410-11826-2	99	98	110	171	Х
SB35_8-10 RA	410-11826-2 RA	98	96	106	141	Х
SB35_26-28	410-11826-3	99	99	96	99	
SB34_4-6	410-11826-4	101	100	122	70	
SB34_4-6 RA	410-11826-4 RA	109	108	156 ,	*3 53 X	*3
SB34_10-12	410-11826-5	101	98	96	96	
SB34_12-14	410-11826-6	100	98	96	99	
SB34_18-20	410-11826-7	100	97	96	99	
	MB 410-36677/7	101	101	94	97	
	MB 410-38219/7	99	101	98	97	
	MB 410-39268/7	100	103	97	98	
	LCS 410-36677/35	100	100	97	100	
	LCS 410-38219/4	100	101	99	101	
	LCS 410-39268/4	100	103	98	102	
	LCSD 410-36677/36	101	99	97	101	
	LCSD 410-38219/5	101	102	99	101	
	LCSD 410-39268/5	101	101	99	100	

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	50-141
DCA = 1,2-Dichloroethane-d4 (Surr)	54-135
TOL = Toluene-d8 (Surr)	52-141
BFB = 4-Bromofluorobenzene (Surr)	50-131

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	ter Laboratories	Job No.: 410-11826-1
SDG No.	:		
Matrix:	Solid	Level: Low	Lab File ID: bg24L52.D
Lab ID:	LCS 410-36677/35		Client ID:

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	ુ	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,1,1-Trichloroethane	20.0	22.2	111		
1,1-Dichloroethane	20.0	22.4	112		
1,1-Dichloroethene	20.0	24.3	122		
1,2,4-Trimethylbenzene	20.0	20.0	100		
1,2-Dichlorobenzene	20.0	19.4	97	76-120	
1,2-Dichloroethane	20.0	21.1	105		
1,3,5-Trimethylbenzene	20.0	20.4	102		
1,3-Dichlorobenzene	20.0	19.5	97		
1,4-Dichlorobenzene	20.0	19.4	97	80-120	
1,4-Dioxane	500	580	116		
2-Butanone	150	165	110	57-128	
Acetone	150	214	142		
Benzene	20.0	22.4	112	80-120	
Carbon tetrachloride	20.0	21.9	110	64-134	
Chlorobenzene	20.0	20.7	103	80-120	
Chloroform	20.0	22.5	112	80-120	
cis-1,2-Dichloroethene	20.0	23.9	120		
Ethylbenzene	20.0	20.4	102	78-120	
Methyl tertiary butyl ether	20.0	20.1	101	72-120	
Methylene Chloride	20.0	22.9	115	76-122	
n-Butylbenzene	20.0	22.1	111		
N-Propylbenzene	20.0	21.4	107		
sec-Butylbenzene	20.0	18.9	94	72-120	
tert-Butylbenzene	20.0	20.4	102	68-120	
Tetrachloroethene	20.0	19.0	95		
Toluene	20.0	20.7	103	80-120	
trans-1,2-Dichloroethene	20.0	23.4	117	80-126	
Trichloroethene	20.0	22.5	112	80-120	
Vinyl chloride	20.0	20.4	102	52-120	
Xylenes, Total	60.0	61.9	103	75-120	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8260C}$

FORM III GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab	Name:	Eurofins Lancast	ter Laboratories	Job No.:	410-11826-1	
SDG	No.:					
		2		- 1 - 1	TD 1 04750 D	

Matrix: Solid Level: Low Lab File ID: bg24L53.D Lab ID: LCSD 410-36677/36 Client ID: _____

	SPIKE ADDED	LCSD CONCENTRATION	LCSD %	% _	QC LIMITS		#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
1,1,1-Trichloroethane	20.0	22.0	110	1	30	69-123	
1,1-Dichloroethane	20.0	22.5	113	1	30	79-120	
1,1-Dichloroethene	20.0	24.4	122	0	30	73-129	
1,2,4-Trimethylbenzene	20.0	20.3	101	1	30	73-120	
1,2-Dichlorobenzene	20.0	19.3	97	0	30	76-120	
1,2-Dichloroethane	20.0	21.0	105	0	30	71-128	
1,3,5-Trimethylbenzene	20.0	20.5	102	0	30	73-120	
1,3-Dichlorobenzene	20.0	19.5	98	0	30	75-120	
1,4-Dichlorobenzene	20.0	19.7	99	2	30	80-120	
1,4-Dioxane	500	581	116	0	30	62-131	
2-Butanone	150	161	107	3	30	57-128	
Acetone	150	212	141	1	30	41-150	
Benzene	20.0	22.7	113	1	30	80-120	
Carbon tetrachloride	20.0	21.7	109	1	30	64-134	
Chlorobenzene	20.0	20.9	104	1	30	80-120	
Chloroform	20.0	22.6	113	0	30	80-120	
cis-1,2-Dichloroethene	20.0	24.1	120	1	30	80-125	
Ethylbenzene	20.0	20.6	103	1	30	78-120	
Methyl tertiary butyl ether	20.0	20.1	101	0	30	72-120	
Methylene Chloride	20.0	23.1	116	1	30	76-122	
n-Butylbenzene	20.0	22.0	110	1	30	71-121	
N-Propylbenzene	20.0	21.3	106	1	30	72-123	
sec-Butylbenzene	20.0	19.0	95	1	30	72-120	
tert-Butylbenzene	20.0	20.5	102	0	30	68-120	
Tetrachloroethene	20.0	18.8	94	1	30	73-120	
Toluene	20.0	20.9	104	1	30	80-120	
trans-1,2-Dichloroethene	20.0	23.2	116	1	30	80-126	
Trichloroethene	20.0	22.5	113	0	30	80-120	
Vinyl chloride	20.0	19.8	99	3	30	52-120	
Xylenes, Total	60.0	62.2	104	0	30	75-120	

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery and RPD values FORM III 8260C

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Sample No.: CCVIS 410-39268/3 Date Analyzed: 08/31/2020 18:48

Instrument ID: 9953 GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg31c10.D Heated Purge: (Y/N) N

Calibration ID: 7943

		TBAd1)	FB		CBZd5)
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		96963	3.05	1139775	5.39	831404	8.45
UPPER LIMIT		193926	3.55	2279550	5.89	1662808	8.95
LOWER LIMIT		48482	2.55	569888	4.89	415702	7.95
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-39268/4		134751	3.05	1213640	5.38	901484	8.45
LCSD 410-39268/5		111272	3.04	1147470	5.39	846322	8.45
MB 410-39268/7		117250	3.03	1123674	5.39	828499	8.45
410-11826-2	SB35_8-10	77858	3.05	1100869	5.39	724358	8.45
410-11826-4 RA	SB34_4-6 RA	43768*3	3.05	806821	5.39	261783*3	8.45
410-11826-2 RA	SB35_8-10 RA	71821	3.03	891576	5.38	611688	8.45
410-11826-4	SB34_4-6	50133	3.03	1033813	5.38	549711	8.45

TBAd10 = t-Butyl alcohol-d10 (IS)

FB = Fluorobenzene (IS)

CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

 $\ensuremath{\text{\#}}$ Column used to flag values outside QC limits

FORM VIII 8260C

FORM VIII GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Sample No.: CCVIS 410-39268/3

Date Analyzed: 08/31/2020 18:48

Instrument ID: 9953

GC Column: R-624SilMS 30m ID: 0.25(mm)

Lab File ID (Standard): bg31c10.D

Calibration ID: 7943

Heated Purge: (Y/N) N

		DCBd4	1				
		AREA #	RT #	#	RT #	#	RT #
12/24 HOUR STD		424946	10.29				
UPPER LIMIT		849892	10.79				
LOWER LIMIT		212473	9.79				
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 410-39268/4		471092	10.29				
LCSD 410-39268/5		433054	10.29				
MB 410-39268/7		422351	10.29				
410-11826-2	SB35_8-10	250862	10.29				
410-11826-4 RA	SB34_4-6 RA	36098*3	10.29				
410-11826-2 RA	SB35_8-10 RA	231664	10.29				
410-11826-4	SB34_4-6	121632*3	10.29				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

FORM IV GC/MS VOA METHOD BLANK SUMMARY

Lab Name: Eurofins Lancaster Laboratories	Job No.: 410-11826-1
SDG No.:	
Lab File ID: bg31B10.D	Lab Sample ID: MB 410-39268/7
Matrix: Solid	Heated Purge: (Y/N) N
Instrument ID: 9953	Date Analyzed: 08/31/2020 20:45
GC Column: R-624SilMS 30m ID: 0.25(mm)	

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

		LAB	
CLIENT SAMPLE ID	LAB SAMPLE ID	FILE ID	DATE ANALYZED
	LCS 410-39268/4	bg31L10.D	08/31/2020 19:38
	LCSD 410-39268/5	bg31L11.D	08/31/2020 20:00
SB35_8-10	410-11826-2	bg31S12.D	08/31/2020 22:08
SB34_4-6 RA	410-11826-4 RA	bg31S13.D	08/31/2020 22:30
SB35_8-10 RA	410-11826-2 RA	bg31S17.D	09/01/2020 00:55
SB34_4-6	410-11826-4	bg31S18.D	09/01/2020 01:18

FORM II GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.	.: 410-11826-1
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SDG No.:

Matrix: Solid Level: Low

GC Column (1): DB-5MS 20m ID: 0.18(mm)

Client Sample ID	Lab Sample ID	2FP	#	PHL	#	NBZ	#	FBP	#	TBP	#	TPHd14 #
SB35_0-2	410-11826-1	59		69		75		80		75		93
SB35_8-10	410-11826-2	56		67		62		81		22		88
SB35_26-28	410-11826-3	66		71		74		85		85		91
SB34_4-6	410-11826-4	56		61		71		76		35		86
SB34_10-12	410-11826-5	71		75		81		92		91		98
SB34_12-14	410-11826-6	71		76		77		83		93		97
SB34_18-20	410-11826-7	67		72		80		88		84		97
	MB 410-38574/1-A	64		68		71		76		88		92
	LCS 410-38574/2-A	70		75		78		85		95		98
SB35_0-2 MS	410-11826-1 MS	66		76		75		87		87		95
SB35_0-2 MSD	410-11826-1 MSD	66		72		76		87		76		90

	QC LIMITS
2FP = 2-Fluorophenol (Surr)	18-115
PHL = Phenol-d5 (Surr)	21-112
NBZ = Nitrobenzene-d5 (Surr)	23-115
FBP = 2-Fluorobiphenyl (Surr)	34-117
TBP = 2, 4, 6-Tribromophenol (Surr)	10-136
TPHd14 = p-Terphenyl-d14 (Surr)	35-135

 $[\]ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab	Name:	Eurofins	Lancaster	Laboratories	Job	No.:	410-11826-1	

SDG No.:

Matrix: Solid Level: Low Lab File ID: PH1717.D

Lab ID: 410-11826-1 MS Client ID: SB35_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Acenaphthene	1790	120 J	1840	96	61-112	
Acenaphthylene	1790	130 J	2010	105	60-124	
Anthracene	1790	270	2470	123	67-120	F1
Benzo[a]anthracene	1790	700	2750	115	68-120	
Benzo[a]pyrene	1790	630	2630	112	68-119	
Benzo[b]fluoranthene	1790	850	2820	110	67-125	
Benzo[g,h,i]perylene	1790	470	2220	98	68-125	
Benzo[k]fluoranthene	1790	390	2130	97	66-122	
Chrysene	1790	660	2650	111	66-111	
Dibenz(a,h)anthracene	1790	130 J	1830	95	69-135	
Fluoranthene	1790	1500	4990	193		F1
Fluorene	1790	220	2060	103	62-110	
Indeno[1,2,3-cd]pyrene	1800	430	1770	74	64-130	
Naphthalene	1800	ND	1610	90	49-104	
Phenanthrene	1790	1300	4130	157	67-116	F1
Pyrene	1800	1200	3830	149	67-109	F1
2-Methylphenol	1790	ND	1430	79	52-116	
4-Methylphenol	1790	ND	1280	71	52-121	
Dibenzofuran	1790	ND	1910	107	62-113	
Hexachlorobenzene	1790	ND	1580	88	62-124	
Pentachlorophenol	1800	ND	933 J	52	40-131	
Phenol	1790	ND	1400	78	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 41

SDG No.:

Matrix: Solid Level: Low Lab File ID: PH1718.D

Lab ID: 410-11826-1 MSD Client ID: SB35_0-2 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	olo	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	"
Acenaphthene	1780	1580	82	15	30	61-112	
Acenaphthylene	1790	1820	95	10	30	60-124	
Anthracene	1790	1930	93	24	30	67-120	
Benzo[a]anthracene	1780	2090	78	27	30	68-120	
Benzo[a]pyrene	1790	2100	82	23	30	68-119	
Benzo[b]fluoranthene	1790	2200	75	25	30	67-125	
Benzo[g,h,i]perylene	1790	1880	79	17	30	68-125	
Benzo[k]fluoranthene	1780	1830	81	15	30	66-122	
Chrysene	1780	2110	81	23	30	66-111	
Dibenz(a,h)anthracene	1790	1550	79	17	30	69-135	
Fluoranthene	1790	3090	86	47	30	65-114	F2
Fluorene	1790	1780	87	15	30	62-110	
Indeno[1,2,3-cd]pyrene	1790	1900	82	7	30	64-130	
Naphthalene	1800	1610	90	0	30	49-104	
Phenanthrene	1790	2710	78	42	30	67-116	F2
Pyrene	1800	2650	83	37	30	67-109	F2
2-Methylphenol	1790	1390	78	2	30	52-116	
4-Methylphenol	1790	1210	68	6	30	52-121	
Dibenzofuran	1780	1700	96	12	30	62-113	
Hexachlorobenzene	1780	1750	98	10	30	62-124	
Pentachlorophenol	1790	948 J	53	2	30	40-131	
Phenol	1790	1250	70	11	30	41-107	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8270D}$

Report Date: 30-Aug-2020 21:01:42 Chrom Revision: 2.3 20-Aug-2020 13:57:12

Eurofins Lancaster Laboratories Env, LLC

\\chromfs\Lancaster\ChromData\HP23262\20200829-9305.b\PH1723.D Data File: Injection Date: 29-Aug-2020 20:18:30 Instrument ID: HP23262 Lims ID: 410-11826-I-4-A Lab Sample ID: 410-11826-4

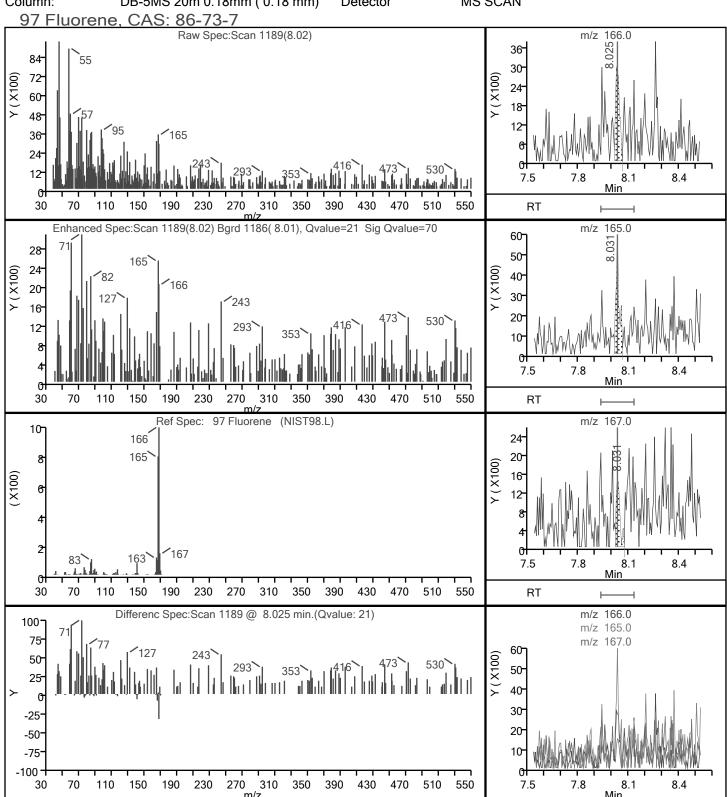
Client ID: SB34 4-6

Operator ID: whs02991 ALS Bottle#: 24 Worklist Smp#: 24

Injection Vol: 1.0 ul Dil. Factor: 10.0000

MSSemi HP23262 MSSV - 8270D E Method: Limit Group:

Column: DB-5MS 20m 0.18mm (0.18 mm) Detector MS SCAN



FORM III GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name	e: Eurofins Lancast	er Labo	ratories	Job	No.: 410	: 410-11826-1					
SDG No.	:										
Matrix:	Matrix: Solid Level: Low				File ID:	: CH2103.D					
Lab ID:	ab ID: LCS 410-38577/2-A				ent ID:						
			SPIKE			LCS	LCS	QC			

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	왕	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	33.3	13.4	40	21-79	

FORM III GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11826-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: CH2115.D

Lab ID: 410-11826-1 MS Client ID: SB35_0-2 MS

	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
1,4-Dioxane	35.6	ND	12.3 J	34	21-79	

 $\mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM III GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11826-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: CH2116.D

Lab ID: 410-11826-1 MSD Client ID: SB35_0-2 MSD

	SPIKE	MSD	MSD		QC L1	IMITS	
	ADDED	CONCENTRATION	용	용		l	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	
1,4-Dioxane	35.6	10.7 J	30	14	30	21-79	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III 8270D SIM

FORM II PESTICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11826-1

SDG No.:

Matrix: Solid Level: Low

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB35_0-2	410-11826-1	170	Х	120		172	Х	180	Х
SB35_8-10	410-11826-2	51		94		173	Х	147	
SB35_26-28	410-11826-3	94		63		113		106	
SB34_4-6	410-11826-4	101		145	Х	422	Х	251 բ	ΣХ
SB34_10-12	410-11826-5	256	Х	217	Х	212	Х	125	р
SB34_12-14	410-11826-6	141	Х	138	Х	201	Х	208	Х
	MB 410-38578/1-A	48		46		107		105	
	LCS 410-38578/2-A	44		41		112		109	
SB35_8-10 MS	410-11826-2 MS	174	Х	173	Х	162	Х	162	Х
SB35_8-10 MSD	410-11826-2 MSD	235	Х	103		156	Х	135	

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8081B

FORM III PESTICIDES MATRIX SPIKE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11826-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 35PEST20231017.021.D

Lab ID: 410-11826-2 MS Client ID: SB35_8-10 MS

	_	_		_		
	SPIKE	SAMPLE	MS	MS	QC	
	ADDED	CONCENTRATION	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	(ug/Kg)	REC	REC	
Aldrin	4.48	2.5 J	3.71 J	28	60-117	F1 p
alpha-BHC	4.53	7.0	12.6	123	65-124	
alpha-Chlordane	4.48	4.2 J	10.1	133	73-131	F1
beta-BHC	4.48	ND	3.81 J	85	68-129	р
delta-BHC	4.48	ND	ND	0	45-151	F1
Dieldrin	8.96	ND	5.02 J	56	63-126	F1 p
Endosulfan I	4.48	ND	6.87	153	62-119	F1 p
Endosulfan II	8.96	ND	ND	0	65-126	F1
Endosulfan sulfate	8.96	ND	4.97 J	55	71-132	F1 p
Endrin	8.96	ND	13.0	145	86-135	F1
gamma-BHC (Lindane)	4.48	ND	12.3	275	68-133	F1
Heptachlor	4.48	ND	25.9	579	66-118	F1 p
p,p'-DDD	9.01	17	15.1	-25	69-138	F1 p
p,p'-DDE	8.96	4.6 J	17.0	138	68-146	
p,p'-DDT	9.01	ND	13.8	153	67-135	F1

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM III PESTICIDES MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins Lancaster Laboratories Job No.: 410-11826-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: 35PEST20231017.022.D

Lab ID: 410-11826-2 MSD Client ID: SB35_8-10 MSD

	SPIKE ADDED	MSD CONCENTRATION	MSD	00	QC LI	MITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	RPD	RPD	REC	π
Aldrin	4.43	6.26	85	51	50	60-117	F2
alpha-BHC	4.49	ND	0	NC	50	65-124	F1
alpha-Chlordane	4.43	7.73	80	27	50	73-131	
beta-BHC	4.43	4.68 J	106	21	50	68-129	р
delta-BHC	4.43	ND	0	NC	50	45-151	F1
Dieldrin	8.87	ND	0	NC	50	63-126	F1
Endosulfan I	4.43	1.61 J	36	124	50	62-119	p F2 F1
Endosulfan II	8.87	ND	0	NC	50	65-126	F1
Endosulfan sulfate	8.87	4.11 J	46	19	50	71-132	F1
Endrin	8.87	8.95 J	101	37	50	86-135	
gamma-BHC (Lindane)	4.43	3.69 J	83	108	50	68-133	p F2
Heptachlor	4.43	21.0	152	21	50	66-118	F1 p
p,p'-DDD	8.92	8.31 J	-101	58	50	69-138	p F2 F1
p,p'-DDE	8.87	12.7	91	29	50	68-146	
p,p'-DDT	8.92	7.68 J	86	57	50	67-135	p F2

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8081B}$

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Client Sample ID: <u>SB35_0-2</u> Lab Sample ID: 410-11826-1

Date Analyzed (1): 08/31/2020 08:39 Date Analyzed (2): 08/31/2020 08:39

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	RPD	
ANALITE	COL PEAR RI		KI	FROM	TO	PEAK	MEAN	KED
Aldrin	1		2.84	2.82	2.88	3.8		69.9
	2		3.60	3.57	3.63	1.8		

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Client Sample ID: <u>SB35_8-10</u> Lab Sample ID: 410-11826-2

Date Analyzed (1): 08/31/2020 09:00 Date Analyzed (2): 08/31/2020 09:00

ANALYTE	COL	PEAK	RT	RT WI	INDOW	CONCENT	RATION	RPD
ANALILE	COL	PEAN	KI	FROM	TO	PEAK	MEAN	RPD
alpha-BHC	1		2.03	2.01	2.07	7.0		18.8
	2		2.54	2.50	2.56	5.8		
Aldrin	1		2.84	2.82	2.88	1.7		36.5
	2		3.61	3.57	3.63	2.5		
alpha-Chlordane	1		3.54	3.50	3.56	3.1		29.8
	2		4.12	4.11	4.17	4.2		
p,p'-DDE	1		3.77	3.74	3.80	4.6		7.3
	2		4.26	4.24	4.30	4.3		
p,p'-DDD	1		4.16	4.13	4.19	17		51.2
	2		4.58	4.54	4.60	29		

FORM X IDENTIFICATION SUMMARY

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Client Sample ID: <u>SB34_4-6</u> Lab Sample ID: 410-11826-4

Date Analyzed (1): 08/31/2020 09:54 Date Analyzed (2): 08/31/2020 09:54

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENT	RPD	
ANALITE	СОП	LEAN	1/1	FROM	TO	PEAK	MEAN	KFD
Heptachlor	1		2.57	2.56	2.62	8.0		95.9
	2		3.33	3.31	3.37	23		
alpha-Chlordane	1		3.54	3.50	3.56	4.4		11.2
	2		4.14	4.11	4.17	4.9		

FORM II PCBS SURROGATE RECOVERY

Lab Name: Eurofins Lancas	ter Laboratories	Job No.: 410-11826-1	
SDG No.:			
Matrix: Solid		Level: Low	
GC Column (1): DB CLP1	ID: 0.32 (mm)	GC Column (2): DB CLP2	ID: 0.32(mm)

Client Sample ID	Lab Sample ID	TCX1	#	TCX2	#	DCB1	#	DCB2	#
SB35_0-2	410-11826-1	57	1	64		67	р	117	
SB35_8-10	410-11826-2	68	1	70		68	р	113	
SB35_26-28	410-11826-3	69		69		66	р	101	
SB34_4-6	410-11826-4	55				70			
SB34_10-12	410-11826-5	64	1	66		56	р	87	
SB34_12-14	410-11826-6	63		67		64		90	
	MB 410-38579/1-A	92		93		110		127	
	MB 410-39841/1-A	94						89	
	LCS 410-38579/2-A	93		90		115		121	
	LCS 410-39841/2-A			92				100	
SB35_8-10 MS	410-11826-2 MS	84		83		83		122	
SB35_8-10 MSD	410-11826-2 MSD	68		68		69	р	112	

 $\frac{\text{QC LIMITS}}{53-140}$ c) 45-143

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene

FORM II HERBICIDES SURROGATE RECOVERY

Lab Name: Eurofins Lanca	ster Laboratories	ratories				
SDG No.:						
Matrix: Solid		Level: Low				
GC Column (1): ZB-35	ID: 0.32 (mm)	GC Column (2): ZB-XLB	ID: 0.32 (mm)			

Client Sample ID	Lab Sample ID	DCPAA1 #	DCPAA2 #
SB35_0-2	410-11826-1	67	61
SB35_8-10	410-11826-2	62	56
SB35_26-28	410-11826-3	60	57
SB34_4-6	410-11826-4	29	31
SB34_10-12 RA	410-11826-5 RA	58	58
SB34_12-14	410-11826-6	50	57
	MB 410-38697/1-A	54	59
	LCS 410-38697/2-A	57	59

DCPAA = 2,4-Dichlorophenylacetic acid (Surr) $\frac{QC \text{ LIMITS}}{27-136}$

 $\ensuremath{\text{\#}}$ Column to be used to flag recovery values

FORM II 8151A

FORM III HERBICIDES LAB CONTROL SAMPLE RECOVERY

Lab Name: Eurofins Lancaster Laboratories		Job	No.: 410	-11826-1					
SDG No.	:								
Matrix:	Solid	Level	: Low	Lab	File ID:	36HERB2024	0001.	173.D	
Lab ID:	LCS 410-38697/2-A			Cli	ent ID:				
			SPIKE			ICS	LCS	QC	щ

	SPIKE	LCS	LCS	QC	
	ADDED	CONCENTRATION	용	LIMITS	#
COMPOUND	(ug/Kg)	(ug/Kg)	REC	REC	
Silvex (2,4,5-TP)	8.33	5.50	66	49-133	

 $[\]mbox{\#}$ Column to be used to flag recovery and RPD values FORM III $\mbox{8151A}$

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB35 0-2 MS Lab ID: 410-11826-1 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 92.9

Analyte	SSR C	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Mercury	0.860	0.76	0.166	58	80-120	4	7471B

SSR = Spiked Sample Result

5A-IN MATRIX SPIKE SAMPLE RECOVERY METALS

Client ID: SB34 10-12 MS Lab ID: 410-11826-5 MS

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 89.1

Analyte	SSR	Sample Result (SR)	Spike Added (SA)	%R	Control Limit %R	Q	Method
Mercury	0.240	0.10	0.178	76	80-120	F1	7471B

SSR = Spiked Sample Result

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: SB35 0-2 MSD Lab ID: 410-11826-1 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 92.9

Analyte	(SDR)	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Mercury	0.817	0.166	33	80-120	5	20	4	7471B

SDR = Sample Duplicate Result

5A-IN MATRIX SPIKE DUPLICATE SAMPLE RECOVERY METALS

Client ID: SB34 10-12 MSD Lab ID: 410-11826-5 MSD

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-11826-1

SDG No.:

Matrix: Solid Concentration Units: mg/Kg

% Solids: 89.1

Analyte	(SDR)	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Mercury	0.237	0.184	72	80-120	1	20	F1	7471B

SDR = Sample Duplicate Result



December 15, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples</u>

Dear Mr. Yanowitz:

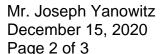
The evaluation of analytical data for inorganic analysis parameter by Eurofins Lancaster Laboratories for 42 soil samples, three soil field duplicate samples, and three field blanks from the 250 Water Street site, which were reported in a single data package under Job No. 410-12003-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SB4N3_0-2	SB4N3_6-8	SB4N3_9-10	SB4N3_10-12
SB4NE3_0-2	SB4NE3_5-6	SB4NE3_6-8	SB4NE3_9-10
SB4NE3_10-12	SB4NE3_13-14	SB4NE3_14-16	SB4SE3_0-2
SB4SE3_4-6	SB4SE3_6-8	SB4SE3_8-10	SB4SE3_10-12
SB4SE3_12-14	SB4SE3_14-16	SB4S3_0-2	SB4S3_5-6
SB4S3_6-8	SB4S3_8-10	SB4S3_10-12	SB4S3_13-14
SB4S3_14-16	SB4SW3_0-2	SB4SW3_4-6	SB4SW3_6-8
SB4SW3_8-10	SB4SW3_10-12	SB4W3_0-2	SB4W3_4-6
SB4W3_6-8	SB4W3_8-10	SB4W3_10-12	SB4NW3_0-2
SB4NW3_4-6	SB4NW3_6-8	SB4NW3_9-10	SB4NW3_10-12
SB4NW3_12-14	SB4NW3_14-16	MDUP08_08262020	MDUP09_08262020
MDUP10_08262020	MFB08_08262020	MFB09_08262020	MFB10_08262020

Analyses were performed in accordance with SW846 Methods 7470A and 7471B. ddms' review was performed, to the extent possible, in accordance with the analytical methods and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	Yes





	Data Usability Summary Report	
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

Based on the data review effort, the results are usable.

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - o Field blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - o MS/MSD recoveries
 - Duplicate
- Instrument related quality control data:
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Mr. Joseph Yanowitz December 15, 2020 Page 3 of 3



Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 26, 2020. The samples were received by the laboratory on the same day as sample collection. The cooler temperatures (0.3°C and 1.1°C) were below the minimum limit. No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Mercury

Based on the validation effort, all mercury results were determined to be valid as reported by the laboratory.

No sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Melissa D'Almeida Environmental Chemist

Melim D'Deluelo

(862) 668-3355

mdalmeida@ddmsinc.com



ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-12003-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-12003-1

Environmental Analysis



Custody

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Lancaster Laboratories Environmental

Acct. #

nmental use only

COC #611947

Environmental	- OCCUPATION A																
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Joseph Me Panowitz				_	Ш			STS	1 3	5					S=H ₂ SO	(((((((((((((((((((H ₃ PO ₄
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SB4NJ-10-12		0755	Ш					1	X								
SBYNE3-0-Z		0815						1	X								
SB4NE3-2-4		1186						1		X					hole	d	
SB4NE3_5-6		6120						i	X								
SB4NE3-6-8		0280						1	X								
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December 15, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Eurofins Lancaster Laboratories – Soil Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for inorganic analysis parameter by Eurofins Lancaster Laboratories for seven soil samples from the 250 Water Street site, which were reported in a single data package under Job No. 410-12005-1, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

Analyses were performed in accordance with SW846 Methods 7471B. ddms' review was performed, to the extent possible, in accordance with the analytical method and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	Yes
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

Based on the data review effort, the results are usable.

Mr. Joseph Yanowitz December 15, 2020 Page 2 of 3



All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - o **Duplicate**
- Instrument related quality control data:
 - o Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of August 26, 2020. The samples were received by the laboratory on the same day as sample collection. Two coolers were received with temperatures (0.3°C and 1.1°C) were slightly below the minimum limit (QC 4°C ±2°C). No adverse impact on reported sample results is expected, and no action was taken on this basis. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Mercury

Based on the validation effort, all mercury results were determined to be valid as reported by the laboratory.

Mr. Joseph Yanowitz December 15, 2020 Page 3 of 3



Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Melissa D'Almeida Environmental Chemist

Melim D'Aluena

(862) 668-3355

mdalmeida@ddmsinc.com



ATTACHMENT A

VALIDATION QUALIFIER SUMMARY TABLE Laboratory Job No. 410-12005-1



EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The reported value may be biased high. The actual value is expected to be less than the reported value.
- J- The reported value may be biased low. The actual value is expected to be greater than the reported value.
- N The analyte has been "tentatively identified" or "presumptively" as present.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. 410-12005-1



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. 410-12005-1



November 6, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: Data Usability Summary Report – Alpha Analytical Laboratories – Groundwater Samples

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Alpha Analytical Laboratories for five groundwater samples, one trip blank, one equipment blank and one field blank from the 250 Water Street site, which were reported in a single data package under Job No. L20360931, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

MW17_090120 MW11_090120 MW15_090120 MW25_090120 MW28_090120 GWFB03_090120 GWEB01_090120 TB02_090120

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 6020B, 7196A, 9010C and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No – see Documentation Section
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes

Mr. Joseph Yanowitz November 6, 2020 Page 2 of 19



Data Usability Summary	Report	
, , ,	(QC) exceedances been specifically noted in rresponding QC summary sheet from the data the DUSR?	Yes

Based on the data review effort, the results are usable, with the following qualifications:

Volatile Organics

- The results for dichlorodifluoromethane in all samples were qualified as estimated (UJ) due to unacceptable percent difference in the second source initial calibration verification (ICV) standard.
- The results for dichlorodifluoromethane, vinyl acetate, 2-butanone, 4-methyl-2-pentanone, 2-hexanone and 1,2-dibromo-3-chloropropane in all samples were qualified as estimated (UJ) due to low response in the continuing calibration (CC) standard.
- The results for dichlorodifluoromethane in all field samples were qualified as estimated (UJ) due to low matrix spike (MS) and MS Duplicate (MSD) recoveries.
- The results for dichlorodifluoromethane and 2-hexanone in all samples were qualified as estimated (UJ) based on low laboratory control sample (LCS) duplicate (LCSD) recoveries.

Semi-Volatile Organics (Full Scan Analysis)

- The results for all acid extractable compounds in all samples were qualified as estimated (UJ) because two or more acid surrogates exhibited low recoveries.
- The results for all base neutral compounds in MW28_090120 were qualified as estimated (J, UJ) because all three base neutral surrogates exhibited low recoveries.
- The results for the following compounds in MW17_090120 and MW15_090120 were qualified as estimated (UJ) because nitrobenzene-d₅ exhibited low recovery:

n-nitroso-di-n-propylamine bis (2-chloroethyl) ether 2, 2'-oxybis (1-chloropropane) 1,2-dichlorobenzene 1,4-dichlorobenzene

acetophenone nitrobenzene

isophorone bis(2-chloroethoxy)methane 4-chloroaniline 1,2,4-trichlorobenzene

- Sample results were qualified as estimated (UJ) due to low recoveries in the LCS/LCSD. Please refer to Section B.2 for details.
- Sample results were qualified as estimated (UJ) due to low recoveries in the MS and/or MSD. Please refer to Section B.3 for details. The results for 3,3'-dichlorobenzidine in all field samples were rejected (R) because the MS/MSD recoveries were <10%.

Mr. Joseph Yanowitz November 6, 2020 Page 3 of 19



Semi-Volatile Organics (Selected Ion Monitoring [SIM] Analysis)

- The results for phenanthrene in MW15_090120 and MW11_090120 were qualified as not detected (U) at the reporting limit due to detection in the associated method blank.
- The results for pentachlorophenol in all samples were qualified as estimated (UJ) because two or more acid surrogates exhibited low recoveries.
- The results for the following compounds in MW17_090120 were qualified as estimated (J-, UJ) because nitrobenzene-d₅ exhibited low recovery:

naphthalene 2-methylnaphthalene hexachlorobenzene hexachloroethane

- The results for benzo(a)anthracene and chrysene in MW17_090120, benzo(b)fluoranthene in MW11_090120 and benzo(g,h,i)perylene, indeno(1,2,3-c,d)pyrene and pyrene in MW28_090120 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery.
- The results for acenaphthene, 2-chloronaphthalene, hexachlorobutadiene, naphthalene, 2-methylnaphthalene, pentachlorophenol, hexachlorobenzene and hexachloroethane in all samples were qualified as estimated (J-, UJ) due to low LCS and/or LCSD recoveries.
- The results for benzo(g,h,i)pyrene and pyrene in MW28_090120 were qualified as estimated (J+) due to high recovery in the MS/MSD.
- The following sample results were qualified as estimated (J) and presumptively present (N) because the ion ratio was outside acceptance limits:
 - o MW28 090120
 - Fluoranthene
 - Benzo(g,h,i)perylene
 - Indeno(1,2,3-c,d)pyrene
 - Pyrene
 - o MW17 090120
 - Benzo(a)anthracene
 - Chrysene
 - o MW11 00120
 - Fluoranthene
 - Benzo(b)fluoranthene
 - Anthracene
 - o MW15 090120
 - Fluoranthene
 - o MW25 090120
 - Anthracene

Mr. Joseph Yanowitz November 6, 2020 Page 4 of 19



Pesticides

- The results for endosulfan I in MW17_090120, MW11_090120 and MW15_090120 were qualified as estimated (UJ) due to unacceptable recovery in the lowest concentration standard in the initial calibration (IC).
- The result for 4,4'-DDD in MW15_090120 was qualified as estimated (J) due to high relative percent difference (RPD) in LCS/LCSD.
- The results for all pesticide compounds in MW25_090120 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

PCBs

- The results for all Aroclors in MW11_090120 and MW25_090120 were qualified as estimated (UJ) due low surrogate recoveries on both analytical columns.
- The results for all Aroclors in all samples were qualified as estimated (UJ) due to low recoveries in the LCS/LCSD.
- The results for Aroclor 1260 in all field samples were qualified as estimated (UJ) due to low recoveries in the MS/MSD.

Herbicides

- The results for all herbicide compounds in MW11_090120, MW15_090120, MW25_090120
 and MW28_090120 were qualified as estimated (UJ) because a low surrogate recovery was
 exhibited on both analytical columns.
- The results for 2,4-D in all samples were qualified as estimated (UJ) due to low recoveries in the LCS/LCSD.

Metals

- The results for total thallium in MW17_090120 and MW25_090120, total iron in MW15_090120 and dissolved iron in MW25_090120 were qualified as not detected (U) at the reporting limit due to associated blank contamination.
- The results for dissolved arsenic and selenium in MW17_090120, total and dissolved arsenic
 and selenium in MW17_090120 , total antimony and total and dissolved barium in
 MW17_090120, total and dissolved antimony and barium in MW11_090120, dissolved
 antimony and barium in MW15_090120, total antimony and barium in MW25_090120and total
 cadmium and silver in MW11_090120 were qualified as estimated (J, UJ) due to unacceptable
 internal area responses.
- The results for total and dissolved antimony and manganese in MW15_090120 were qualified as estimated (J) because the dissolved concentration exceeded the total concentration by more than 10%.

Mr. Joseph Yanowitz November 6, 2020 Page 5 of 19



Per- and Polyfluoroalkyl Substances (PFAS)

- The results for NMeFOSAA and NEtFOSAA in all samples were qualified as estimated (UJ)
 due to low recoveries in the CC standard. Results for NMeFOSAA in all samples were also
 qualified as estimated (UJ) due to unacceptable %D in the ICV standard.
- The results for PFOA in MW17_090120 and MW11_090120 were qualified as not detected (U) at the reported value because the sample concentration is less than ten times the concentration in the method blank.
- The results for FOSA in all samples except MW15_090120 were qualified as estimated (J-, UJ) due to low recovery in the labeled analog.
- The result for FOSA in MW15_090120 was rejected (R) because the recovery of the labeled analog was less than 10%.
- The results for NEtFOSSA in MW15_090120 and MW28_090120 were qualified as estimated (UJ) due to low recovery in the labeled analog.

Region II qualifier definitions are provided in Attachment A. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - o MS/MSD recoveries
 - o Internal standards
 - Duplicate
 - Total versus Dissolved (Metals)
- Instrument related quality control data:
 - o Instrument tunes
 - o Calibration summaries

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In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- 1,2-Dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trichlorobenzene and 1,4-dioxane were reported in both the volatile and semi-volatile fractions.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- The compound names and abbreviations reported on the summary forms for some compounds are named slightly differently in the electronic data deliverable (EDD). An example follows:
 - o Perfluorotridecanoic Acid (PFTrDA) summary form in data package
 - Perfluorotridecanoic Acid (PFTriA) EDD
- The raw data for the ICPMS metals reports calculated analyte concentrations and does
 not provide raw areas. Therefore, the sample digestate concentration could not be
 calculated. The validation was performed under the assumption that the instrument
 software accurately calculates the concentrations.
- The handwritten bench logs for cyanide analysis are incomplete. The sheets are missing the date of analysis and do not identify the analysis or the analyst. In addition, the sample numbers documented are incomplete. For example, sample L2036093-01 is documented as '36093-01'.
- Percent recoveries for metals internal standard ¹⁰³Rh are not reported on the summary forms.

Holding Times, Preservation, Sample Integrity:

A copy of the applicable chain of custody (COC) record was included in the data package, documenting a collection date of September 1, 2020. The samples were received by the laboratory on the same day as sample collection. The cooler temperatures on receipt at the laboratory were acceptable. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

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A. Volatile Organics

1. Calibration

One IC was reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable. One second source ICV standard was analyzed following the IC and all %Ds were acceptable (%D<30), with the exception noted below:

ICV	Compound	%D	Affected Samples	Qualifiers Applied
VOA108	Dichlorodifluoromethane	55.7	(All)	UJ

Sample results were qualified as estimated (UJ) as noted above due to unacceptable percent difference in the ICV.

Because the laboratory analyzes a CC standard and uses the same standard and analytical run for the LCS, sample results were qualified based on the CC because the acceptance criteria are more stringent (%D<20). One CC standard was analyzed, and all percent differences were acceptable (<20%D) with the following exceptions:

СС	Compound	%D	Affected Samples	Qualifiers Applied
VOA108	Dichlorodifluoromethane	31.7	(All)	UJ
9/3/2020	Vinyl acetate	25.5		
	2-Butanone	22.9		
	4-Methyl-2-pentanone	25.3		
	2-Hexanone	34.2		
	1,2-Dibromo-3-chloropropane	20.1		

In all instances, the percent differences represent a decrease in instrument sensitivity. Sample results were qualified as estimated (UJ) due to low response in the CC. Where the percent difference represented an increase in instrument sensitivity and the compound was not detected in the samples, no qualification of sample results was warranted and is not detailed above.

2. Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

MS/MSD analyses were performed on MW17_090120. All percent recoveries and RPDs were acceptable (70-130%R, RPD<30 for analytes \geq 5X the reporting limit) with the exception of dichlorodifluoromethane (54 / 60 %R). The results for dichlorodifluoromethane in all field samples were qualified as estimated (UJ) due to low MS/MSD recoveries.

3. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

As previously stated, the CC and LCS are evaluated from the same analytical run. The laboratory also analyzed an LCS duplicate (LCSD). All recoveries in the LCSD were acceptable (70-130%R, RPD<20), with the exception of dichlorodifluoromethane (65 %R) and 2-hexanone (69 %R).

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Results for dichlorodifluoromethane and 2-hexanone in all samples were qualified as estimated (UJ) based on low LCSD recoveries.

B. Semi-Volatile Organics (Full Scan Analysis)

1. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:

Sample				Surrogate		
	2- Fluoro- phenol	Phenol- d ⁵	Nitro- benzene- d₅	2- Fluorobiphenyl	2,4,6- TBP	Terphenyl- d ₁₄
MW17_090120	51	45	60	а	а	а
MW11_090120	55	50	а	а	а	а
MW15_090120	35	37	64	а	56	а
MW25_090120	42	42	а	а	57	а
MW28 090120	28	26	31	36	53	60

a-acceptable

Sample results were qualified as follows:

- The results for all acid extractable compounds in all samples were qualified as estimated (UJ) because two or more acid surrogates exhibited low recoveries.
- The results for all base neutral compounds in MW28_090120 were qualified as estimated (J, UJ) because all three base neutral surrogates exhibited low recoveries.
- The results for the following compounds in MW17_090120 and MW15_090120 were qualified as estimated (UJ) because nitrobenzene-d₅ exhibited low recovery:

n-nitroso-di-n-propylamine bis (2-chloroethyl) ether 2, 2'-oxybis (1-chloropropane) 1,2-dichlorobenzene 1,4-dichlorobenzene

acetophenone nitrobenzene

isophorone bis(2-chloroethoxy)methane 4-chloroaniline 1,2,4-trichlorobenzene

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

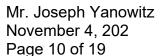
Results for one LCS/LCSD pair associated with the sample analyses were reported in the data package. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%, RPD≤20. Exceedances are detailed below:



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Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
1,2,4-Trichlorobenzene	55	57	а	(All)	UJ
Bis(2-chloroethyl)ether	52	56	а		
1,2-Dichlorobenzene	47	49	а		
1,3-Dichlorobenzene	46	47	а		
1,4-Dichlorobenzene	48	48	а		
3,3'-Dichlorobenzidine	54	53	а		
4-Chlorophenyl phenyl ether	64	а	а		
Bis(2-chloroisopropyl)ether	55	57	а		
Bis(2-chloroethoxy)methane	60	62	а		
Hexachlorocyclopentadiene	56	62	а		
Isophorone	57	61	а		
Nitrobenzene	59	61	а		
NDPA/DPA	63	70	а		
n-Nitrosodi-n-propylamine	59	62	а		
Bis(2-ethylhexyl)phthalate	69	а	а		
Di-n-butylphthalate	65	68	а		
Di-n-octylphthalate	68	а	а		
Diethyl phthalate	67	а	а		
Dimethyl phthalate	64	67	а		
Biphenyl	56	58	а		
4-Chloroaniline	61	60	а		
2-Nitroaniline	68	а	а		
3-Nitroaniline	58	60	а		
4-Nitroaniline	59	64	а		
Dibenzofuran	56	61	а		
1,2,4,5-Tetrachlorobenzene	65	68	а		
Acetophenone	53	56	а		
2-Chlorophenol	57	62	а		
2,4-Dichlorophenol	64	69	а		
2,4-Dimethylphenol	51	53	а		
2-Nitrophenol	64	67	а		
Phenol	44	45	а		
2-Methylphenol	59	60	а		
3-Methylphenol/4-Methylphenol	63	65	а		
Benzoic Acid	0	68	а		R
Benzyl Alcohol	60	62	а		UJ
Carbazole	61	66	а	1	

a-acceptable





The results for the target compounds identified were qualified as estimated (UJ) due to low LCS and/or LCSD recoveries. The results for benzoic acid were rejected because the LCS recovery was <10%. The 'R' qualifier takes precedence over the 'UJ' qualifier based on surrogate recoveries.

3. Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

MS/MSD analyses were performed on MW17_090120. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%, RPD<30. Exceedances are detailed below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
1,2,4-Trichlorobenzene	66	61	а	(All)	UJ
1,2-Dichlorobenzene	61	55	а		
1,3-Dichlorobenzene	61	55	а		
1,4-Dichlorobenzene	61	55	а		
3,3'-Dichlorobenzidine	0	0	а		R
Bis(2-chloroisopropyl)ether	а	61	а		UJ
Hexachlorocyclopentadiene	61	55	а		
4-Chloroaniline	43	66	41		
2,4-Dimethylphenol	66	66	а		
2-Nitrophenol	а	66	а		
2,4-Dinitrophenol	39	40	а		
4,6-Dinitro-o-cresol	34	36	а]	
Phenol	а	61	а	1	

The results for the target compounds identified were qualified as estimated (UJ) due to low MS and/or MSD recoveries and/or MS/MSD RPD. The results for 3,3'-dichlorobenzidine were rejected because the MS/MSD recoveries were <10%. The 'R' qualifier takes precedence over the 'UJ' qualifier based on surrogate or LCS recoveries.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] Analysis)

1. Blanks

One method blank was prepared and analyzed in support of sample analyses and phenanthrene (0.04 ug/L) was detected. The results for phenanthrene in MW15_090120 and MW11_090120 were qualified as not detected (U) at the reporting limit because the sample concentrations were less than the reporting limit.

2. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against



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validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate					
	2-FP	PHL	NBZ	FBP	TBP	TPHL
MW17_090120	49	47	63	а	а	133
MW11_090120	54	53	а	а	а	165
MW15_090120	38	41	а	а	64	161
MW25_090120	47	50	а	а	а	154
MW28_090120	62	59	а	а	а	165

a-acceptable

Sample results were qualified as follows:

- The results for pentachlorophenol in all samples were qualified as estimated (UJ) because two or more acid surrogates exhibited low recoveries.
- The results for the following compounds in MW17_090120 were qualified as estimated (J, UJ) because nitrobenzene-d₅ exhibited low recovery:

naphthalene 2-methylnaphthalene hexachlorobenzene hexachloroethane

• The results for benzo(a)anthracene and chrysene in MW17_090120, benzo(b)fluoranthene in MW11_090120 and benzo(g,h,i)perylene, indeno(1,2,3-c,d)pyrene and pyrene in MW28_090120 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery.

Where the surrogate recovery was high and the associated compounds were not detected, no qualification of sample results was warranted.

3. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS/LCSD pair associated with the sample analyses were reported in the data package. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%, RPD<20. Exceedances are detailed below:

LCS/LCSD					
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Acenaphthene	69	а	а	(All)	J-, UJ
2-Chloronaphthalene	62	67	а		
Hexachlorobutadiene	48	55	а		
Naphthalene	57	64	а		
2-Methylnaphthalene	64	68	а		
Pentachlorophenol	69	а	а		



LCS/LCSD					
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Hexachlorobenzene	64	65	а		
Hexachloroethane	51	59	а		

The results for the target compounds identified were qualified as estimated (J-, UJ) due to low LCS and/or LCSD recoveries.

4. Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

MS/MSD analyses were performed on MW17_090120. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%, RPD≤30. Exceedances are detailed below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Benzo(ghi)perylene	140	130	а	MW28_090120	J+
Dibenzo(a,h)anthracene	140	130	а	(none)	
Pyrene	140	130	а	MW28_090120	

The results for benzo(g,h,i)pyrene and pyrene in MW28_090120 were qualified as estimated (J+) due to high recovery in the MS/MSD.

5. Compound Identification

For SIM analysis, ion ratios are determined during initial calibration using the integrated areas for the primary and secondary ions and confirmation from their respective mass chromatograms. Identification in samples is made by verifying the ratio of the secondary ion to the primary. The following sample results were qualified as estimated (J) and presumptively present (N) because the ion ratio was outside acceptance limits:

- MW28 090120
 - Fluoranthene
 - o Benzo(g,h,i)perylene
 - Indeno(1,2,3-c,d)pyrene
 - o Pyrene
- MW17 090120
 - o Benzo(a)anthracene
 - Chrysene
- MW11 00120
 - Fluoranthene
 - o Benzo(b)fluoranthene
 - Anthracene
- MW15 090120
 - Fluoranthene

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MW25_09012Anthracene

The J,N qualifier takes precedence over previous qualifications (J+ or J-).

D. 1,4-Dioxane (SIM)

The results for 1,4-dioxane were determined to be valid, as reported. No qualifications were made to the sample results.

E. Pesticides

1. Calibration

Two ICs were performed in support of sample analyses. All RSDs or correlation coefficients were acceptable. In the IC performed on instrument 'pest10', linear regression was used for all target analytes. The method of linear regression has the potential for a significant bias to the lower portion of a calibration curve. When calculating the calibration curves using the linear regression, a minimum quantitation check on the viability of the lowest calibration point should be performed by recalculating the low concentration calibration standard back against the curve. The recalculated concentration of the low calibration point should be within ± 30% of the standard's true concentration. All recoveries were acceptable one at least one column, with the exception of endosulfan I on both columns 57/58%R. The results for endosulfan I in MW17_090120, MW11_090120 and MW15_090120 were qualified as estimated (UJ) on this basis.

A second source ICV was analyzed following each IC and all percent differences were acceptable (<30%D). Continuing calibrations were performed at the appropriate frequencies and all percent differences were acceptable (20%D).

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS/LCSD pair associated with the sample analyses were reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R, RPD<20) with the exceptions of the RPD for 4,4'-DDD (RPD=21). The result for 4,4'-DDD in MW15_090120 was qualified as estimated (J) due to high RPD in LCS/LCSD. Where the RPD was >20% and the compound was not detected, no qualification of sample results was made.

3. Surrogates

Two surrogates (TCX = 2,4,5,6-tetrachloro-m-xylene and DCBP = decachlorobiphenyl) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate				
	TCX 1	TCX 2	DCB 1	DCB 2	
MW25_090120	69	64	64	а	

a=acceptable

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The results for all pesticide compounds in MW25_090120 were qualified as estimated (UJ) due to low surrogate recoveries on both analytical columns.

F. PCBs

1. Surrogates

Two surrogates (TCX = 2,4,5,6-tetrachloro-m-xylene and DCBP = decachlorobiphenyl) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate				
	TCX 1	TCX 2	DCB 1	DCB 2	
MW11_090120	64	66	а	61	
MW25_090120	68	а	а	66	

a=acceptable

The results for all Aroclors in MW11_090120 and MW25_090120 were qualified as estimated (UJ) due low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS/LCSD pair associated with the sample analyses were reported in the data package. All LCS/LCSD recoveries were outside acceptance limits (70-130%R, RPD<20):

Parameter	LCS %R	LCSD %R	LCS/LCSD RPD	Samples Affected	Qualifiers Applied
Aroclor 1016	58	59	а	(All)	UJ
Aroclor 1260	55	57	а		

The results for all Aroclors in all samples were qualified as estimated (UJ) due to low recoveries in the LCS/LCSD.

3. Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

MS/MSD analyses were performed on MW17_090120. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%, RPD<30. Exceedances are detailed below:

Parameter	MS %R	MSD %R	RPD	Samples Affected	Qualifiers Applied
Aroclor 1260	67	67	а	(All)	UJ

The results for Aroclor 1260 in all field samples were qualified as estimated (UJ) due to low recoveries in the MS/MSD.

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G. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid [DCPAA]) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

0	Surrogate / Column				
Sample	DCPAA / 1	DCPAA / 2			
MW11_090120	55	67			
MW15_090120	56	68			
MW25_090120	54	64			
MW28 090120	57	69			

The results for all herbicide compounds in the samples noted above were qualified as estimated (UJ) because a low surrogate recovery was exhibited on both analytical columns.

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS/LCSD pair associated with the sample analyses were reported in the data package. The LCS/LCSD recoveries were outside acceptance limits (70-130%R, RPD<30) for 2,4-D (64 / 63 %R). The results for 2,4-D in all samples were qualified as estimated (UJ) due to low recoveries in the LCS/LCSD.

H. Metals

1. Blanks

Two method blanks were prepared, one for total metals and one for dissolved metals. No target analytes were detected in the method blanks. Initial and continuing calibration blanks (ICB, CCB) were analyzed at the appropriate frequencies. The table below summarized the maximum concentration detected in the blanks that impacted sample results:

Blank	Analyte	Conc (mg/L)	Samples Affected
CCB 9/3/2020 17:21	Thallium	0.000437	MW17_090120 (total) MW25_090120 (total)
	Iron	0.0285	MW15_090120 (total)
CCB 9/3/2020 12:48	Iron	0.0338	MW25_090120 (dissolved)

Sample results were qualified as not detected (U) at the reporting limit due to associated blank contamination.

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2. Internal Standard Responses

Internal standard area responses were acceptable (70-130%R of the original response in the calibration blank) with the exceptions noted below

calibration blank) with the exceptions noted below					
Sample	⁷² Ge	Associated Target	¹¹⁵ ln	Associated Target	
	%R	Analytes	%R	Analytes	
MW17_090120 (dissolved)	132	Arsenic, Selenium	140	Antimony, Barium	
MW11_090120 (dissolved)	134		143	•	
MW15_090120 (dissolved)	а		133		
MW17_090120 (total)	а		139		
MW11_090120 (total)	137		146		
MW25 090120 (total)	а		136		

Sample	¹⁰³ Rh	Associated Target
	%R	Analytes
MW11_090120 (total)	134	Cadmium, Silver

Sample results were qualified as estimated (J, UJ) due to unacceptable internal standard responses as detailed above.

It should be noted that the internal standard area summary forms do not report the recovery of ¹⁰³Rh and ¹⁵⁹Tb. The validator manually verified the recoveries in each sample.

3. Total versus Dissolved

The concentration of total metals was greater than the dissolved concentration in all samples with the exceptions noted below:

Sample	Analyte	Total con (mg/L)	c Dissolved conc. (mg/L)	%D
MW15_090120	Antimony	0.00579	0.00703	21.4
	Manganese	0.1305	0.1477	13.2

When the dissolved concentration is greater than the total by 10% or less, the difference is attributed to experimental error and no qualification of sample results is made and these are not noted in the table above.

The results for total and dissolved antimony and manganese in MW15_090120 were qualified as estimated (J) because the dissolved concentration exceeded the total concentration by more than 10%.

I. Per- and Polyfluoroalkyl Substances (PFAS)

1. Calibration:

One IC was reported in support of the sample analyses. All RRFs and RSDs or correlation coefficients (r2) were acceptable. Recoveries of the target analytes were within 50-150% of the true value in the lowest concentration IC standard and within 70-130% of the true value in all other IC standards.

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One second source ICV standard was analyzed following the IC and %Ds were acceptable (<30%D), except for linear NMeFOSAA (137%). The results for NMeFOSAA in all samples were qualified as estimated (UJ) due to unacceptable %D in ICV.

Three CCs were analyzed in support of sample analysis, and all recoveries were acceptable (50-150% for the low concentration CC and 70-130% for other CC concentrations) with the exceptions noted below:

СС	Compound	%R	Affected Samples	Qualifiers Applied
Low level CC 9/9/2020 13:51	br-NMeFOSAA	36.9	(All)	UJ
Low level CC	br-NMeFOSAA	45.9	(All)	
9/9/2020 20:49	br-NEtFOSAA)	20.7		

Since both NMeFOSAA and NEtFOSAA are reported as the sum of the linear and branched isomers, the results for NMeFOSAA and NEtFOSAA were qualified as estimated (UJ) due to low recoveries in the CC standard.

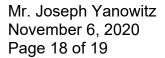
2. Blanks

One field blank and one equipment were submitted with this sample set. No target compounds were detected in either blank. One method blank was prepared and analyzed with the samples. PFOA (1.78 ng/L) was detected in the method blank. The results for PFOA in MW17_090120 and MW11_090120 were qualified as not detected (U) at the reported value because the sample concentration is less than ten times the concentration in the method blank.

3. Surrogates (Extracted Internal Standards/ Labeled Analogs):

All labeled analog recoveries were acceptable (50-150%R) with the following exceptions:

Sample	Labeled Analog	%R	
MW17_090120	1H,1H,2H,2H-perfluoro[1,2-13c2]octanesulfonic acid (M2-		
	6:2FTS)		
	1H,1H,2H,2H-perfluoro[1,2-13c2]decanesulfonic acid (M2-		
	8:2FTS)		
	Perfluoro[13C8]octanesulfonamide (M8FOSA)	38	
MW11_090120	Perfluoro[13C8]octanesulfonamide (M8FOSA)	26	
MW15_090120	Perfluoro[13C8]octanesulfonamide (M8FOSA)	9	
	n-Deuterioethylperfluoro-1-octanesulfonamidoacetic acid	46	
	(D5-NETFOSAA)		
MW25_090120	Perfluoro[13C8]octanesulfonamide (M8FOSA)	14	
MW28_090120	1H,1H,2H,2H-perfluoro[1,2-13c2]octanesulfonic acid (M2-	168	
	6:2FTS)		
	1H,1H,2H,2H-perfluoro[1,2-13c2]decanesulfonic acid (M2-	165	
	8:2FTS)		
	Perfluoro[13C8]octanesulfonamide (M8FOSA)	19	





	n-Deuterioethylperfluoro-1-octanesulfonamidoacetic acid (D5-NETFOSAA)	46
GWFB03_090120	Perfluoro[13C8]octanesulfonamide (M8FOSA)	42
GWEB01_090120	Perfluoro[13C8]octanesulfonamide (M8FOSA)	38

Sample results were qualified as detailed below based on recoveries outside acceptance limits for the labeled analog:

- No qualification of sample results was made in MW17_09020 and MW28_090120 based on the high recoveries of M2-8:2FTS and M2-6:2FTS because the corresponding target compounds were not detected in the samples.
- The results for FOSA in all samples except MW15_090120 were qualified as estimated (J-, UJ) due to low recovery in the labeled analog.
- The result for FOSA in MW15_090120 was rejected (R) because the recovery of the labeled analog was less than 10%. The narrative stated that the sample was reextracted and produced 'similar' results but did not include the data for the reextracted sample in the data package. The laboratory was contacted to verify the recovery of M8FOSA. The laboratory stated the recovery was 9%.
- The results for NEtFOSSA in MW15_090120 and ME28_090120 were qualified as estimated (UJ) due to low recovery in the labeled analog.

J. Cyanide

1. Quantitation

Based on the raw data for the result for sample MW11_090120 should be 0.004 mg/L, but the summary forms reported 0.003 mg/L. The laboratory was contacted and replied: 'When data is sent from instrument to LIMS, results are not rounded but they are truncated. This is a limitation of our LIMS system; Our LIMs truncated values if it's more than 3 sig figs'. The data user is advised that the correct concentration for MW11_090120 should be 0.004 mg/L.

K. Hexavalent chromium

The results for hexavalent chromium were determined to be valid, as reported. No qualifications were made to the sample results.

No other sample results were qualified as a result of the validation effort.

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Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Jeri Rossi, CEAC

Sr. Environmental Chemist

gui Resse.

(908) 370-3431

jrossi@ddmsinc.com



ATTACHMENT A

EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. L2036093

Westborough, MA 01581	NEW YORK CHAIN OF CUSTODY Mansfield, MA 02048	Service Centers Mahwah, NJ 07430: 35 Whitney Albany, NY 12205: 14 Walker W Tonawanda, NY 14150: 275 Cod	lay	95	Page				ec'd	09	101	12	0		ALPHA JOB# 12036095	3
8 Walkup Dr.	320 Forbes Blvd	Project Information	1 2				005201/20	erables	944	- 50					Billing Information	
TEL: 508-898-9220 FAX: 508-898-9193	TEL: 508-822-9300 FAX: 508-822-3288	Project Name: 250					-	ASP-A				ASP-			Same as Client Info	
		Project Location: New		NT .			=	EQuIS	(1 File	e)		EQui	S (4 F	ile)	PO#	
Client Information		Project # 1703817	-				-	Other	San Jan				1180	-	0 10 1	
Address: 360 W	25 C1 +	(Use Project name as Pr	-	- /// -			-	latory F		emen	-	NOV D	4.275		Disposal Site Information	
		Project Manager: 535	ean ta	iowitz			=	NY TOO			X		art 375		Please identify below location applicable disposal facilities.	n of
8th Floor, New		ALPHAQuote #:			-	1000	=	AWQ S			Н	NY CI				
Phone: 212-47	7- 3999	Turn-Around Time Standard		2 2		4	=	NY Res			_	Other			Disposal Facility:	
Fax:	201	Rush (only if pre approved		Due Date:			님	NY Unn							□ NJ □ NY	
			<u>'</u>	# of Days:			ANA	NYC Se	wer Di	schar	ge		_		Other:	T.
These samples have b Other project specific		The state of the s					ANAI	1515		9 1			_	_	Sample Filtration	0
	email to dat	amana gement	Glanga	n.com			CL USCS	des, pert 373	an tota	Lethod L	M, and	2.5		OKane	☐ Done ☐ Lab to do Preservation ☐ Lab to do	t a l
Flease specify metals	OF TAL.						PC PC	Sholl	35	15	20-50	5 00		0.0	(Please Specify below)	B 0
ALPHA Lab ID (Lab Use Only)	Sa	mple ID	Colle	ection Time	Sample Matrix	Sampler's Initials	SvsC,	Mertin	rex/h	2005	8228 PFAS 1	Meth	PFAS	1,4	Sample Specific Comments	t l
36093-01	MW17-090	120	09/01/20	1035	W	TZ	×	×	×	X	X	X			or Run W/MSD	
-02	MW11- 090	120		1130	1	LH	X	X	X	X	X	X			Trivoli Palicoly	\neg
-03	MW15-090	120		1315		T2	×	×	×	×	X	×				\neg
-04	MWZ 5-090	120		1540		LH	×	×		×	×	X				\neg
-05	MW28-290		V	1555	•	TZ	×	X		×	×	×				\neg
-06	GWF803_090	120		16 23		LH							X	X		\neg
707	ESWEBOI-09		1	1625		TZ							×			
-0€					×	TZ	×		7	4					* Only Part 375/TU	LVCC's
Preservative Code:	Container Code															士
A = None B = HCI C = HNO ₃ D = H ₂ SO ₄ E = NaOH	P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup	Westboro: Certification N Mansfield: Certification N				tainer Type reservative									Please print clearly, leg and completely. Sampl not be logged in and turnaround time clock w start until any ambiguit	les can will not
F = MeOH $G = NaHSO_4$ $H = Na_2S_2O_3$ K/E = Zn Ac/NaOH O = Other Form No: 01-25 HC (rev. 3	C = Cube O = Other E = Encore D = BOD Bottle 0-Sept-2013)	Relinquished According to the second	By:	Date/ 04(01/202) 9/1/2020 4/1/20	16:33	pla Prey	Receiv	ed By: Des 44.C	(A	9/1	9/11	por	Time 20 (20;		resolved. BY EXECUTE THIS COC, THE CLIEN HAS READ AND AGRE	'ING NT EES PHA'S



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. L2036093

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406399-3 Analysis Date : 09/03/20 08:54 File ID : V08200903A01 LCSD Sample ID : WG1406399-4 Analysis Date : 09/03/20 09:16 File ID : V08200903A02

	Laborator	y Control Sam	ple	Laborator	y Control Duր	olicate			
Barranta	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Methylene chloride	10	9.6	96	10	9.5	95	1	70-130	20
1,1-Dichloroethane	10	11	110	10	10	100	10	70-130	20
Chloroform	10	11	110	10	10	100	10	70-130	20
Carbon tetrachloride	10	11	110	10	11	110	0	63-132	20
1,2-Dichloropropane	10	10	100	10	9.8	98	2	70-130	20
Dibromochloromethane	10	9.8	98	10	9.5	95	3	63-130	20
1,1,2-Trichloroethane	10	9.0	90	10	8.7	87	3	70-130	20
Tetrachloroethene	10	9.1	91	10	8.2	82	10	70-130	20
Chlorobenzene	10	10	100	10	9.5	95	5	75-130	20
Trichlorofluoromethane	10	10	100	10	9.5	95	5	62-150	20
1,2-Dichloroethane	10	10	100	10	9.8	98	2	70-130	20
1,1,1-Trichloroethane	10	11	110	10	10	100	10	67-130	20
Bromodichloromethane	10	10	100	10	10	100	0	67-130	20
trans-1,3-Dichloropropene	10	9.1	91	10	8.5	85	7	70-130	20
cis-1,3-Dichloropropene	10	9.7	97	10	9.3	93	4	70-130	20
1,1-Dichloropropene	10	9.8	98	10	9.3	93	5	70-130	20
Bromoform	10	9.6	96	10	9.6	96	0	54-136	20
1,1,2,2-Tetrachloroethane	10	8.6	86	10	8.5	85	1	67-130	20
Benzene	10	10	100	10	9.7	97	3	70-130	20
Toluene	10	9.6	96	10	9.3	93	3	70-130	20
Ethylbenzene	10	10	100	10	9.3	93	7	70-130	20
Chloromethane	10	11	110	10	9.8	98	12	64-130	20
Bromomethane	10	8.4	84	10	8.0	80	5	39-139	20
Vinyl chloride	10	8.3	83	10	8.1	81	2	55-140	20
Chloroethane	10	10	100	10	10	100	0	55-138	20
1,1-Dichloroethene	10	9.8	98	10	9.3	93	5	61-145	20



Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406399-3 Analysis Date : 09/03/20 08:54 File ID : V08200903A01 LCSD Sample ID : WG1406399-4 Analysis Date : 09/03/20 09:16 File ID : V08200903A02

		y Control Sam			y Control Du				
Davamatav	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
trans-1,2-Dichloroethene	10	10	100	10	9.8	98	2	70-130	20
Trichloroethene	10	10	100	10	10	100	0	70-130	20
1,2-Dichlorobenzene	10	9.9	99	10	9.5	95	4	70-130	20
1,3-Dichlorobenzene	10	10	100	10	9.5	95	5	70-130	20
1,4-Dichlorobenzene	10	10	100	10	9.4	94	6	70-130	20
Methyl tert butyl ether	10	8.7	87	10	8.9	89	2	63-130	20
p/m-Xylene	20	20	100	20	19	95	5	70-130	20
o-Xylene	20	21	105	20	19	95	10	70-130	20
cis-1,2-Dichloroethene	10	11	110	10	9.9	99	11	70-130	20
Dibromomethane	10	9.5	95	10	9.3	93	2	70-130	20
1,2,3-Trichloropropane	10	8.0	80	10	8.1	81	1	64-130	20
Acrylonitrile	10	8.4	84	10	8.4	84	0	70-130	20
Styrene	20	20	100	20	19	95	5	70-130	20
Dichlorodifluoromethane	10	6.8	68	10	6.5	65	5	36-147	20
Acetone	10	8.2	82	10	8.2	82	0	58-148	20
Carbon disulfide	10	9.3	93	10	8.9	89	4	51-130	20
2-Butanone	10	7.7	77	10	7.6	76	1	63-138	20
Vinyl acetate	10	7.4	74	10	7.8	78	5	70-130	20
4-Methyl-2-pentanone	10	7.5	75	10	7.7	77	3	59-130	20
2-Hexanone	10	6.6	66	10	6.9	69	4	57-130	20
Bromochloromethane	10	10	100	10	10	100	0	70-130	20
2,2-Dichloropropane	10	11	110	10	10	100	10	63-133	20
1,2-Dibromoethane	10	8.8	88	10	8.4	84	5	70-130	20
1,3-Dichloropropane	10	9.0	90	10	8.7	87	3	70-130	20
1,1,1,2-Tetrachloroethane	10	11	110	10	9.6	96	14	64-130	20
Bromobenzene	10	10	100	10	9.4	94	6	70-130	20



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Client Sample ID : MW17_090120

Lab Sample ID : L2036093-01
Matrix Spike : WG1406399-6
Matrix Spike Dup : WG1406399-7

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Matrix
 : WATER

 Analysis Date
 : 09/03/20 15:06

Analysis Date : 09/03/20 15:06 MS Analysis Date : 09/03/20 18:23 MSD Analysis Date : 09/03/20 18:45

		Matrix Spike Sample			Matrix Spi	Matrix Spike Duplicate				
	Sample	Spike	Spike		Spike	Spike				
	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Bromomethane	ND	10	7.2	72	10	8.3	83	14	39-139	20
Vinyl chloride	ND	10	8.7	87	10	9.1	91	4	55-140	20
Chloroethane	ND	10	9.9	99	10	10	100	1	55-138	20
1,1-Dichloroethene	ND	10	9.6	96	10	9.7	97	1	61-145	20
trans-1,2-Dichloroethene	ND	10	9.8	98	10	9.9	99	1	70-130	20
Trichloroethene	ND	10	11	110	10	10	100	10	70-130	20
1,2-Dichlorobenzene	ND	10	9.7	97	10	10	100	3	70-130	20
1,3-Dichlorobenzene	ND	10	9.6	96	10	10	100	4	70-130	20
1,4-Dichlorobenzene	ND	10	9.6	96	10	10	100	4	70-130	20
Methyl tert butyl ether	ND	10	8.6	86	10	8.9	89	3	63-130	20
p/m-Xylene	ND	20	21	105	20	21	105	0	70-130	20
o-Xylene	ND	20	21	105	20	22	110	5	70-130	20
cis-1,2-Dichloroethene	ND	10	9.5	95	10	10	100	5	70-130	20
Dibromomethane	ND	10	9.8	98	10	10	100	2	70-130	20
1,2,3-Trichloropropane	ND	10	8.2	82	10	8.9	89	8	64-130	20
Acrylonitrile	ND	10	8.0	80	10	8.4	84	5	70-130	20
Styrene	ND	20	20	100	20	21	105	5	70-130	20
Dichlorodifluoromethane	ND	10	5.4	54	10	6.0	60	11	36-147	20
Acetone	ND	10	9.8	98	10	9.7	97	1	58-148	20
Carbon disulfide	ND	10	9.2	92	10	10	100	8	51-130	20
2-Butanone	ND	10	8.6	86	10	9.0	90	5	63-138	20
Vinyl acetate	ND	10	8.0	80	10	8.3	83	4	70-130	20



Evaluate Continuing Calibration Report

Data Path : I:\VOLATILES\VOA108\2020\200807P\

Data File : V08200807P20.D

Acq On : 8 Aug 2020 12:55 am

Operator : VOA108:MKS
Sample : C8260STDL10PPB
Misc : WG1397008

ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 08 08:34:18 2020

Quant Method : I:\VOLATILES\VOA108\2020\200807P\V108_200807P_8260.m

Quant Title : VOLATILES BY GC/MS

QLast Update : Sat Aug 08 08:26:50 2020

Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Are	ea% D	ev(min)
1	I	Fluorobenzene	1.000	1.000	0.0	104	-0.01
	TP	Dichlorodifluoromethane	0.167	0.260	-55.7#		0.00
3	TP	Chloromethane	0.405	0.503	-24.2#	124	0.00
4	TC	Vinyl chloride	0.325	0.337	-3.7	102	0.00
5	TP	Bromomethane	0.155	0.159	-2.6	102	0.00
6	TP	Chloroethane	0.165	0.179	-8.5	103	0.00
7	TP	Trichlorofluoromethane	0.343	0.374	-9.0	105	0.00
8	TP	Ethyl ether	0.136	0.137	-0.7	99	0.00
10	TC	1,1-Dichloroethene	0.212	0.213	-0.5	97	0.00
11		Carbon disulfide	0.535	0.611	-14.2	118	0.00
	TP	Freon-113	0.212	0.225	-6.1	108	0.00
	TP	Acrolein	0.034	0.050#	-47.1#		0.00
15		Methylene chloride	0.264	0.268	-1.5	100	0.00
17		Acetone	0.094	0.102	-8.5	115	0.00
18		trans-1,2-Dichloroethene	0.229	0.236	-3.1	98	0.00
	TP	Methyl acetate	0.243	0.267	-9.9	121	0.00
	TP	Methyl tert-butyl ether	0.696	0.678	2.6	97	0.00
	TP	tert-Butyl alcohol	0.032	0.032#	0.0	113	0.00
	TP	Diisopropyl ether	1.401	1.415	-1.0	108	0.00
	TP	1,1-Dichloroethane	0.561	0.522	7.0	90	0.00
	TP	Halothane	0.176	0.173	1.7	96	0.00
	TP	Acrylonitrile	0.124	0.135	-8.9	108	0.00
	TP	Ethyl tert-butyl ether	1.115	1.083	2.9	100	0.00
27		Vinyl acetate	0.876	0.782	10.7	99	0.00
28		cis-1,2-Dichloroethene	0.290	0.273	5.9	92	0.00
	TP	2,2-Dichloropropane	0.342	0.300	12.3	88	-0.02
	TP	Bromochloromethane	0.121	0.128	-5.8	103	-0.01
31		Cyclohexane	0.622	0.628	-1.0	102	-0.02
	TC	Chloroform	0.466	0.455	2.4	95	0.00
	TP	Ethyl acetate	0.346	0.317	8.4	97	0.00
	TP	Carbon tetrachloride	0.273	0.252	7.7	99	0.00
	TP	Tetrahydrofuran	0.112	0.100	10.7	81	0.00
36		Dibromofluoromethane	0.251	0.260	-3.6	105	0.00
	TP	1,1,1-Trichloroethane	0.390	0.391	-0.3	99	0.00
39		2-Butanone	0.140	0.142	-1.4	114	0.00
	TP	1,1-Dichloropropene	0.357	0.350	2.0	97	0.00
41		Benzene	1.039	0.952	8.4	94	0.00
42		tert-Amyl methyl ether	0.734	0.689	6.1	101	0.00
43	S	1,2-Dichloroethane-d4	0.345	0.339	1.7	104	0.00

V108_200807P_8260.m Sat Aug 08 08:44:39 2020

Evaluate Continuing Calibration Report

Data Path : I:\VOLATILES\VOA108\2020\200807P\

Data File : V08200807P20.D

Acq On : 8 Aug 2020 12:55 am

Operator : VOA108:MKS
Sample : C8260STDL10PPB
Misc : WG1397008

ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 08 08:34:18 2020

Quant Method : I:\VOLATILES\VOA108\2020\200807P\V108_200807P_8260.m

Quant Title : VOLATILES BY GC/MS

QLast Update : Sat Aug 08 08:26:50 2020

Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev Area	a% Dev(min)
44 TP 47 TP 48 TP 50 TP 51 TC 53 TP 54 TP 57 TP 58 TP	1,2-Dichloroethane Methyl cyclohexane Trichloroethene Dibromomethane 1,2-Dichloropropane 2-Chloroethyl vinyl ether Bromodichloromethane 1,4-Dioxane cis-1,3-Dichloropropene	0.450 0.404 0.264 0.161 0.348 0.195 0.357 0.00219 0.422	0.419 0.376 0.262 0.158 0.324 0.189 0.338 0.00220# 0.397	6.9 0.8 1.9 6.9 3.1 5.3	103 0.00 96 -0.01 98 0.00 103 0.00 97 0.00 101 -0.01 103 0.00 106 0.00 99 0.00
59 I 60 S 61 TC 62 TP 63 TP 65 TP 67 TP 68 TP 69 TP 71 TP 72 TP 73 TP 74 TC 75 TP 76 TP 77 TP 78 TP	Chlorobenzene-d5 Toluene-d8 Toluene 4-Methyl-2-pentanone Tetrachloroethene trans-1,3-Dichloropropene Ethyl methacrylate 1,1,2-Trichloroethane Chlorodibromomethane 1,3-Dichloropropane 1,2-Dibromoethane 2-Hexanone Chlorobenzene Ethylbenzene 1,1,1,2-Tetrachloroethane p/m Xylene o Xylene Styrene	1.000 1.373 0.909 0.174 0.372 0.529 0.423 0.276 0.326 0.572 0.307 0.342 0.975 1.712 0.329 0.627 0.581 0.984	1.000 1.347 0.892 0.174 0.358 0.478 0.426 0.268 0.318 0.566 0.302 0.346 0.964 1.695 0.317 0.632 0.605 1.028	0.0 1.9 1.9 0.0 3.8 9.6 -0.7 2.9 2.5 1.0 1.6 -1.2 1.1 1.0 3.6 -0.8 -0.8	104
79 I 80 TP 82 TP 83 S 84 TP 85 TP 86 TP 87 TP 88 TP 89 TP	1,4-Dichlorobenzene-d4 Bromoform Isopropylbenzene 4-Bromofluorobenzene Bromobenzene n-Propylbenzene 1,4-Dichlorobutane 1,1,2,2-Tetrachloroethane 4-Ethyltoluene 2-Chlorotoluene	1.000 0.382 3.477 1.079 0.820 4.125 1.660 0.814 3.209 2.873	1.000 0.359 3.379 1.059 0.787 4.044 1.756 0.830 3.299 2.805	0.0 6.0 2.8 1.9 4.0 2.0 -5.8 -2.0 1	106 0.00 105 0.00 100 0.00 104 0.00 101 0.00 100 0.00 110 0.00 108 0.00 104 0.00 102 0.00

V108_200807P_8260.m Sat Aug 08 08:44:39 2020

Calibration Verification Summary Form 7 Volatiles

Client : Langan Engineering & Environmental Project Name : 250 WATER STREET

Project Name : 250 WAT Instrument ID : VOA108

Lab File ID : V08200903A01 Sample No : WG1406399-2

Channel:

Lab Number : L2036093
Project Number : 170381202

Calibration Date : 09/03/20 08:54

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(n
Fluorobenzene	1	1	-	0	20	77	01
Dichlorodifluoromethane	0.167	0.114	-	31.7*	20	51	0
Chloromethane	0.405	0.437	-	-7.9	20	79	0
Vinyl chloride	0.325	0.271	•	16.6	20	60	0
Bromomethane	0.155	0.13	•	16.1	20	61	0
Chloroethane	0.165	0.168	-	-1.8	20	71	0
Trichlorofluoromethane	0.343	0.345	-	-0.6	20	71	0
Ethyl ether	0.136	0.122	-	10.3	20	64	01
1,1-Dichloroethene	0.212	0.208	-	1.9	20	70	0
Carbon disulfide	0.535	0.498	-	6.9	20	71	0
Freon-113	0.212	0.223	-	-5.2	20	78	0
lodomethane	10	1.57	-	84.3*	20	11	0
Acrolein	0.034	0.036*	-	-5.9	20	87	0
Methylene chloride	0.264	0.254	-	3.8	20	69	01
Acetone	0.094	0.077*	-	18.1	20	63	0
trans-1,2-Dichloroethene	0.229	0.229	-	0	20	70	0
Methyl acetate	0.243	0.211	-	13.2	20	70	01
Methyl tert-butyl ether	0.696	0.607	-	12.8	20	64	02
tert-Butyl alcohol	0.032	0.022*	-	31.3*	20	58	02
Diisopropyl ether	1.401	1.396	-	0.4	20	78	01
1,1-Dichloroethane	0.561	0.62	-	-10.5	20	78	01
Halothane	0.176	0.179	-	-1.7	20	73	02
Acrylonitrile	0.124	0.105	-	15.3	20	62	01
Ethyl tert-butyl ether	1.115	1.092	-	2.1	20	74	02
Vinyl acetate	0.876	0.653	-	25.5*	20	61	01
cis-1,2-Dichloroethene	0.29	0.31	-	-6.9	20	76	01
2,2-Dichloropropane	0.342	0.377	-	-10.2	20	81	02
Bromochloromethane	0.121	0.124	-	-2.5	20	73	02
Cyclohexane	0.622	0.623	-	-0.2	20	74	02
Chloroform	0.466	0.496	-	-6.4	20	76	01
Ethyl acetate	0.346	0.279	-	19.4	20	63	02
Carbon tetrachloride	0.273	0.306	-	-12.1	20	89	01
Tetrahydrofuran	0.112	0.094	-	16.1	20	56	01
Dibromofluoromethane	0.251	0.258	-	-2.8	20	77	01
1,1,1-Trichloroethane	0.39	0.427		-9.5	20	79	02
2-Butanone	0.39	0.427	<u> </u>	22.9*	20	63	02
1,1-Dichloropropene	0.14	0.35		22.9	20	71	0
Benzene	1.039	1.034	-	0.5	20	71	01
tert-Amyl methyl ether	0.734	0.654	-	10.9	20	70	02
1,2-Dichloroethane-d4	0.345	0.359	-	-4.1	20	81	01
1,2-Dichloroethane	0.45	0.459	-	-2	20	83	01
Methyl cyclohexane	0.404	0.391	-	3.2	20	74	01
Trichloroethene	0.264	0.277	-	-4.9	20	76	01

^{*} Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Instrument ID : VOA108

Lab File ID : V08200903A01 Sample No : WG1406399-2

Channel:

Lab Number : L2036093
Project Number : 170381202

Calibration Date : 09/03/20 08:54

Init. Calib. Date(s) : 08/07/20 08/07/20 Init. Calib. Times : 19:03 22:21

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(n
Dibromomethane	0.161	0.153	-	5	20	73	
1,2-Dichloropropane	0.348	0.349	-	-0.3		76	01
2-Chloroethyl vinyl ether	0.195	0.099	-	49.2*	20	39	0
Bromodichloromethane	0.357	0.371	-	-3.9	20	83	01
1,4-Dioxane	0.00219	0.00181*	-	17.4	20	64	01
cis-1,3-Dichloropropene	0.422	0.409	-	3.1	20	75	01
Chlorobenzene-d5	1	1	-	0	20	78	01
Toluene-d8	1.373	1.338	-	2.5	20	77	01
Toluene	0.909	0.871	-	4.2	20	74	01
4-Methyl-2-pentanone	0.174	0.13	-	25.3*	20	61	01
Tetrachloroethene	0.372	0.339	-	8.9	20	71	01
trans-1,3-Dichloropropene	0.529	0.481	-	9.1	20	74	01
Ethyl methacrylate	0.423	0.318	-	24.8*	20	59	0
1,1,2-Trichloroethane	0.276	0.249	-	9.8	20	70	01
Chlorodibromomethane	0.326	0.321	-	1.5	20	80	01
1,3-Dichloropropane	0.572	0.513	-	10.3	20	69	0
1,2-Dibromoethane	0.307	0.271	-	11.7	20	69	01
2-Hexanone	0.342	0.225	-	34.2*	20	56	0
Chlorobenzene	0.975	0.987	-	-1.2	20	77	01
Ethylbenzene	1.712	1.708	-	0.2	20	76	01
1,1,1,2-Tetrachloroethane	0.329	0.353	-	-7.3	20	88	0
p/m Xylene	0.627	0.644	-	-2.7	20	76	0
o Xylene	0.581	0.605	-	-4.1	20	77	01
Styrene	0.984	1.005	-	-2.1	20	75	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	76	0
Bromoform	0.382	0.366	-	4.2	20	77	0
Isopropylbenzene	3.477	3.616	-	-4	20	76	0
4-Bromofluorobenzene	1.079	1.098	-	-1.8	20	77	0
Bromobenzene	0.82	0.82	-	0	20	75	0
n-Propylbenzene	4.125	4.213	-	-2.1	20	74	0
1,4-Dichlorobutane	1.66	1.56	-	6	20	70	0
1,1,2,2-Tetrachloroethane	0.814	0.703	-	13.6	20	65	0
4-Ethyltoluene	3.209	3.339	-	-4.1	20	75	0
2-Chlorotoluene	2.873	2.98	-	-3.7	20	77	0
1,3,5-Trimethylbenzene	2.894	3.05	-	-5.4	20	76	0
1,2,3-Trichloropropane	0.693	0.558	-	19.5	20	61	0
trans-1,4-Dichloro-2-buten	0.296	0.253		14.5	20	69	0
4-Chlorotoluene	2.579	2.671		-3.6	20	76	0
tert-Butylbenzene	2.687	2.488		7.4	20	67	01
1,2,4-Trimethylbenzene	2.847	2.966	<u> </u>	-4.2	20	75	0
sec-Butylbenzene	3.386	3.464	<u> </u>	-4.2	20	74	0
·				-2.3			0
p-Isopropyltoluene	2.978	3.108	-		20	76	
1,3-Dichlorobenzene	1.525	1.564	-	-2.6	20	77	0

^{*} Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Instrument ID : VOA108

Lab File ID : V08200903A01 Sample No : WG1406399-2

Channel:

Lab Number : L2036093
Project Number : 170381202
Calibration Date : 09/03/20 08:54

Init. Calib. Date(s) : 08/07/20 08/07/20

Init. Calib. Times : 19:03 22:21

1,546					Area%	Dev(min)
1.546	1.602	-	-3.6	20	79	0
1.684	1.661	-	1.4	20	72	0
2.763	2.702	-	2.2	20	70	0
1.442	1.431	-	0.8	20	75	0
nzene 2.649	2.633	-	0.6	20	72	0
ropan 10	7.99	-	20.1*	20	65	0
e 0.997	1.013	-	-1.6	20	77	0
0.373	0.383	-	-2.7	20	74	0
e 0.944	0.884	-	6.4	20	71	0
2.21	1.798	-	18.6	20	63	0
e 0.869	0.785	-	9.7	20	72	0
1	1.684 2.763 1.442 2.649	1.684 1.661 2.763 2.702 1.442 1.431 2.633 2.702 1.442 1.431 2.633 2.709 2.633 2.709 2.633 2.709 2.633 2.709 2.633 2.709 2.633 2.633 2.709 2.633 2.633 2.69 2.69 2.633 2.69 2.69 2.633 2.69 2.69 2.633 2.69 2.69 2.633 2.69 2.69 2.69 2.69 2.69 2.69 2.69 2.69	1.684 1.661 - 2.763 2.702 - 1.442 1.431 - 2.649 2.633 - 2.70pan 10 7.99 - 2.68 0.997 1.013 - 2.68 0.373 0.383 - 2.69 0.944 0.884 - 2.21 1.798 -	1.684 1.661 - 1.4 2.763 2.702 - 2.2 1.442 1.431 - 0.8 enzene 2.649 2.633 - 0.6 eropan 10 7.99 - 20.1* ee 0.997 1.0131.6 0.373 0.3832.7 ee 0.944 0.884 - 6.4 2.21 1.798 - 18.6	1.684 1.661 - 1.4 20 2.763 2.702 - 2.2 20 1.442 1.431 - 0.8 20 2.649 2.633 - 0.6 20 2.70pan 10 7.99 - 20.1* 20 2.6 0.997 1.0131.6 20 2.7 0.373 0.3832.7 20 2.7 0.944 0.884 - 6.4 20 2.21 1.798 - 18.6 20	1.684 1.661 - 1.4 20 72 2.763 2.702 - 2.2 20 70 1.442 1.431 - 0.8 20 75 Inzene 2.649 2.633 - 0.6 20 72 Inorpan 10 7.99 - 20.1* 20 65 Ince 0.997 1.0131.6 20 77 0.373 0.3832.7 20 74 Ince 0.944 0.884 - 6.4 20 71 2.21 1.798 - 18.6 20 63



^{*} Value outside of QC limits.

Surrogate Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

CLIENT ID	S1	S2	S3	S4	S5	S6	тот
(LAB SAMPLE NO.)	(2FP)	(PHL)	(NBZ)	(FBP)	(TBP)	(TPH)	OUT
MW17_090120 (L2036093-01)	51	45	60	71	96	85	0
MW11_090120 (L2036093-02)	55	50	81	83	86	104	0
MW15_090120 (L2036093-03)	35	37	64	71	56	103	0
MW25_090120 (L2036093-04)	42	42	73	79	57	90	0
MW28_090120 (L2036093-05)	59	53	76	83	104	104	0
WG1405841-1BLANK	28	26	31	36	53	60	0
WG1405841-2LCS	52	49	61	59	84	69	0
WG1405841-3LCSD	49	50	62	59	89	72	0
MW17_090120MS	75	68	83	87	114	99	0
MW17_090120MSD	67	59	74	79	112	99	0

QC LIMITS

(21-120) 2FP = 2-FLUOROPHENOL (10-120) PHL = PHENOL-D6 (23-120) NBZ = NITROBENZENE-D5 (15-120) FBP = 2-FLUOROBIPHENYL

(10-120) FBP = 2-FLUOROBIPHENYL (10-120) TBP = 2,4,6-TRIBROMOPHENOL

(41-149) TPH = 4-TERPHENYL-D14

FORM II NYTCL-8270-LVI



^{*} Values outside of QC limits

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1405841-2 Analysis Date : 09/03/20 13:15 File ID : 405841-2 LCSD Sample ID : WG1405841-3 Analysis Date : 09/03/20 13:38 File ID : 405841-3

	Laboratory C	ontrol Sample		Laboratory C	ontrol Duplica	ite			
Danamatan	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Acenaphthene	18	10.	56	18	11.	59	5	37-111	30
1,2,4-Trichlorobenzene	18	10.	55	18	10.	57	4	39-98	30
Hexachlorobenzene	18	13.	72	18	14.	77	7	40-140	30
Bis(2-chloroethyl)ether	18	9.5	52	18	10.	56	7	40-140	30
2-Chloronaphthalene	18	10.	56	18	10.	56	0	40-140	30
1,2-Dichlorobenzene	18	8.6	47	18	9.0	49	4	40-140	30
1,3-Dichlorobenzene	18	8.4	46	18	8.5	47	2	40-140	30
1,4-Dichlorobenzene	18	8.7	48	18	8.8	48	0	36-97	30
3,3'-Dichlorobenzidine	18	9.8	54	18	9.6	53	2	40-140	30
2,4-Dinitrotoluene	18	13.	73	18	14.	77	5	48-143	30
2,6-Dinitrotoluene	18	13.	71	18	14.	76	7	40-140	30
Fluoranthene	18	12.	64	18	13.	69	8	40-140	30
4-Chlorophenyl phenyl ether	18	12.	64	18	13.	71	10	40-140	30
4-Bromophenyl phenyl ether	18	13.	72	18	14.	77	7	40-140	30
Bis(2-chloroisopropyl)ether	18	10.	55	18	10.	57	4	40-140	30
Bis(2-chloroethoxy)methane	18	11.	60	18	11.	62	3	40-140	30
Hexachlorobutadiene	18	9.9	55	18	10.	58	5	40-140	30
Hexachlorocyclopentadiene	18	10.	56	18	11.	62	10	40-140	30
Hexachloroethane	18	9.1	50	18	9.6	53	6	40-140	30
Isophorone	18	10.	57	18	11.	61	7	40-140	30
Naphthalene	18	9.3	51	18	9.5	52	2	40-140	30
Nitrobenzene	18	11.	59	18	11.	61	3	40-140	30
NDPA/DPA	18	11.	63	18	13.	70	11	40-140	30
n-Nitrosodi-n-propylamine	18	11.	59	18	11.	62	5	29-132	30
Bis(2-ethylhexyl)phthalate	18	13.	69	18	14.	75	8	40-140	30
Butyl benzyl phthalate	18	15.	85	18	16.	88	3	40-140	30



Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1405841-2 Analysis Date : 09/03/20 13:15 File ID : 405841-2 LCSD Sample ID : WG1405841-3 Analysis Date : 09/03/20 13:38 File ID : 405841-3

	Laborator	y Control Sam	ple	Laborator					
Damanatan	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Di-n-butylphthalate	18	12.	65	18	12.	68	5	40-140	30
Di-n-octylphthalate	18	12.	68	18	13.	74	8	40-140	30
Diethyl phthalate	18	12.	67	18	13.	72	7	40-140	30
Dimethyl phthalate	18	12.	64	18	12.	67	5	40-140	30
Benzo(a)anthracene	18	12.	65	18	12.	68	5	40-140	30
Benzo(a)pyrene	18	12.	67	18	13.	71	6	40-140	30
Benzo(b)fluoranthene	18	12.	69	18	13.	74	7	40-140	30
Benzo(k)fluoranthene	18	12.	63	18	12.	66	5	40-140	30
Chrysene	18	12.	64	18	12.	67	5	40-140	30
Acenaphthylene	18	11.	60	18	11.	61	2	45-123	30
Anthracene	18	11.	60	18	12.	65	8	40-140	30
Benzo(ghi)perylene	18	11.	63	18	12.	69	9	40-140	30
Fluorene	18	11.	60	18	12.	64	6	40-140	30
Phenanthrene	18	10.	58	18	11.	62	7	40-140	30
Dibenzo(a,h)anthracene	18	11.	59	18	12.	65	10	40-140	30
Indeno(1,2,3-cd)pyrene	18	10.	57	18	11.	62	8	40-140	30
Pyrene	18	12.	68	18	13.	71	4	26-127	30
Biphenyl	18	10.	56	18	10.	58	4	40-140	30
4-Chloroaniline	18	11.	61	18	11.	60	2	40-140	30
2-Nitroaniline	18	12.	68	18	13.	72	6	52-143	30
3-Nitroaniline	18	11.	58	18	11.	60	3	25-145	30
4-Nitroaniline	18	11.	59	18	12.	64	8	51-143	30
Dibenzofuran	18	10.	56	18	11.	61	9	40-140	30
2-Methylnaphthalene	18	9.7	54	18	10.	55	2	40-140	30
1,2,4,5-Tetrachlorobenzene	18	12.	65	18	12.	68	5	2-134	30
Acetophenone	18	9.6	53	18	10.	56	6	39-129	30



Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1405841-2 Analysis Date : 09/03/20 13:15 File ID : 405841-2 LCSD Sample ID : WG1405841-3 Analysis Date : 09/03/20 13:38 File ID : 405841-3

	Laboratory Control Sample			Laborator					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
2,4,6-Trichlorophenol	18	13.	73	18	13.	73	0	30-130	30
p-Chloro-m-cresol	18	13.	70	18	13.	73	4	23-97	30
2-Chlorophenol	18	10.	57	18	11.	62	8	27-123	30
2,4-Dichlorophenol	18	12.	64	18	12.	69	8	30-130	30
2,4-Dimethylphenol	18	9.3	51	18	9.6	53	4	30-130	30
2-Nitrophenol	18	12.	64	18	12.	67	5	30-130	30
4-Nitrophenol	18	13.	73	18	14.	78	7	10-80	30
2,4-Dinitrophenol	18	15.	82	18	17.	95	15	20-130	30
4,6-Dinitro-o-cresol	18	16.	91	18	18.	97	6	20-164	30
Pentachlorophenol	18	12.	68	18	16.	88	26	9-103	30
Phenol	18	8.0	44	18	8.2	45	2	12-110	30
2-Methylphenol	18	11.	59	18	11.	60	2	30-130	30
3-Methylphenol/4-Methylphenol	18	11.	63	18	12.	65	3	30-130	30
2,4,5-Trichlorophenol	18	14.	76	18	15.	81	6	30-130	30
Benzoic Acid	18	ND	0 Q	18	12.	68	200	10-164	30
Benzyl Alcohol	18	11.	60	18	11.	62	3	26-116	30
Carbazole	18	11.	61	18	12.	66	8	55-144	30



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET
Client Sample ID : MW17_090120

Lab Sample ID : L2036093-01
Matrix Spike : WG1405841-6
Matrix Spike Dup : WG1405841-7

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Matrix
 : WATER

 Analysis Date
 : 09/04/20 14:11

Analysis Date : 09/04/20 14:11 MS Analysis Date : 09/04/20 11:31 MSD Analysis Date : 09/04/20 11:58

		Matrix Sp	ike Sample		Matrix Spi	ke Duplicate				
	Sample	Spike	Spike		Spike	Spike				
	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
1,2,4-Trichlorobenzene	ND	18.2	12.	66	18.2	11.	61	9	39-98	30
Bis(2-chloroethyl)ether	ND	18.2	14.	77	18.2	13.	72	7	40-140	30
1,2-Dichlorobenzene	ND	18.2	11.	61	18.2	10.	55	10	40-140	30
1,3-Dichlorobenzene	ND	18.2	11.	61	18.2	10.	55	10	40-140	30
1,4-Dichlorobenzene	ND	18.2	11.	61	18.2	10.	55	10	36-97	30
3,3'-Dichlorobenzidine	ND	18.2	ND	0 Q	18.2	ND	0 Q	NC	40-140	30
2,4-Dinitrotoluene	ND	18.2	18.	99	18.2	18.	99	0	48-143	30
2,6-Dinitrotoluene	ND	18.2	17.	94	18.2	17.	94	0	40-140	30
4-Chlorophenyl phenyl ether	ND	18.2	17.	94	18.2	16.	88	6	40-140	30
4-Bromophenyl phenyl ether	ND	18.2	18.	99	18.2	18.	99	0	40-140	30
Bis(2-chloroisopropyl)ether	ND	18.2	13.	72	18.2	11.	61	17	40-140	30
Bis(2-chloroethoxy)methane	ND	18.2	15.	83	18.2	14.	77	7	40-140	30
Hexachlorocyclopentadiene	ND	18.2	11.J	61	18.2	10.J	55	10	40-140	30
Isophorone	ND	18.2	15.	83	18.2	13.	72	14	40-140	30
Nitrobenzene	ND	18.2	14.	77	18.2	13.	72	7	40-140	30
NDPA/DPA	ND	18.2	19.	100	18.2	18.	99	5	40-140	30
n-Nitrosodi-n-propylamine	ND	18.2	14.	77	18.2	13.	72	7	29-132	30
Bis(2-ethylhexyl)phthalate	ND	18.2	26.	140	18.2	26.	140	0	40-140	30
Butyl benzyl phthalate	ND	18.2	22.	120	18.2	22.	120	0	40-140	30
Di-n-butylphthalate	ND	18.2	20.	110	18.2	20.	110	0	40-140	30
Di-n-octylphthalate	ND	18.2	27.	150 Q	18.2	25.	140	8	40-140	30
Diethyl phthalate	ND	18.2	19.	100	18.2	18.	99	5	40-140	30



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Client Sample ID : MW17_090120

Lab Sample ID : L2036093-01
Matrix Spike : WG1405841-6
Matrix Spike Dup : WG1405841-7

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Matrix
 : WATER

 Analysis Date
 : 09/04/20 14:11

Analysis Date : 09/04/20 14:11 MS Analysis Date : 09/04/20 11:31 MSD Analysis Date : 09/04/20 11:58

		Matrix Sp	ike Sample		Matrix Spi	ke Duplicate				
	Sample	Spike	Spike		Spike	Spike				
	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Dimethyl phthalate	ND	18.2	17.	94	18.2	16.	88	6	40-140	30
Biphenyl	ND	18.2	16.	88	18.2	15.	83	6	40-140	30
4-Chloroaniline	ND	18.2	7.9	43	18.2	12.	66	41 Q	40-140	30
2-Nitroaniline	ND	18.2	19.	100	18.2	18.	99	5	52-143	30
3-Nitroaniline	ND	18.2	14.	77	18.2	14.	77	0	25-145	30
4-Nitroaniline	ND	18.2	17.	94	18.2	17.	94	0	51-143	30
Dibenzofuran	ND	18.2	16.	88	18.2	16.	88	0	40-140	30
1,2,4,5-Tetrachlorobenzene	ND	18.2	14.	77	18.2	13.	72	7	2-134	30
Acetophenone	ND	18.2	14.	77	18.2	13.	72	7	39-129	30
2,4,6-Trichlorophenol	ND	18.2	19.	100	18.2	18.	99	5	30-130	30
p-Chloro-m-cresol	ND	18.2	19.	100 Q	18.2	18.	99 Q	5	23-97	30
2-Chlorophenol	ND	18.2	14.	77	18.2	13.	72	7	27-123	30
2,4-Dichlorophenol	ND	18.2	16.	88	18.2	15.	83	6	30-130	30
2,4-Dimethylphenol	ND	18.2	12.	66	18.2	12.	66	0	30-130	30
2-Nitrophenol	ND	18.2	14.	77	18.2	12.	66	15	30-130	30
4-Nitrophenol	ND	18.2	18.	99 Q	18.2	19.	100 Q	5	10-80	30
2,4-Dinitrophenol	ND	18.2	7.1J	39	18.2	7.3J	40	3	20-130	30
4,6-Dinitro-o-cresol	ND	18.2	6.1J	34	18.2	6.5J	36	6	20-164	30
Phenol	ND	18.2	13.	72	18.2	11.	61	17	12-110	30
2-Methylphenol	ND	18.2	14.	77	18.2	13.	72	7	30-130	30
3-Methylphenol/4-Methylphenol	ND	18.2	16.	88	18.2	14.	77	13	30-130	30
2,4,5-Trichlorophenol	ND	18.2	19.	100	18.2	18.	99	5	30-130	30



Client : Langan Engineering & Environmental
Project Name : 250 WATER STREET

Client Sample ID : MW17_090120

Lab Sample ID : L2036093-01

Matrix Spike : WG1405841-6

Matrix Spike Dup : WG1405841-7

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Matrix
 : WATER

 Analysis Date
 : 09/04/20 14:11

Analysis Date : 09/04/20 14:11 MS Analysis Date : 09/04/20 11:31 MSD Analysis Date : 09/04/20 11:58

		Matrix Spike Sample			Matrix Spike Duplicate					
	Sample	Spike	Spike		Spike	Spike				
	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Benzoic Acid	ND	18.2	22.J	120	18.2	20.J	110	10	10-164	30
Benzyl Alcohol	ND	18.2	16.	88	18.2	14.	77	13	26-116	30
Carbazole	ND	18.2	19.	100	18.2	19.	100	0	55-144	30



Surrogate Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

CLIENT ID	S1	S2	S3	S 4	S5	S6	тот
(LAB SAMPLE NO.)	(2FP)	(PHL)	(NBZ)	(FBP)	(TBP)	(TPH)	OUT
MW17_090120 (L2036093-01)	49	47	63	73	96	133	0
MW11_090120 (L2036093-02)	54	53	85	93	89	165*	1
MW15_090120 (L2036093-03)	38	41	70	81	64	161*	1
MW25_090120 (L2036093-04)	47	50	82	88	72	154*	1
MW28_090120 (L2036093-05)	62	59	83	92	112	165*	1
WG1405864-1BLANK	28	29	37	41	51	88	0
WG1405864-2LCS	52	51	65	65	77	106	0
WG1405864-3LCSD	57	55	73	70	75	106	0
MW17_090120MS	84	84	101	107	129*	168*	2
MW17_090120MSD	75	72	89	96	121*	159*	2

QC LIMITS

(21-120) 2FP = 2-FLUOROPHENOL (10-120) PHL = PHENOL-D6 (23-120) NBZ = NITROBENZENE-D5

(23-120) NBZ = NITROBENZENE-D5 (15-120) FBP = 2-FLUOROBIPHENYL (10-120) TBP = 2,4,6-TRIBROMOPHENOL

(41-149) TPH = 4-TERPHENYL-D14

FORM II NYTCL-8270-SIM-LVI



^{*} Values outside of QC limits

Client : Langan Engineering & Environmental Lab Nu
Project Name : 250 WATER STREET Project
Matrix : WATER
LCS Sample ID : WG1405864-2 Analysis Date : 09/03/20 14:59 Lab Number : L2036093 Project Number: 170381202

File ID : 405864-2 LCSD Sample ID : WG1405864-3 Analysis Date : 09/03/20 15:20 File ID : 405864-3

	Laborator	y Control Samp	le	Laboratory (Control Dupl				
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Acenaphthene	3.6	2.5	69	3.6	2.6	72	4	40-140	40
2-Chloronaphthalene	3.6	2.3	62	3.6	2.4	67	8	40-140	40
Fluoranthene	3.6	2.9	81	3.6	2.9	80	1	40-140	40
Hexachlorobutadiene	3.6	1.7	48	3.6	2.0	55	14	40-140	40
Naphthalene	3.6	2.1	57	3.6	2.3	64	12	40-140	40
Benzo(a)anthracene	3.6	2.7	74	3.6	2.7	75	1	40-140	40
Benzo(a)pyrene	3.6	2.8	78	3.6	2.9	80	3	40-140	40
Benzo(b)fluoranthene	3.6	2.6	71	3.6	2.7	74	4	40-140	40
Benzo(k)fluoranthene	3.6	2.8	78	3.6	3.0	82	5	40-140	40
Chrysene	3.6	2.7	75	3.6	2.8	77	3	40-140	40
Acenaphthylene	3.6	2.8	76	3.6	2.9	81	6	40-140	40
Anthracene	3.6	2.8	78	3.6	2.8	78	0	40-140	40
Benzo(ghi)perylene	3.6	3.4	94	3.6	3.6	98	4	40-140	40
Fluorene	3.6	2.6	73	3.6	2.7	74	1	40-140	40
Phenanthrene	3.6	2.7	74	3.6	2.7	74	0	40-140	40
Dibenzo(a,h)anthracene	3.6	3.5	95	3.6	3.7	101	6	40-140	40
Indeno(1,2,3-cd)pyrene	3.6	3.4	93	3.6	3.5	96	3	40-140	40
Pyrene	3.6	3.0	82	3.6	3.0	82	0	40-140	40
2-Methylnaphthalene	3.6	2.3	64	3.6	2.5	68	6	40-140	40
Pentachlorophenol	3.6	2.5	69	3.6	2.9	79	14	40-140	40
Hexachlorobenzene	3.6	2.3	64	3.6	2.4	65	2	40-140	40
Hexachloroethane	3.6	1.8	51	3.6	2.2	59	15	40-140	40



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Client Sample ID : MW17_090120

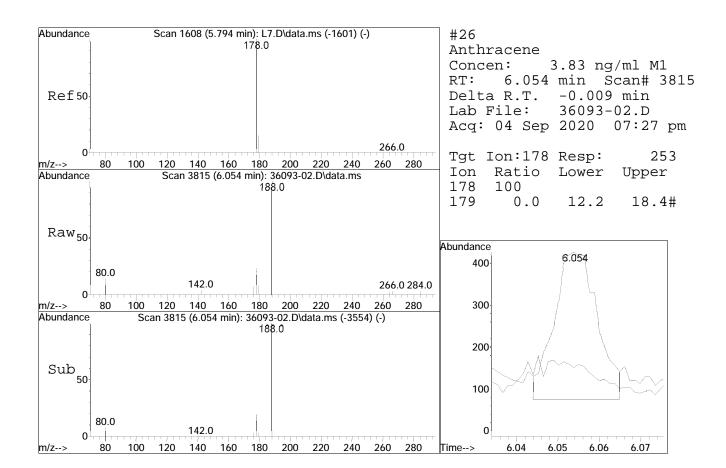
Lab Sample ID : L2036093-01
Matrix Spike : WG1405864-6
Matrix Spike Dup : WG1405864-7

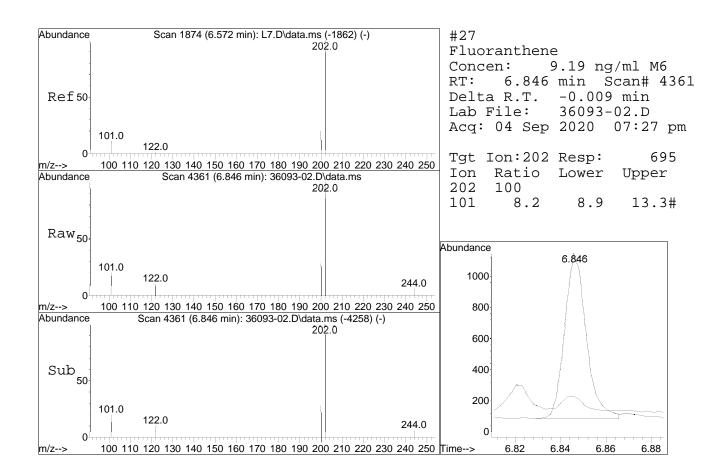
Lab Number : L2036093
Project Number : 170381202
Matrix : WATER

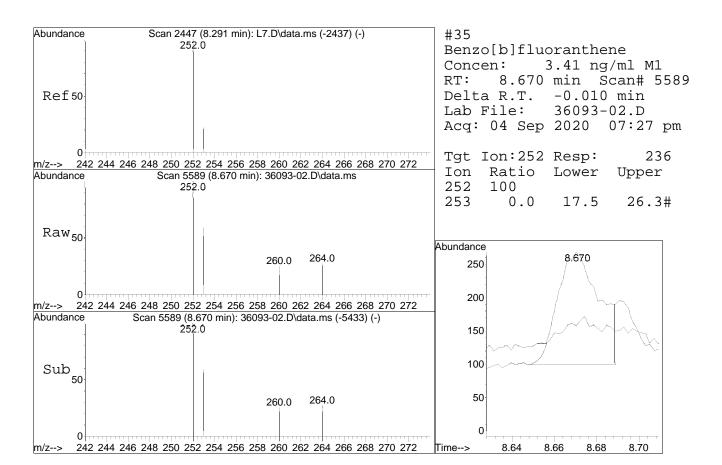
Matrix : WATER
Analysis Date : 09/05/20 11:13
MS Analysis Date : 09/05/20 10:32
MSD Analysis Date : 09/05/20 10:52

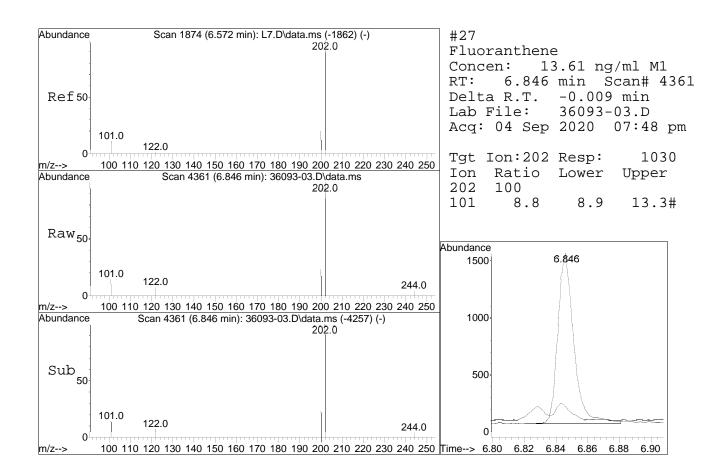
		Matrix Spike Sample			Matrix Spi	ke Duplicate				
	Sample	Spike	Spike		Spike	Spike				
	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Acenaphthene	1.5	18.2	21	110	18.2	19	96	10	40-140	40
2-Chloronaphthalene	ND	18.2	18	99	18.2	16	88	12	40-140	40
Fluoranthene	0.23	18.2	24	130	18.2	23	130	4	40-140	40
Hexachlorobutadiene	ND	18.2	15	83	18.2	13	72	14	40-140	40
Naphthalene	0.11	18.2	17	93	18.2	16	87	6	40-140	40
Benzo(a)anthracene	0.03J	18.2	21	120	18.2	20	110	5	40-140	40
Benzo(a)pyrene	ND	18.2	22	120	18.2	20	110	10	40-140	40
Benzo(b)fluoranthene	ND	18.2	22	120	18.2	20	110	10	40-140	40
Benzo(k)fluoranthene	ND	18.2	23	130	18.2	23	130	0	40-140	40
Chrysene	0.02J	18.2	22	120	18.2	20	110	10	40-140	40
Acenaphthylene	ND	18.2	21	120	18.2	19	100	10	40-140	40
Anthracene	0.19	18.2	22	120	18.2	20	110	10	40-140	40
Benzo(ghi)perylene	ND	18.2	25	140	18.2	24	130	4	40-140	40
Fluorene	0.66	18.2	22	120	18.2	20	110	10	40-140	40
Phenanthrene	0.35	18.2	21	110	18.2	20	110	5	40-140	40
Dibenzo(a,h)anthracene	ND	18.2	26	140	18.2	24	130	8	40-140	40
Indeno(1,2,3-cd)pyrene	ND	18.2	24	130	18.2	24	130	0	40-140	40
Pyrene	ND	18.2	25	140	18.2	24	130	4	40-140	40
2-Methylnaphthalene	ND	18.2	19	100	18.2	17	94	11	40-140	40
Pentachlorophenol	ND	18.2	24	130	18.2	22	120	9	40-140	40
Hexachlorobenzene	ND	18.2	19	100	18.2	17	94	11	40-140	40
Hexachloroethane	ND	18.2	14	77	18.2	13	72	7	40-140	40

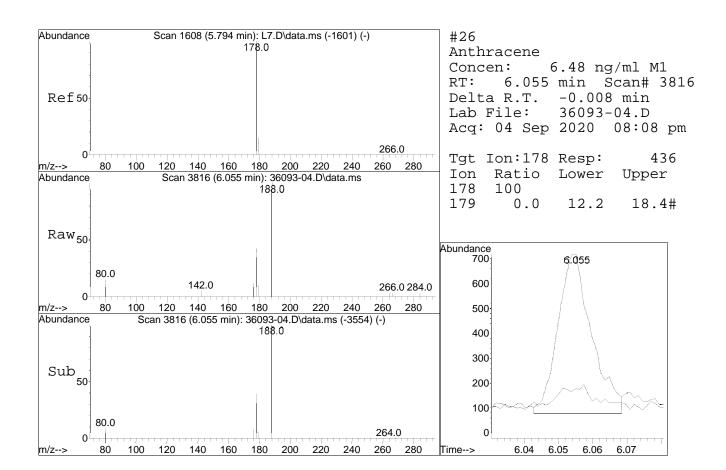


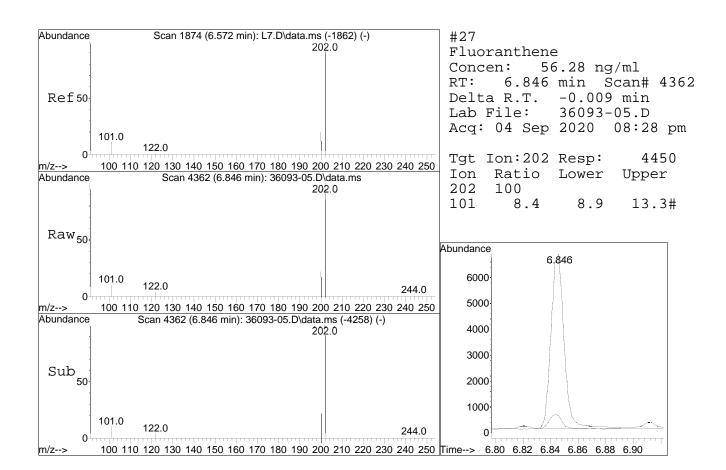


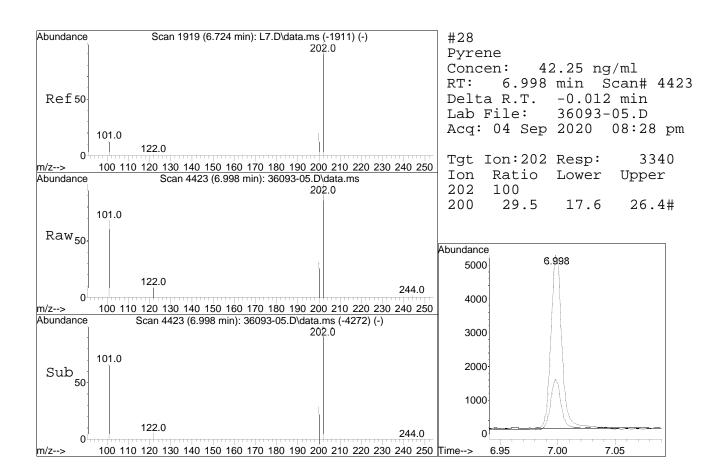


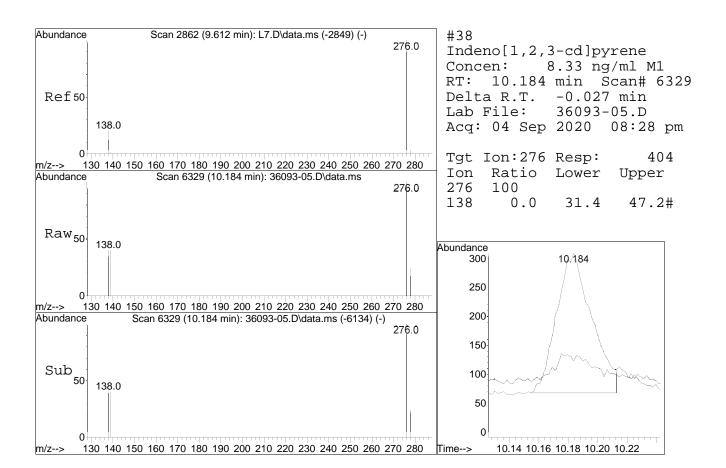


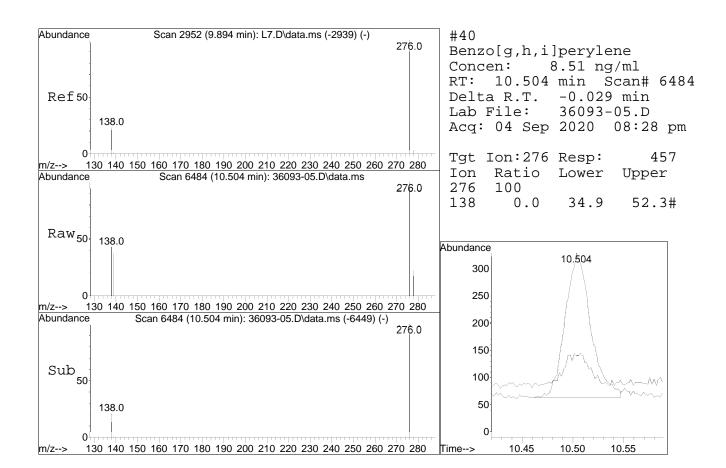


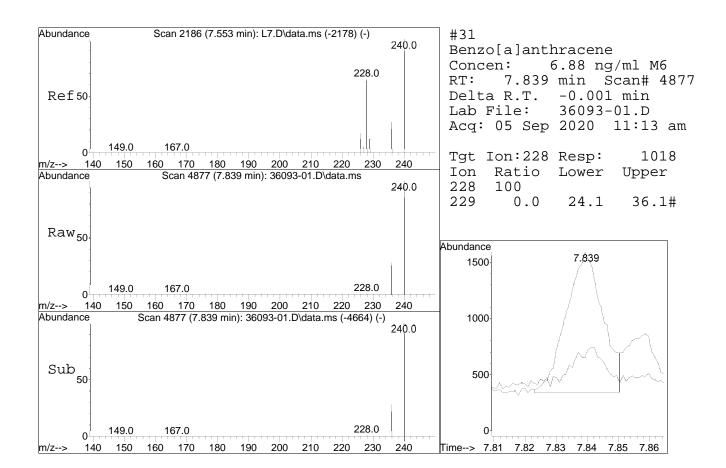


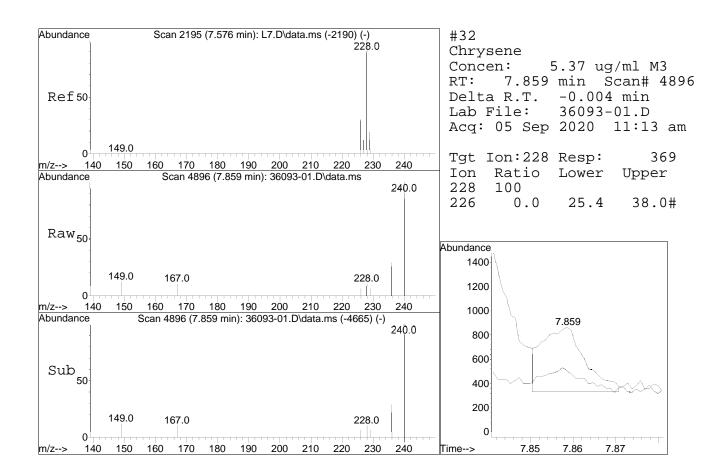












Surrogate Recovery Summary Form 2 Pesticides

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

GC Column 1: CLPPesticides
GC Column 2: CLPPesticidesII

CLIENT ID	TCX 1	TCX 2	DCB 1	DCB 2	OTHER	OTHER	тот
(LAB SAMPLE NO.)	%REC	%REC	%REC	%REC	(1)	(2)	OUT
MW17_090120 (L2036093-01)	85	61	80	84			0
MW11_090120 (L2036093-02)	104	75	76	72			0
MW15_090120 (L2036093-03)	102	77	75	73			0
MW25_090120 (L2036093-04)	69	64	64	81			0
MW28_090120 (L2036093-05)	95	85	83	107			0
WG1406393-1BLANK	96	107	85	135			0
WG1406393-2LCS	75	79	82	108			0
WG1406393-3LCSD	97	97	96	120			0
MW17_090120MS	97	67	109	98			0
MW17_090120MSD	116	84	99	105			0

QC LIMITS

(30-150) TCX = 2,4,5,6-TETRACHLORO-M-XYLENE (30-150) DCBP = DECACHLOROBIPHENYL

FORM II NYTCL-8081



^{*} Values outside of QC limits

Laboratory Control Sample Summary Form 3 Pesticides

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406393-2 Analysis Date : 09/04/20 16:24 File ID : 10200904b-26 LCSD Sample ID : WG1406393-3 Analysis Date : 09/04/20 16:38 File ID : 10200904b-27

	Laborator	y Control Samp	ole	Laboratory	Laboratory Control Duplicate True Found %R RPD (ug/l) (ug/l)					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD	
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit	
Delta-BHC	0.357	0.279	78	0.357	0.335	94	18	30-150	20	
Lindane	0.357	0.307	86	0.357	0.368	103	18	30-150	20	
Alpha-BHC	0.357	0.289	81	0.357	0.336	94	15	30-150	20	
Beta-BHC	0.357	0.420	118	0.357	0.423	118	0	30-150	20	
Heptachlor	0.357	0.316	89	0.357	0.387	108	20	30-150	20	
Aldrin	0.357	0.279	78	0.357	0.350	98	23 Q	30-150	20	
Heptachlor epoxide	0.357	0.326	91	0.357	0.385	108	17	30-150	20	
Endrin	0.357	0.320	90	0.357	0.400	112	22 Q	30-150	20	
Endrin aldehyde	0.357	0.320	90	0.357	0.376	105	16	30-150	20	
Endrin ketone	0.357	0.317	89	0.357	0.403	113	24 Q	30-150	20	
Dieldrin	0.357	0.326	91	0.357	0.399	112	20	30-150	20	
4,4'-DDE	0.357	0.289	81	0.357	0.363	102	23 Q	30-150	20	
4,4'-DDD	0.357	0.340	95	0.357	0.421	118	21 Q	30-150	20	
4,4'-DDT	0.357	0.338	95	0.357	0.411	115	19	30-150	20	
Endosulfan I	0.357	0.304	85	0.357	0.374	105	21 Q	30-150	20	
Endosulfan II	0.357	0.337	94	0.357	0.411	115	20	30-150	20	
Endosulfan sulfate	0.357	0.303	85	0.357	0.382	107	23 Q	30-150	20	
Methoxychlor	0.357	0.407	114	0.357	0.482	135	17	30-150	20	
cis-Chlordane	0.357	0.265	74	0.357	0.345	97	26 Q	30-150	20	
trans-Chlordane	0.357	0.306	86	0.357	0.367	103	18	30-150	20	



 ${\tt Method\ Path\ :\ I:\ Pest10\ 200708ical\ \setminus\ }$

Method File : pest10_07_08_20_ugL_ical.m

Title : pest

Last Update : Thu Jul 09 23:59:44 2020

Response Via: Initial Calibration

	Cal 1 6	=1	ation Files 0200708i-03.d 2 0200708i-08.d 7		708i-17.d 708i-18.d	_	=10200 =10200			_	200708: 200708:		_	=10200708 =10200708	
		(Compound	1	. 2	3	4	5	6	7	8	9	10	Avg	%RSD
	1)		1-br-2-nb_Pestici 2,4,5,6-Tetra	.des							0.964	0.947	0.879	1.112	14.54
	3)	t	Hexachloroben		1.577	1.447	1.390	1.284	1.313	1.192	1.039	1.012	0.953	1.245	17.10
	4)	t	alpha-BHC		1.921	1.828	1.774	1.684	1.715	1.475	1.413	1.424	1.515	1.639	11.44
	5)	t	gamma-BHC (li	2.4	45 1.907	1.780	1.761	1.650	1.659	1.426	1.311	1.307	1.388	*L	0.998
4	6)	t	beta-BHC			0.872	0.829	0.777	0.795	0.677	0.580	0.557	0.574	*L	0.999
2	7)	t	delta-BHC		1.904	1.811	1.747	1.643	1.663	1.409	1.340	1.339	1.443	*L	0.998
6	8)	t	Heptachlor		1.948	1.827	1.764	1.666	1.681	1.418	1.270	1.227	1.264	*L	0.998
7	9)	t	Aldrin		1.963	1.736	1.765	1.583	1.603	1.340	1.231	1.195	1.244	*L	0.998
8	10)	t	Alachlor		0.263	0.270	0.251	0.237	0.243	0.238	0.205	0.184	0.160	0.228	16.35
2	11)	t	Chlorpyrifos		1.063	1.017	0.979	0.910	0.923	0.842	0.694	0.626	0.548	8 *L	0.994
_	12)	t	Heptachlor Ep		1.683	1.678	1.576	1.498	1.565	1.271	1.143	1.096	1.142	*L	0.998
2	13)	t	gamma-Chlorda			1.748	1.681	1.572	1.610	1.347	1.197	1.163	1.241	. *L	0.998

1.862 1.736 1.625 1.635 1.381 1.177 1.130 1.201 *L

1.698 1.618 1.550 1.478 1.511 1.263 1.161 1.117 1.198 *L

1.655 1.566 1.512 1.434 1.465 1.208 1.082 1.008 1.075 *L

pest10_07_0...0_ugL_ical.m Fri Jul 10 00:03:53 2020

alpha-Chlorda...

Endosulfan I

4,4'-DDE

0.998

0.998

0.997

14) t

15) t

16) t

Method Path : I:\Pest10\200708ical\ Method File: pest10 07 08 20 ugL ical.m Title : pest Last Update : Thu Jul 09 23:59:44 2020 Response Via: Initial Calibration Calibration Files =10200708i-05.d 4 =10200708i-03.d 2 =10200708i-17.d 3 =10200708i-06.d 5 =10200708i-07.d=10200708i-08.d 7 =10200708i-18.d 8 =10200708i-19.d 9 =10200708i-11.d 10 =10200708i-12.d Compound 1 6 7 10 Ava %RSD Dieldrin 1.744 1.668 1.618 1.532 1.527 1.291 1.163 1.117 1.178 0.998 17) t *L 1.815 1.664 1.589 1.498 1.526 1.277 1.161 1.114 1.167 18) t Endrin 0.998 7 19) t 4,4'-DDD 1.330 1.243 1.218 1.156 1.179 0.993 0.901 0.861 0.913 0.998 20) t Endosulfan II 1.546 1.466 1.388 1.421 1.181 1.047 0.961 1.033 0.998 4,4'-DDT 1.542 1.416 1.358 1.292 1.324 1.103 0.999 0.955 1.026 0.998 21) t 1 22) t Endrin Aldehyde 1.384 1.242 1.205 1.133 1.155 0.966 0.874 0.816 0.853 0.998 Methoxychlor 0.752 0.719 0.730 0.612 0.519 0.470 0.471 0.998 23) t Mirex 1.332 1.264 1.198 1.140 1.159 1.074 0.904 0.835 0.771 0.994 24) t Endosulfan Su... 1.403 1.386 1.285 1.230 1.291 1.050 0.971 0.914 0.995 0.997 25) t Endrin Ketone 1.667 1.613 1.558 1.453 1.494 1.237 1.101 1.033 1.071 *L 0.997 26) t 1.035 1.013 1.032 0.978 1.018 0.973 0.840 0.790 0.746 0.936 12.01 27) s Decachlorobip... 28) i 1-br-2-nb Chlordane ------ISTD------29) l1 chlordane-1 0.034 0.034 0.00 30) 11 chlordane-3 0.039 0.039 0.00 31) l1 chlordane-4 0.133 0.00 0.133

0.187

0.00

0.187

32) 11 chlordane-5

Method File: pest10 07 08 20 uqL ical.m Title : pest Last Update : Thu Jul 09 23:59:44 2020 Response Via: Initial Calibration Calibration Files =10200708i-03.d 2 =10200708i-17.d 3 =10200708i-05.d 4 =10200708i-06.d 5 =10200708i-07.d=10200708i-08.d 7 =10200708i-18.d 8 =10200708i-19.d 9 =10200708i-11.d 10 =10200708i-12.d Compound 1 2 3 4 5 6 7 8 9 10 Ava %RSD 33) i 1-br-2-nb_Toxaphene ------ISTD------34) 12 toxaphene-1 0.038 0.047 0.046 0.044 10.67 35) 12 toxaphene-2 0.038 0.039 0.037 9.69 0.033 36) 12 toxaphene-4 0.036 0.039 0.039 0.038 4.53 37) 12 toxaphene-5 0.039 0.034 0.034 0.036 7.87 Signal #2 Calibration Files =10200708i-03.d 2 =10200708i-17.d 3 =10200708i-05.d 4 =10200708i-06.d 5 =10200708i-07.d =10200708i-08.d 7 =10200708i-18.d 8 =10200708i-19.d 9 =10200708i-11.d 10 =10200708i-12.d 1 2 3 4 5 6 7 8 9 10 Compound %RSD 1) i 1-br-2-nb Pesticides ------ISTD------2,4,5,6-Tetra... 1.214 1.121 1.089 1.017 1.044 0.980 0.936 0.921 0.863 1.021 2) s 10.73 3) t Hexachloroben... 1.545 1.449 1.380 1.300 1.309 1.231 1.090 1.079 1.011 1.266 14.22 4) t alpha-BHC 1.662 1.601 1.572 1.493 1.539 1.352 1.355 1.396 1.491 1.496 7.35 5) t gamma-BHC (li... 2.150 1.708 1.564 1.550 1.448 1.491 1.290 1.251 1.275 1.373 *L 0.998 1 6) t beta-BHC $0.779 \ 0.748 \ 0.704 \ 0.714 \ 0.615 \ 0.554 \ 0.547 \ 0.568 \ *L$ 0.999 delta-BHC 1.707 1.546 1.466 1.417 1.448 1.256 1.256 1.287 1.407 *L 0.997 7) t Heptachlor 8) t 1.855 1.709 1.621 1.558 1.573 1.340 1.240 1.219 1.275 *L 0.999 1.579 1.494 1.453 1.383 1.419 1.224 1.167 1.160 1.236 1.346 Aldrin 11.38 9) t pest10 07 0...0 uqL ical.m Fri Jul 10 00:03:53 2020 Page: 3

Method Path : I:\Pest10\200708ical\

Response Factor Report Pest 10

Method File: pest10 07 08 20 ugL ical.m Title : pest Last Update : Thu Jul 09 23:59:44 2020 Response Via: Initial Calibration Calibration Files =10200708i-03.d 2 =10200708i-17.d 3 =10200708i-05.d 4 =10200708i-06.d 5 =10200708i-07.d=10200708i-08.d 7 =10200708i-18.d 8 =10200708i-19.d 9 =10200708i-11.d 10 =10200708i-12.dCompound 1 8 %RSD 6 10 Avq 10) t Alachlor $0.215 \ 0.247 \ 0.233 \ 0.218 \ 0.227 \ 0.222 \ 0.200 \ 0.186 \ 0.169 \ 0.213$ 11.41 Chlorpyrifos 1.003 0.910 0.891 0.852 0.840 0.789 0.670 0.616 0.545 0.991 11) t 12) t Heptachlor Ep... 1.602 1.517 1.454 1.382 1.407 1.190 1.087 1.061 1.124 0.998 gamma-Chlorda... 1.742 1.684 1.567 1.548 1.250 1.145 1.120 1.223 0.997 13) t alpha-Chlorda... 1.513 1.492 1.415 1.439 1.193 1.103 1.078 1.171 0.998 14) t 15) t 4,4'-DDE 1.337 1.285 1.241 1.289 1.267 1.068 1.070 1.072 1.190 0.996 Endosulfan I 1.443 1.398 1.359 1.296 1.325 1.096 1.010 0.964 1.043 *T. 0.997 16) t 1.497 1.413 1.354 1.308 1.333 1.130 1.070 1.064 1.147 12.57 Dieldrin 1.257 17) t 18) t 1.473 1.380 1.340 1.267 1.306 1.099 1.040 1.025 1.106 0.998 Endrin 19) t 4,4'-DDD 0.985 1.017 0.929 0.958 0.987 0.845 0.823 0.814 0.898 0.917 8.30 0.997 20) t Endosulfan II 1.361 1.310 1.255 1.281 1.086 1.002 0.933 1.022 *L 21) t 4,4'-DDT 1.167 1.101 1.100 1.052 1.073 0.908 0.920 0.904 1.013 9.36 22) t Endrin Aldehyde 1.186 1.104 1.073 1.022 1.050 0.893 0.819 0.777 0.842 *L 0.998 Methoxychlor 0.552 0.584 0.553 0.473 0.460 0.441 0.465 0.504 11.29 23) t 24) t 1.208 1.119 1.065 1.016 1.027 0.947 0.807 0.752 0.700 0.995 Mirex 25) t Endosulfan Su... 1.286 1.238 1.191 1.159 1.172 0.994 0.910 0.880 0.948 *L 0.998 1

Page: 4

6

0

Method Path : I:\Pest10\200708ical\

pest10 07 0...0 uqL ical.m Fri Jul 10 00:03:53 2020

Surrogate Recovery Summary Form 2 Pesticides

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

GC Column 1: CLPPesticides
GC Column 2: CLPPesticidesII

CLIENT ID	TCX 1	TCX 2	DCB 1	DCB 2	OTHER	OTHER	тот
(LAB SAMPLE NO.)	%REC	%REC	%REC	%REC	(1)	(2)	OUT
MW17_090120 (L2036093-01)	85	61	80	84			0
MW11_090120 (L2036093-02)	104	75	76	72			0
MW15_090120 (L2036093-03)	102	77	75	73			0
MW25_090120 (L2036093-04)	69	64	64	81			0
MW28_090120 (L2036093-05)	95	85	83	107			0
WG1406393-1BLANK	96	107	85	135			0
WG1406393-2LCS	75	79	82	108			0
WG1406393-3LCSD	97	97	96	120			0
MW17_090120MS	97	67	109	98			0
MW17_090120MSD	116	84	99	105			0

QC LIMITS

(30-150) TCX = 2,4,5,6-TETRACHLORO-M-XYLENE (30-150) DCBP = DECACHLOROBIPHENYL

FORM II NYTCL-8081



^{*} Values outside of QC limits

Surrogate Recovery Summary Form 2 PCBs

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

GC Column 1: CLP-Pesticide GC Column 2: CLP-PesticideII

CLIENT ID	TCX 1	TCX 2	DCB 1	DCB 2	OTHER	OTHER	тот
(LAB SAMPLE NO.)	%REC	%REC	%REC	%REC	(1)	(2)	OUT
MW17_090120 (L2036093-01)	68	70	80	70			0
MW11_090120 (L2036093-02)	64	66	71	61			0
MW15_090120 (L2036093-03)	70	71	82	69			0
MW25_090120 (L2036093-04)	68	71	75	66			0
MW28_090120 (L2036093-05)	72	75	74	65			0
WG1406389-1BLANK	38	37	58	50			0
WG1406389-2LCS	49	47	68	59			0
WG1406389-3LCSD	41	37	69	59			0
MW17_090120MS	70	69	89	77			0
MW17_090120MSD	70	71	82	72			0

QC LIMITS

(30-150) TCX = 2,4,5,6-TETRACHLORO-M-XYLENE (30-150) DCBP = DECACHLOROBIPHENYL

FORM II NYTCL-8082-LVI



^{*} Values outside of QC limits

Laboratory Control Sample Summary Form 3 PCBs

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406389-2 Analysis Date : 09/04/20 23:28 File ID : 13200904b-24 LCSD Sample ID : WG1406389-3 Analysis Date : 09/04/20 23:37 File ID : 13200904b-25

	Laborator	Laboratory Control Sample			Laboratory Control Duplicate					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD	
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit	
Aroclor 1016	1.78	1.03	58	1.78	1.06	59	3	40-140	50	
Aroclor 1260	1.78	0.979	55	1.78	1.02	57	4	40-140	50	



Matrix Spike Sample Summary Form 3 PCBs

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Client Sample ID : MW17_090120

Lab Sample ID : L2036093-01
Matrix Spike : WG1406389-4
Matrix Spike Dup : WG1406389-5

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Matrix
 : WATER

 Analysis Date
 : 09/05/20 11:04

Analysis Date : 09/05/20 11:04 MS Analysis Date : 09/05/20 11:13 MSD Analysis Date : 09/05/20 11:22

		Matrix Sp	ike Sample		Matrix Spike Duplicate					
	Sample	Spike	Spike		Spike	Spike				
	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Aroclor 1016	ND	1.78	1.26	71	1.78	1.34	75	6	40-140	50
Aroclor 1260	ND	1.78	1.20	67	1.78	1.21	68	1	40-140	50



Surrogate Recovery Summary Form 2 Pesticides

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

GC Column 1: STX-CLP1 GC Column 2: STX-CLP2

CLIENT ID	1	2	1	2	OTHER	OTHER	TOT
(LAB SAMPLE NO.)	%REC	%REC	%REC	%REC	(1)	(2)	OUT
MW17_090120 (L2036093-01)	58	72					0
MW11_090120 (L2036093-02)	55	67					0
MW15_090120 (L2036093-03)	56	68					0
MW25_090120 (L2036093-04)	54	64					0
MW28_090120 (L2036093-05)	57	69					0
WG1406377-1BLANK	62	73					0
WG1406377-2LCS	61	82					0
WG1406377-3LCSD	58	79					0
MW17_090120MS	59	75					0
MW17_090120MSD	60	74					0

QC LIMITS
(30-150) S1 = DCAA

FORM II HERB-APA



^{*} Values outside of QC limits

Laboratory Control Sample Summary Form 3 Pesticides

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406377-2 Analysis Date : 09/04/20 12:30 File ID : 17200904a-11 LCSD Sample ID : WG1406377-3 Analysis Date : 09/04/20 12:48 File ID : 17200904a-12

	Laborator	Laboratory Control Sample			Laboratory Control Duplicate					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD	
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit	
2,4-D	5	3.19	64	5	3.13	63	2	30-150	25	
2,4,5-T	5	3.64	73	5	3.61	72	1	30-150	25	
2,4,5-TP (Silvex)	5	4.01	80	5	3.99	80	0	30-150	25	



Matrix Spike Sample Summary Form 3 Pesticides

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Client Sample ID : MW17_090120 Lab Sample ID : L2036093-01 Matrix Spike : WG1406377-6 Matrix Spike Dup : WG1406377-7

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Matrix
 : WATER

 Analysis Date
 : 09/05/20 15:12

Analysis Date : 09/05/20 15:12 MS Analysis Date : 09/05/20 15:31 MSD Analysis Date : 09/05/20 15:49

		Matrix Sp	ike Sample		Matrix Spi	ke Duplicate				
	Sample	Spike	Spike		Spike	Spike				
	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
2,4-D	ND	5	3.00J	60	5	3.02J	60	1	30-150	25
2,4,5-T	ND	5	3.46	69	5	3.51	70	1	30-150	25
2,4,5-TP (Silvex)	ND	5	3.71	74	5	3.77	75	2	30-150	25



Surrogate (Extracted Internal Standard) Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

CLIENT ID	S8	S9	S10	S11	S12	S13	S14
(LAB SAMPLE NO.)	0	()	0	()	0	0	()
MW17 090120 (L2036093-01)	211	86	71	65	186*	92	63
MW11_090120 (L2036093-02)	141	101	89	84	102	64	84
MW15_090120 (L2036093-03)	96	69	65	60	75	48	57
MW25_090120 (L2036093-04)	145	85	74	67	138	60	64
MW28_090120 (L2036093-05)	168	91	82	75	165	65	68
GWFB03_090120 (L2036093-06)	60	95	85	87	64	74	88
GWEB01_090120 (L2036093-07)	62	97	84	85	65	71	82
WG1407677-1BLANK	56	93	81	83	65	68	84
WG1407677-2LCS	56	92	83	86	66	69	82
WG1407677-3LCSD	56	87	76	77	70	61	79
MW17_090120MS	223	88	76	70	193*	87	70
MW17 090120MSD	200	81	67	65	167	77	60

QC LIMITS

(1-244) S8 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]OCTANESULFONIC ACID (M2-6:2FTS)

(34-146) S9 = PERFLUORO[13C9]NONANOIC ACID (M9PFNA)

(42-146) S10 = PERFLUORO[13C8]OCTANESULFONIC ACID (M8PFOS)

(38-144) S11 = PERFLUORO[1,2,3,4,5,6-13C6]DECANOIC ACID (M6PFDA)

 $(7\text{-}170) \hspace{1.5cm} \textbf{S12} = \textbf{1H}, \textbf{1H}, \textbf{2H}, \textbf{2H} - \textbf{PERFLUORO} \\ \textbf{[1,2-13C2]} \textbf{DECANESULFONIC ACID (M2-8:2FTS)}$

(1-181) S13 = N-DEUTERIOMETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D3-NMEFOSAA)

(1-181) S14 = PERFLUORO[1,2,3,4,5,6,7-13C7]UNDECANOIC ACID (M7-PFUDA)

FORM II A2-NY-537-ISOTOPE (Continued)



^{*} Values outside of QC limits

Surrogate (Extracted Internal Standard) Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036093 Project Number: 170381202

Matrix: Water

CLIENT ID	S15	S16	S17	S18	S19	S20	S21	TOT
(LAB SAMPLE NO.)	0	()	()	()	()	()	()	OUT
MW17_090120 (L2036093-01)	38	84	61	68				1
MW11_090120 (L2036093-02)	26	73	75	76				0
MW15_090120 (L2036093-03)	9	46	58	59				0
MW25_090120 (L2036093-04)	14	62	62	60				0
MW28_090120 (L2036093-05)	19	46	64	65				0
GWFB03_090120 (L2036093-06)	42	76	85	86				0
GWEB01_090120 (L2036093-07)	38	59	78	85				0
WG1407677-1BLANK	43	83	84	80				0
WG1407677-2LCS	43	78	85	86				0
WG1407677-3LCSD	36	70	85	79				0
MW17_090120MS	36	88	72	73				1
MW17_090120MSD	33	77	56	58				0

QC LIMITS

(1-87) S15 = PERFLUORO[13C8]OCTANESULFONAMIDE (M8FOSA)

(23-146) S16 = N-DEUTERIOETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D5-NETFOSAA)

(24-161) S17 = PERFLUORO[1,2-13C2]DODECANOIC ACID (MPFDOA)
(33-143) S18 = PERFLUORO[1,2-13C2]TETRADECANOIC ACID (M2PFTEDA)

FORM II A2-NY-537-ISOTOPE (Continued)



^{*} Values outside of QC limits

Alpha Analytical Inc.

 $C:\\\label{lem:condition} C:\\\label{lem:condition} C:\\\label{lem:condition} Data\\\label{lem:condition} Dataset:

Last Altered: Thursday, August 20, 2020 09:35:23 Eastern Daylight Time Thursday, August 20, 2020 09:36:25 Eastern Daylight Time Printed:

ID: CA2-537STD010 Name: I25147 Date: 19-Aug-2020 Time: 20:39:50

Description: WG1400515,,537ISO_ICV_200521 Instrument: XEVO-TQSmicro#QEA0276

User: LCMS01:RS

Inlet Method Name: C:\MassLynx\Data\2020\200819_537ISO.PRO\ACQUDB\LCMS_537_ISO_MeOH Tune Method Name: C:\MassLynx\Data\2020\200819_537ISO.PRO\ACQUDB\200512_TUNE.IPR

MS Method Name: C:\MassLynx\Data\2020\200819_537ISO.PRO\ACQUDB\537ISO28_M_SPAN_DOD.EXP

	Name	CAS	RT	Trace	Area M Flag	Conc (ng/mL)	Ion Ratio	Ratio Flag	%Rec
40	d3-NMeFOSAA	INT STD	10.93	573.096 > 418.987	5807	8.461		na	84.6
41	br-NMeFOSAA	2355-31-9		570.053 > 418.917		ND		YES	
42	L-NMeFOSAA	2355-31-9	10.93	570.053 > 418.917	6259	10.436	4.25	NO	137.3
43	NMeFOSAA	2355-31-9		570.053 > 418.917	6259	10.436		na	
44	PFUnA	2058-94-8	11.07	562.989 > 518.903	43106	9.890	5.02	NO	98.9
45	M7-PFUDA	INT STD	11.07	570.053 > 524.923	44117	10.249		na	102.5
46	PFDS	335-77-3	11.08	598.926 > 80.314	6850	8.509	1.48	NO	88.2
47	FOSA	754-91-6	11.04	497.989 > 78.245	25408 m7	9.458	285.55	NO	94.6
48	M8FOSA	INT STD	11.03	506.053 > 78.286	24695	9.421		na	94.2
49	d5-NEtFOSAA	INT STD	11.22	589.117 > 418.929	4365	8.291		na	82.9
50	br-NEtFOSAA	2991-50-6		583.989 > 418.927		ND		YES	
51	L-NEtFOSAA	2991-50-6	11.22	583.989 > 418.927	4992	10.501	3.75	NO	135.5
52	NEtFOSAA	2991-50-6		583.989 > 418.927	4992	10.501		na	
53	PFDoA	307-55-1	11.53	612.989 > 568.967	44682	8.606	8.18	NO	86.1
54	MPFDOA	INT STD	11.53	614.989 > 569.92	38644	9.769		na	97.7
55	PFTrDA	72629-94-8	11.94	663.053 > 618.969	51454	9.740	6.88	NO	97.4
56	PFTA	376-06-7	12.29	713.053 > 668.976	41354	10.611	4.59	NO	106.1
57	M2PFTEDA	INT STD	12.29	715.053 > 669.945	37686	9.178		na	91.8
58	M3HFPO-DA	INT STD	7.34	287.02 > 169.022	9374	118.051		na	59.0
59	HFPO-DA	13252-13-6	7.34	285.035 > 169.022	7703	216.323	3.16	NO	108.2
60	ADONA	958445-44-8	8.38	376.926 > 251.005	101321	8.876		na	93.8
61	PFHxDA		12.72	813.053 > 769.005	25679	12.159		na	121.6
62	PFODA		12.90	913.411 > 869.131	12908	10.171		na	101.7
63	M2PFHxDA		12.72	815.372 > 770.158	21748	8.714		na	87.1
64	PFDoS		11.93	699.15 > 79.853	10960	12.176	2.10	NO	121.8
65	10:2FTS		11.55	627.192 > 607.186	3500	10.219		na	106.0
66	9CL-PF3ONS		10.32	530.862 > 350.843	27754	9.126		na	97.9
67	11CL-PFOUdS		11.34	630.862 > 450.854	19018	9.176		na	97.4

Calibration Verification Summary Form 7 Semivolatiles

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

 Lab File ID
 : 126100
 Init. Calib. Date(s)
 : 08/19/20

 Sample No
 : WG1407927-1
 Init. Calib. Times
 : 18:10
 20:06

Channel:

	Concentration	True Value		
Compound	(ng/ml)	(ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	0.416	0.500	83.2	50-150
Perfluoropentanoic Acid (PFPeA)	0.439	0.500	87.8	50-150
Perfluorobutanesulfonic Acid (PFBS)	0.312	0.440	70.6	50-150
Perfluorohexanoic Acid (PFHxA)	0.475	0.500	95.1	50-150
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.353	0.470	75.6	50-150
Perfluoropentanesulfonic Acid (PFPeS)	0.357	0.470	76	50-150
Perfluoroheptanoic Acid (PFHpA)	0.406	0.500	81.2	50-150
Perfluorohexanesulfonic Acid-Branched (br-PFHxS)	0.049	0.086	58	50-150
Perfluorohexanesulfonic Acid-Linear (L-PFHxS)	0.260	0.370	70.3	50-150
Perfluorohexanesulfonic Acid (PFHxS)	0.309	0.460	-	50-150
Perfluorooctanoic Acid-Branched (br-PFOA)			-	50-150
Perfluorooctanoic Acid-Linear (L-PFOA)	0.407		81.5	50-150
Perfluorooctanoic Acid (PFOA)	0.407	0.500	-	50-150
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.373	0.480	78.5	50-150
Perfluoroheptanesulfonic Acid (PFHpS)	0.291	0.480	61.3	50-150
Perfluorononanoic Acid (PFNA)	0.409	0.500	81.9	50-150
Perfluorooctanesulfonic Acid-Branched (br-PFOS)	0.080	0.098	81.5	50-150
Perfluorooctanesulfonic Acid-Linear (L-PFOS)	0.301	0.365	82.2	50-150
Perfluorooctanesulfonic Acid (PFOS)	0.381	0.460	-	50-150
Perfluorodecanoic Acid (PFDA)	0.439	0.500	87.9	50-150
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.381	0.480	79.3	50-150
Perfluorononanesulfonic Acid (PFNS)	0.382	0.480	79.7	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.281	0.500	-	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NMeFOSAA)	0.044		36.9*	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NMeFOSAA)	0.237	0.500	62.3	50-150
Perfluoroundecanoic Acid (PFUnA)	0.343	0.500	68.6	50-150
Perfluorodecanesulfonic Acid (PFDS)	0.302	0.480	62.6	50-150
Perfluorooctanesulfonamide (FOSA)	0.444	0.500	88.9	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.307	0.500	-	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NEtFOSAA)	0.062		55.5	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NEtFOSAA)	0.244	0.500	63	50-150
Perfluorododecanoic Acid (PFDoA)	0.381	0.500	76.2	50-150
Perfluorotridecanoic Acid (PFTrDA)	0.428	0.500	85.5	50-150
Perfluorotetradecanoic Acid (PFTA)	0.462	0.500	92.3	50-150
Perfluoro[13C4]Butanoic Acid (MPFBA)	10.021	10.000	100.2	50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	10.113	10.000	101.1	50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	9.693	10.000	96.9	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	6.036	10.000	60.4	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	10.432	10.000	104.3	50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	10.217	10.000	102.2	50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	9.701	10.000	97	50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	9.994	10.000	99.9	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	5.590	10.000	55.9	50-150

^{*} Value outside of QC limits.



Calibration Verification Summary Form 7 Semivolatiles

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

 Lab File ID
 : 126122
 Init. Calib. Date(s)
 : 08/19/20
 08/19/20

 Sample No
 : WG1407927-3
 Init. Calib. Times
 : 18:10
 20:06

Channel :

	Concentration	True Value		
Compound	(ng/ml)	(ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	0.404	0.500	80.8	50-150
Perfluoropentanoic Acid (PFPeA)	0.442	0.500	88.4	50-150
Perfluorobutanesulfonic Acid (PFBS)	0.306	0.440	69.1	50-150
Perfluorohexanoic Acid (PFHxA)	0.466	0.500	93.2	50-150
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.343	0.470	73.4	50-150
Perfluoropentanesulfonic Acid (PFPeS)	0.315	0.470	67.1	50-150
Perfluoroheptanoic Acid (PFHpA)	0.420	0.500	84.1	50-150
Perfluorohexanesulfonic Acid-Branched (br-PFHxS)	0.057	0.086	66.9	50-150
Perfluorohexanesulfonic Acid-Linear (L-PFHxS)	0.268	0.370	72.5	50-150
Perfluorohexanesulfonic Acid (PFHxS)	0.325	0.460	-	50-150
Perfluorooctanoic Acid-Branched (br-PFOA)			-	50-150
Perfluorooctanoic Acid-Linear (L-PFOA)	0.407		81.3	50-150
Perfluorooctanoic Acid (PFOA)	0.407	0.500	-	50-150
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.450	0.480	94.7	50-150
Perfluoroheptanesulfonic Acid (PFHpS)	0.330	0.480	69.5	50-150
Perfluorononanoic Acid (PFNA)	0.395	0.500	79.1	50-150
Perfluorooctanesulfonic Acid-Branched (br-PFOS)	0.088	0.098	90.2	50-150
Perfluorooctanesulfonic Acid-Linear (L-PFOS)	0.277	0.365	75.7	50-150
Perfluorooctanesulfonic Acid (PFOS)	0.366	0.460	-	50-150
Perfluorodecanoic Acid (PFDA)	0.460	0.500	91.9	50-150
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.328	0.480	68.4	50-150
Perfluorononanesulfonic Acid (PFNS)	0.359	0.480	74.8	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.418	0.500	-	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NMeFOSAA)	0.055		45.9*	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NMeFOSAA)	0.363	0.500	95.4	50-150
Perfluoroundecanoic Acid (PFUnA)	0.312	0.500	62.3	50-150
Perfluorodecanesulfonic Acid (PFDS)	0.286	0.480	59.4	50-150
Perfluorooctanesulfonamide (FOSA)	0.341	0.500	68.1	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.475	0.500	-	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NEtFOSAA)	0.023		20.7*	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NEtFOSAA)	0.452	0.500	116.7	50-150
Perfluorododecanoic Acid (PFDoA)	0.435	0.500	87.1	50-150
Perfluorotridecanoic Acid (PFTrDA)	0.435	0.500	87.1	50-150
Perfluorotetradecanoic Acid (PFTA)	0.472	0.500	94.4	50-150
Perfluoro[13C4]Butanoic Acid (MPFBA)	10.073	10.000	100.7	50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	10.806	10.000	108.1	50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	9.608	10.000	96.1	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	6.391	10.000	63.9	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	10.525	10.000	105.2	50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	10.327	10.000	103.3	50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	9.890	10.000	98.9	50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	10.058	10.000	100.6	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	5.729	10.000	57.3	50-150
,,	•		<u> </u>	

^{*} Value outside of QC limits.



Form 3 Blanks

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Instrument ID : ICPMSQ2

		Initial Cali Blank	bration	Continuing Calibration Blank(s)					Preparation Blank		
	Lab ID :	R1346253	-2	R1346253	-5	R1346253	-7	R1346253-	.9	WG1405823-	1
	Date Analyzed:	09/03/20 0	8:21	09/03/20 0	8:46	09/03/20 0	9:45	09/03/20 1	0:49	09/03/20 11:5	54
Parameter		ug/l	Q	ug/l	Q	ug/l	Q	ug/l	Q	mg/l	Q
Aluminum		3.27	U	3.27	U	3.27	U	3.27	U	0.00327	U
Antimony		0.429	U	0.429	U	0.429	U	0.429	U	0.00042	U
Arsenic		0.165	U	0.165	U	0.165	U	0.165	U	0.00016	U
Barium		0.173	U	0.173	U	0.173	U	0.173	U	0.00017	U
Beryllium		0.107	U	0.107	U	0.107	U	0.107	U	0.00010	U
Cadmium		0.0599	U	0.0599	U	0.0599	U	0.0599	U	0.00005	U
Calcium		39.4	U	39.4	U	39.4	U	39.4	U	0.0394	U
Chromium		0.178	U	0.178	U	0.178	U	0.178	U	0.00017	U
Cobalt		0.163	U	0.163	U	0.163	U	0.163	U	0.00016	U
Copper		0.384	U	0.384	U	0.384	U	0.384	U	0.00038	U
Iron		20.1	J	30.3	J	28.0	J	19.1	U	0.0191	U
Lead		0.343	U	0.343	U	0.343	U	0.343	U	0.00034	U
Magnesium	1	24.2	U	24.2	U	24.2	U	24.2	U	0.0242	U
Manganese	•	0.440	U	0.440	U	0.440	U	0.440	U	0.00044	U
Nickel		0.556	U	0.556	U	0.556	U	0.556	U	0.00055	U
Potassium		30.9	U	30.9	U	30.9	U	30.9	U	0.0309	U
Selenium		1.73	U	1.73	U	1.73	U	1.73	U	0.00173	U
Silver		0.163	U	0.163	U	0.163	U	0.163	U	0.00016	U
Sodium		29.3	U	29.3	U	29.3	U	29.3	U	0.0293	U
Thallium		0.344	J	0.374	J	0.350	J	0.143	U	0.00014	U
Vanadium		1.57	U	1.57	U	1.57	U	1.57	U	0.00157	U
Zinc		3.41	U	3.41	U	3.41	U	3.41	U	0.00341	U



Form 3 **Blanks**

: L2036093

Client : Langan Engineering & Environmental Lab Number

Project Name

Instrument ID

: 250 WATER STREET Project Number : 170381202 : ICPMSQ2

		Initial Cal	ibration	Continuin Blank(s)	g Calibrati	ion				Preparation Blank
	Lab ID :			R1346253		R1346253		R1346253-		
	Date Analyzed:			09/03/20 1		09/03/20 1		09/03/20 13		
Parameter		ug/l	Q	ug/l	Q	ug/l	Q	ug/l	Q	Q
Aluminum				3.27	U	3.27	U	3.27	U	
Antimony				0.429	U	0.429	U	0.429	U	
Arsenic				0.165	U	0.165	U	0.165	U	
Barium				0.173	U	0.173	U	0.173	U	
Beryllium				0.107	U	0.107	U	0.107	U	
Cadmium				0.0599	U	0.0599	U	0.0599	U	
Calcium				39.4	U	39.4	U	39.4	U	
Chromium				0.178	U	0.178	U	0.178	U	
Cobalt				0.163	U	0.163	U	0.163	U	
Copper				0.384	U	0.384	U	0.384	U	
Iron				25.7	J	33.8	J	24.1	J	
Lead				0.343	U	0.343	U	0.343	U	
Magnesium	l			24.2	U	24.2	U	24.2	U	
Manganese)			0.440	U	0.440	U	0.440	U	
Nickel				0.556	U	0.556	U	0.556	U	
Potassium				30.9	U	30.9	U	30.9	U	
Selenium				1.73	U	1.73	U	1.73	U	
Silver				0.163	U	0.163	U	0.163	U	
Sodium				29.3	U	29.3	U	29.3	U	
Thallium				0.358	J	0.380	J	0.374	J	
Vanadium				1.57	U	1.57	U	1.57	U	
Zinc				3.41	U	3.41	U	3.41	U	



Form 3 Blanks

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Continuing Calibration

Blank(s)

24.2

0.440

0.556

30.9

1.73

0.163

29.3

0.384

1.57 3.41 U

U

U

U

U

U

U

J

U

U

Instrument ID : ICPMSQ2

Initial Calibration

Blank

R1346253-18 Lab ID Date Analyzed: 09/03/20 14:49 **Parameter** Q ug/l Q ug/l Q ug/l Q Q ug/l **Aluminum** 3.27 U 0.429 U Antimony Arsenic 0.165 U Barium 0.173 U Beryllium 0.107 U 0.0599 U Cadmium Calcium 39.4 U Chromium 0.178 U Cobalt 0.163 U Copper 0.384 U Iron 28.3 J Lead 0.343 U



Preparation

Blank

Magnesium

Manganese Nickel

Potassium

Selenium

Silver

Sodium

Thallium

Vanadium

Zinc

Form 3 Blanks

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Instrument ID : ICPMSQ2

		Initial Cali Blank	bration	Continuing Calibration Blank(s)					Preparation Blank	•		
	Lab ID :	R1346253	-2	R1346253	-5	R1346253-	-7	R1346253-	9	WG1405802-	1	
	Date Analyzed:	09/03/20 0	8:21	09/03/20 0	8:46	09/03/20 0	9:45	09/03/20 10	0:49	09/03/20 13:5	5	
Parameter		ug/l	Q	ug/l	Q	ug/l	Q	ug/l	Q	mg/l	Q	
Aluminum		3.27	U	3.27	U	3.27	U	3.27	U	0.00327	U	
Antimony		0.429	U	0.429	U	0.429	U	0.429	U	0.00042	U	
Arsenic		0.165	U	0.165	U	0.165	U	0.165	U	0.00016	U	
Barium		0.173	U	0.173	U	0.173	U	0.173	U	0.00017	U	
Beryllium		0.107	U	0.107	U	0.107	U	0.107	U	0.00010	U	
Cadmium		0.0599	U	0.0599	U	0.0599	U	0.0599	U	0.00005	U	
Calcium		39.4	U	39.4	U	39.4	U	39.4	U	0.0394	U	
Chromium		0.178	U	0.178	U	0.178	U	0.178	U	0.00017	U	
Cobalt		0.163	U	0.163	U	0.163	U	0.163	U	0.00016	U	
Copper		0.384	U	0.384	U	0.384	U	0.384	U	0.00038	U	
Iron		20.1	J	30.3	J	28.0	J	19.1	U	0.0191	U	
Lead		0.343	U	0.343	U	0.343	U	0.343	U	0.00034	U	
Magnesium	1	24.2	U	24.2	U	24.2	U	24.2	U	0.0242	U	
Manganese	•	0.440	U	0.440	U	0.440	U	0.440	U	0.00044	U	
Nickel		0.556	U	0.556	U	0.556	U	0.556	U	0.00055	U	
Potassium		30.9	U	30.9	U	30.9	U	30.9	U	0.0309	U	
Selenium		1.73	U	1.73	U	1.73	U	1.73	U	0.00173	U	
Silver		0.163	U	0.163	U	0.163	U	0.163	U	0.00016	U	
Sodium		29.3	U	29.3	U	29.3	U	29.3	U	0.0293	U	
Thallium		0.344	J	0.374	J	0.350	J	0.143	U	0.00014	U	
Vanadium		1.57	U	1.57	U	1.57	U	1.57	U	0.00157	U	
Zinc		3.41	U	3.41	U	3.41	U	3.41	U	0.00341	U	



Form 3 **Blanks**

: L2036093

Preparation

Client : Langan Engineering & Environmental Lab Number

Project Name : 250 WATER STREET

Instrument ID

Project Number : 170381202 : ICPMSQ2 **Initial Calibration Continuing Calibration**

		Blank		Blank(s)						Blank	_
	Lab ID :			R1346253-		R1346253-		R1346253-			
	Date Analyzed:			09/03/20 11		09/03/20 12		09/03/20 13			
Parameter		ug/l	Q	ug/l	Q	ug/l	Q	ug/l	Q	Q	
Aluminum				3.27	U	3.27	U	3.27	U		
Antimony				0.429	U	0.429	U	0.429	U		
Arsenic				0.165	U	0.165	U	0.165	U		
Barium				0.173	U	0.173	U	0.173	U		
Beryllium				0.107	U	0.107	U	0.107	U		
Cadmium				0.0599	U	0.0599	U	0.0599	U		
Calcium				39.4	U	39.4	U	39.4	U		
Chromium				0.178	U	0.178	U	0.178	U		
Cobalt				0.163	U	0.163	U	0.163	U		
Copper				0.384	U	0.384	U	0.384	U		
Iron				25.7	J	33.8	J	24.1	J		
Lead				0.343	U	0.343	U	0.343	U		
Magnesium	1			24.2	U	24.2	U	24.2	U		
Manganese)			0.440	U	0.440	U	0.440	U		
Nickel				0.556	U	0.556	U	0.556	U		
Potassium				30.9	U	30.9	U	30.9	U		
Selenium				1.73	U	1.73	U	1.73	U		
Silver				0.163	U	0.163	U	0.163	U		
Sodium				29.3	U	29.3	U	29.3	U		
Thallium				0.358	J	0.380	J	0.374	J		
Vanadium				1.57	U	1.57	U	1.57	U		
Zinc				3.41	U	3.41	U	3.41	U		



Form 3 **Blanks**

Client : Langan Engineering & Environmental Lab Number : L2036093 Project Number : 170381202

Project Name : 250 WATER STREET

Instrument ID : ICPMSQ2

		Initial Ca Blank	alibration	Continuir Blank(s)	g Calibr	ation				Preparation Blank
	Lab ID : Date Analyzed :			R1346253		R1346253 09/03/20 1		R1346253 09/03/20 1		
Parameter		ug/l	Q	ug/l	Q	ug/l	Q	ug/l	Q	Q
Aluminum				3.27	U	3.27	U	3.27	U	
Antimony				0.429	U	0.429	U	0.429	U	
Arsenic				0.165	U	0.165	U	0.165	U	
Barium				0.173	U	0.173	U	0.173	U	
Beryllium				0.107	U	0.107	U	0.107	U	
Cadmium				0.0599	U	0.0599	U	0.0599	U	
Calcium				39.4	U	39.4	U	39.4	U	
Chromium				0.178	U	0.178	U	0.178	U	
Cobalt				0.163	U	0.163	U	0.163	U	
Copper				0.384	U	0.384	U	0.384	U	
Iron				28.3	J	25.3	J	28.5	J	
Lead				0.343	U	0.343	U	0.343	U	
Magnesium				24.2	U	24.2	U	24.2	U	
Manganese				0.440	U	0.440	U	0.440	U	
Nickel				0.556	U	0.556	U	0.556	U	
Potassium				30.9	U	30.9	U	30.9	U	
Selenium				1.73	U	1.73	U	1.73	U	
Silver				0.163	U	0.163	U	0.163	U	
Sodium				29.3	U	29.3	U	29.3	U	
Thallium				0.384	J	0.397	J	0.437	J	
Vanadium				1.57	U	1.57	U	1.57	U	
Zinc				3.41	U	3.41	U	3.41	U	



Form 15 ICP-MS Internal Standards Relative Intensity Summary

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Instrument ID : ICPMSQ2 Start Date : 09/03/20

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Analysis Method
 : 1,6020B

 End Date
 : 09/03/20

Sample #	Time	Intern	al Standards %RI	For:			
		Lithium	Scandium	Ge	In	Bismuth	
R1346253-1 ICV	08:16:24	110	122	119	124	125	
R1346253-2 ICB	08:21:20	86	84	100	101	103	
R1346253-3 ICSA	08:31:16	104	126	128	133	132	
R1346253-4 CCV	08:41:07	96	104	121	130	131	
R1346253-5 CCB	08:46:04	90	90	100	105	108	
R1346253-6 CCV	09:40:08	91	104	110	120	131	
R1346253-7 CCB	09:45:05	75	74	92	99	108	
R1346253-8 CCV	10:39:01	79	94	104	115	126	
R1346253-9 CCB	10:49:16	70	76	94	101	111	
R1346253-11 CCV	11:44:05	86	98	114	127	136	
R1346253-12 CCB	11:49:02	74	76	94	103	116	
WG1405823-1 BLANK	11:54:00	81	79	100	107	117	
WG1405823-2 LCS	11:58:53	90	94	112	121	134	
R1346253-13 CCV	12:43:03	92	102	116	128	135	
R1346253-14 CCB	12:48:01	79	77	95	102	108	
L2036093-01	12:54:26	101	107	132	140	137	
WG1405823-3 MS	12:59:19	101	104	124	129	136	
WG1405823-4 MSD	13:04:13	98	100	121	128	133	
WG1405823-6 SERDIL	13:14:02	98	98	124	132	137	
L2036093-02	13:38:35	105	109	134	143	146	
R1346253-15 CCV	13:44:57	99	109	120	133	139	
R1346253-16 CCB	13:49:55	85	85	100	108	114	
L2036093-03	14:24:59	105	109	128	133	129	
L2036093-04	14:29:52	106	105	122	130	132	
L2036093-05	14:34:45	103	113	116	124	120	
R1346253-17 CCV	14:44:34	93	99	110	119	124	
R1346253-18 CCB	14:49:32	78	75	87	93	98	



Form 15 ICP-MS Internal Standards Relative Intensity Summary

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Instrument ID : ICPMSQ2 Start Date : 09/03/20

 Lab Number
 : L2036093

 Project Number
 : 170381202

 Analysis Method
 : 1,6020B

 End Date
 : 09/03/20

Sample #	Time	Intern	al Standards %RI	For:			
		Lithium	Scandium	Ge	In	Bismuth	
R1346253-1 ICV	08:16:24	110	122	119	124	125	
R1346253-2 ICB	08:21:20	86	84	100	101	103	
R1346253-3 ICSA	08:31:16	104	126	128	133	132	
R1346253-4 CCV	08:41:07	96	104	121	130	131	
R1346253-5 CCB	08:46:04	90	90	100	105	108	
R1346253-6 CCV	09:40:08	91	104	110	120	131	
R1346253-7 CCB	09:45:05	75	74	92	99	108	
R1346253-8 CCV	10:39:01	79	94	104	115	126	
R1346253-9 CCB	10:49:16	70	76	94	101	111	
R1346253-11 CCV	11:44:05	86	98	114	127	136	
R1346253-12 CCB	11:49:02	74	76	94	103	116	
R1346253-13 CCV	12:43:03	92	102	116	128	135	
R1346253-14 CCB	12:48:01	79	77	95	102	108	
R1346253-15 CCV	13:44:57	99	109	120	133	139	
R1346253-16 CCB	13:49:55	85	85	100	108	114	
WG1405802-1 BLANK	13:55:32	90	86	102	110	117	
WG1405802-2 LCS	14:00:25	96	96	118	128	135	
WG1405802-5 PS	14:05:19	93	96	120	130	136	
WG1405802-3 MS	14:10:15	98	95	122	130	135	
WG1405802-4 MSD	14:15:09	95	94	121	130	135	
L2036093-01	14:20:04	108	115	128	139	133	
WG1405802-6 SERDIL	14:39:39	96	94	115	125	126	
R1346253-17 CCV	14:44:34	93	99	110	119	124	
R1346253-18 CCB	14:49:32	78	75	87	93	98	
L2036093-02	15:29:54	119	123	137	146	150	
L2036093-03	15:34:48	113	117	126	130	127	
R1346253-19 CCV	15:44:37	107	118	118	129	134	



Form 15 **ICP-MS Internal Standards Relative Intensity Summary**

: L2036093

Client : Langan Engineering & Environmental Lab Number

: 250 WATER STREET **Project Name** Project Number : 170381202 Analysis Method : 1,6020B Instrument ID : ICPMSQ2

Start Date : 09/03/20 **End Date** : 09/03/20

Sample #	Time	Intern	al Standards %RI	For:			
		Lithium	Scandium	Ge	In	Bismuth	
R1346253-20 CCB	15:49:35	95	92	94	99	106	
L2036093-04	15:54:36	118	114	127	136	136	
L2036093-05	15:59:31	107	119	123	130	129	
R1346253-21 CCV	17:16:49	100	111	118	129	128	
R1346253-22 CCB	17:21:46	90	90	95	102	102	





November 6, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Alpha Analytical Laboratories – Groundwater Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic and inorganic analyses parameters by Alpha Analytical Laboratories for seven groundwater samples, one trip blank, one equipment blank and two field blanks from the 250 Water Street site, which were reported in a single data package under Job No. L2036293, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

MW33_090220	MW31_090220
MW34_090220	MW32_090220
MW26_090220	MW30_090220
GWDUP01 090220	GWFB02 090220
GWFB04 090220	GWEB01 090220
TR01 000220	_

TB01_090220

Analyses were performed in accordance with SW846 Methods 8260C, 8270D, 8270D Selected Ion Monitoring (SIM), 8081B, 8082A, 8151A, 7470A, 6020B, 7196A, 9010C and USEPA Method 537 Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method, "DER-10/Technical Guidance for Site Investigation and Remediation" and "Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020'. Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	No – see Documentation Section
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes

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Data Usability Summary Report	
6. Have the correct data qualifiers been used and are they consistent wi the most current DEC ASP?	th Yes
7. Have any quality control (QC) exceedances been specifically noted the DUSR and have the corresponding QC summary sheet from the da package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

Volatile Organics

- The results for dichlorodifluoromethane in GWFB02_090220 and TB01_090220 were qualified as estimated (UJ) due to unacceptable percent difference in the second source initial calibration verification (ICV) standard.
- The results for dichlorodifluoromethane, vinyl acetate, 2-butanone, 4-methyl-2-pentanone, 2-hexanone and 1,2-dibromo-3-chloropropane in GWFB02_090220 and TB01_090220 were qualified as estimated (J-, UJ) due to low response in the continuing calibration (CC) standard.
- The results for bromomethane in MW33_090220, MW31_090220, MW34_090220, MW32_090220, MW26_090220, MW30_090220 and GWDUP01_090220 were qualified as estimated (J-, UJ) due to low response in the CC standard.
- The results for dichlorodifluoromethane and 2-hexanone in GWFB02_090220 and TB01_090220 were qualified as estimated (UJ) based on low laboratory control sample (LCS) duplicate (LCSD) recoveries.

Semi-Volatile Organics (Full Scan Analysis)

- The results for all acid extractable compounds in MW26_090220, GWDUP01_090220 and GWFB02_090220 were qualified as estimated (UJ) because two acid surrogates exhibited low recoveries.
- The results for the following compounds in MW33_090220, MW31_090220, MW34_090220, MW32_090220 and MW30_090220 were qualified as estimated (J-, UJ) because phenol-d₅ exhibited low recovery:

phenol benzoic acid 2-chlorophenol 2-methylphenol 3&4-methylphenol 2-nitrophenol 2,4-dimethylphenol 2,4-dichlorophenol 2,4-dichlorophenol 2,4,5-trichlorophenol

• Sample results were qualified as estimated (J-,UJ) due to low recoveries in the LCS/LCSD and/or high relative percent difference (RPD). Please refer to Section B.2 for details.

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The results for benzoic acid in all samples except MW34_090220 were rejected (R) because the LCS and/or LCSD recoveries were <10%. The result for benzoic acid in MW34_090220 was qualified as estimated (J) due to low LCSD recovery and high RPD.

Semi-Volatile Organics (Selected Ion Monitoring [SIM] Analysis)

- The results for benzo(a)anthracene in all samples were qualified as estimated (J, UJ) due to unacceptable recovery in the lowest concentration standard in the initial calibration (IC).
- The results for benzo(a)anthracene, benzo(k)fluoranthene and chrysene in GWDUP01_090220 and phenanthrene in MW32_090220 and MW26_090220 were qualified as not detected (U) at the reporting limit due to detections in the method blank.
- The result for naphthalene in GWFB02_090220 was qualified as not detected (U) at the reporting limit due to a detection in the field blank.
- The results for pentachlorophenol in MW33_090220, MW26_090220 and GWFB02_090220 were qualified as estimated (UJ) because two or more acid surrogates exhibited low recoveries.
- The results for pyrene in MW26_090220, MW32_090220 and MW34_090220 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery.
- The results for benzo(a)anthracene, benzo(b)fluoranthene and pyrene in MW33_090220 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery.
- The results for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, benzo(g,h,i)perylene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene in MW30_090220 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery.
- Sample results for GWDUP01_090220 were qualified as estimated (UJ) due to low recoveries in the LCS and/or LCSD. Please refer to Section C.4 for details.
- The results for fluoranthene in MW33_090220, MW31_090220, MW34_090220, MW32_090220, MW26_090220 and MW30_090220, pyrene in MW30_090220, MW31_090220, MW33_090220, MW34_090220, MW32_090220 and MW26_090220 and benzo(k)fluoranthene, benzo(ghi)perylene, dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene in MW30_090220 were qualified as estimated (J+) due to high recovery in the LCS and/or LCS.
- The following sample results were qualified as estimated (J) and presumptively present (N) because the ion ratio was outside acceptance limits:
 - o MW33 090220
 - Benzo(a)anthracene

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- Benzo(b)fluoranthene
- Acenaphthylene
- o MW31 090220
 - Acenaphthylene
- o MW34 090220
 - Fluoranthene
 - Anthracene
 - Fluorene
 - Pyrene
- o MW32 090220
 - Fluoranthene
 - Pyrene
- o MW26 090220
 - Pyrene
 - 2-Methylnphthatlene
- o MW30 090220
 - Acenaphthene
 - Benzo(a)anthracene
 - Benzo(b)fluoranthene
 - Anthracene
 - Benzo(g,hi)perylene
 - Dibenz(a,h)anthracene
 - Indeno(1,2,3-c,d)pyrene
 - Pyrene
- o GWDUP01 090220
 - Fluoranthene
 - Naphthalene
 - Anthracene
 - Benzo(g,h,i)perylene
 - Dibenz(a,h)anthracene
 - Indeno(1,2,3-c,d)pyrene

Pesticides

- The results for endosulfan I in MW33_090220, MW32_090220, MW26_090220, MW34_090220 and GWFB02_090220 were qualified as estimated (UJ) due to unacceptable recovery in the lowest concentration standard in the IC.
- The results for all pesticide compounds in MW26_090220, MW30_090220 and GWDUP01_090220 were qualified as estimated (UJ) because one or more surrogates exhibited low recoveries on both analytical columns.
- Sample results were qualified as estimated (UJ) due to low recoveries in the LCS/ LCSD and/or RPD. Please refer to Section E.3 for details.

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PCBs

- The results for all Aroclors in all samples were qualified as estimated (J-,UJ) due low surrogate recoveries on both analytical columns.
- The results for all Aroclors in all samples were qualified as estimated (J-, UJ) due to low recoveries in the LCS/LCSD.

Herbicides

The results for all herbicide compounds in MW34_090220, MW32_090220, MW26_090220 and GWDUP01_090220 were qualified as estimated (UJ) because a low surrogate recovery was exhibited on both analytical columns.

Metals

- The results for total and dissolved thallium in MW33_090220 and total thallium and iron in GWFB02_090220 were qualified as not detected (U) at the reporting limit due to detections in associated blanks.
- Sample results were qualified as estimated (J, UJ) due to unacceptable percent recoveries in the internal standards. Please refer to Section H.2 for details.

Per- and Polyfluoroalkyl Substances (PFAS)

- The results for NMeFOSAA in all samples were qualified as estimated (J, UJ) due to unacceptable %D in the ICV.
- The results for NMeFOSAA in all samples were qualified as estimated (J-,UJ) due to low recoveries in the CC standard.
- The results for perfluoroundecanoic acid (PFUnA) were qualified as not detected (U) at the reporting limit in MW31_090220, MW34_090220, MW30_090220 and GWDUP01_090220 because the sample concentration was less than ten times the method blank concentration.
- The results for perfluorooctanesulfonamide (FOSA) in all samples except MW31_090220 were qualified as estimated (J-, UJ) due to low recovery in the labeled analog.
- The results for 1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2FTS) in MW31_090220, MW34_090220, MW32_090220 and GWDUP01_090220 were qualified as estimated (J+) due to high recovery in the labeled analog.
- The results for 1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2FTS) in GWDUP01_090220 was qualified as estimated (J+) due to high recovery in the labeled analog.

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- Sample results were qualified as estimated (J, UJ) as detailed in Section I.4 due to low internal standard area response.
- The results for perfluorononanoic acid (PFNA) in MW33_090220, MW31_090220, MW34_090220, MW32_090220, MW26_090220, MW30_090220 and GWDUP01_090220 and PFUnA in MW33_090220 and MW32_090220 were qualified as estimated (J+) as detailed above to high recovery in the MS.

Cyanide

 The results for cyanide in MW33_090220, MW31_090220, MW32_090220, MW30_090220 and GWDUP01_090220 were qualified as not detected (U) at the reporting limit due to blank detection of cyanide.

Region II qualifier definitions are provided in Attachment A. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - Internal standards
 - Duplicate
 - Total versus Dissolved (Metals)
- Instrument related quality control data:
 - o Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

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When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- 1,2-Dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trichlorobenzene and 1,4-dioxane were reported in both the volatile and semi-volatile fractions.
- The samples for PFAS analysis were analyzed using a laboratory modified Method 537.
- The compound names and abbreviations reported on the summary forms for some compounds are named slightly differently in the electronic data deliverable (EDD). An example follows:
 - Perfluorotridecanoic Acid (PFTrDA) summary form in data package
 - o Perfluorotridecanoic Acid (PFTriA) EDD
- The raw data for the ICPMS metals reports calculated analyte concentrations and does
 not provide raw areas. Therefore, the sample digestate concentration could not be
 calculated. The validation was performed under the assumption that the instrument
 software accurately calculates the concentrations.
- The hand written bench logs for cyanide analysis are incomplete. The sheets are missing the date of analysis and do not identify the analysis or the analyst. In addition, the sample numbers documented are incomplete. For example, sample L2036923-01 is documented as '36923-01'.
- Percent recoveries for metals internal standard ¹⁰³Rh are not reported on the summary forms.

Holding Times, Preservation, Sample Integrity:

A copy of the applicable chain of custody (COC) record was included in the data package, documenting a collection date of September 2, 2020. The samples were received by the laboratory on the same day as sample collection. The cooler temperatures on receipt at the laboratory were acceptable. All samples were properly preserved and were prepared and/or analyzed within method-specified holding times.

A. Volatile Organics

1. Calibration

Two ICs were reported in support of sample analyses. All relative response factors (RRFs) and relative standard deviations (RSDs) or correlation coefficients (r²) were acceptable. One second source ICV standard was analyzed following the IC and all %Ds were acceptable (%D<30), with the exception noted below:



ICV	Compound	%D	Affected Samples	Qualifiers Applied
VOA108	Dichlorodifluoromethane	55.7	GWFB02_090220 TB01_090220	UJ

Sample results were qualified as estimated (UJ) as noted above due to unacceptable percent difference in the ICV.

Because the laboratory analyzes a CC standard and uses the same standard and analytical run for the LCS, sample results were qualified based on the CC because the acceptance criteria are more stringent (%D<20). Two CC standards were analyzed, and all percent differences were acceptable (<20%D) with the following exceptions:

СС	Compound	%D	Affected Samples	Qualifiers Applied
VOA108	Dichlorodifluoromethane	31.7	GWFB02_090220	J-, UJ
9/3/2020	Vinyl acetate	25.5	TB01_090220	
	2-Butanone	22.9		
	4-Methyl-2-pentanone	25.3		
	2-Hexanone	34.2		
	1,2-Dibromo-3-chloropropane	20.1		
GONZO 9/4/2020	Bromomethane	33.1	MW33_090220 MW31_090220 MW34_090220 MW32_090220 MW26_090220 MW30_090220 GWDUP01_090220	UJ

In all instances, the percent differences represent a decrease in instrument sensitivity. Sample results were qualified as estimated (J-, UJ) due to low response in the CC. Where the percent difference represented an increase in instrument sensitivity and the compound was not detected in the samples, no qualification of sample results was warranted and is detailed above.

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

As previously stated, the CC and LCS are evaluated from the same analytical run. The laboratory also analyzed an LCS duplicate (LCSD). All recoveries in the LCSD were acceptable (70-130%R, RPD< 30), with the exception of dichlorodifluoromethane (65 %R) and 2-hexanone (69 %R). Results for dichlorodifluoromethane and 2-hexanone in GWFB02_090220 and TB01_090220 were qualified as estimated (UJ) based on low LCSD recoveries.

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B. Semi-Volatile Organics (Full Scan Analysis)

1. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate							
	2- Fluoro- phenol	Phenol- d ⁵	Nitro- benzene- d₅	2- Fluorobiphenyl	2,4,6- TBP	Terphenyl- d ₁₄		
MW33_090220	а	58	а	а	а	а		
MW31_090220	а	63	а	а	а	а		
MW34_090220	а	59	а	а	а	а		
MW32_090220	а	64	а	а	а	а		
MW26_090220	67	55	а	а	а	а		
MW30_090220	а	65	а	а	а	а		
GWDUP01_090220	66	59	а	а	а	а		
GWFB02_090220	66	51	а	а	а	а		

a-acceptable

Sample results were qualified as follows:

- The results for all acid extractable compounds in MW26_090220, GWDUP01_090220 and GWFB02_090220 were qualified as estimated (UJ) because two acid surrogates exhibited low recoveries.
- The results for the following compounds in MW33_090220, MW31_090220, MW34_090220, MW32_090220 and MW30_090220 were qualified as estimated (J-, UJ) because phenol-d₅ exhibited low recovery:

phenol benzoic acid 2-chlorophenol 2-methylphenol 3&4-methylphenol 2-nitrophenol 2,4-dimethylphenol 2,4-dichlorophenol 4-chloro-3-methylphenol 2,4,6-trichlorophenol

2,4,5-trichlorophenol

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS/LCSD pair associated with the sample analyses were reported in the data package. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%, RPD<20. Exceedances are detailed below:



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Parameter	LCS	LCSD	RPD	Samples Affected	Qualifiers
	%R	%R		OWDUDO4 000000	Applied
1,2,4-Trichlorobenzene	47	59	23	GWDUP01_090220	J-, UJ
1,2-Dichlorobenzene	46	57	21		
1,3-Dichlorobenzene	44	57	26		
1,4-Dichlorobenzene	46	57	21		
3,3'-Dichlorobenzidine	58	а	22		
2,4-Dinitrotoluene	60	а	20		
2,6-Dinitrotoluene	57	а	25		
4-Chlorophenyl phenyl ether	58	а	26		
4-Bromophenyl phenyl ether	58	а	28		
Bis(2-chloroisopropyl)ether	45	58	25		
Bis(2-chloroethoxy)methane	56	68	а		
Hexachlorocyclopentadiene	44	60	31		
Isophorone	53	66	22		
Nitrobenzene	51	65	24		
NDPA/DPA	58	а	31		
n-Nitrosodi-n-propylamine	54	68	23		
Butyl benzyl phthalate	66	89	30		
Di-n-butylphthalate	59	а	28		
Diethyl phthalate	62	а	28		
Dimethyl phthalate	59	а	25		
Biphenyl	56	а	26		
4-Chloroaniline	45	54	а		
2-Nitroaniline	58	а	а		
3-Nitroaniline	57	64	а		
4-Nitroaniline	60	а	а		
Dibenzofuran	57	а	25	_	
1,2,4,5-Tetrachlorobenzene	50	66	28	_	
Acetophenone	54	67	21		
2,4,6-Trichlorophenol	61	а	22		
p-Chloro-m-cresol	59	a	24		
2-Chlorophenol	52	63	а	1	
2,4-Dichlorophenol	56	69	21		
2,4-Dimethylphenol	54	67	21		
2-Nitrophenol	54	66	a	_	
4-Nitrophenol	53	64	а	_	
2,4-Dinitrophenol	50	54	а	_	
4,6-Dinitro-o-cresol	57	а	22	-	
Phenol	44	50	a	-	
2-Methylphenol	54	66	а	-	



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LCS/LCSD WG1406783-2&3						
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied	
3-Methylphenol/4-Methylphenol	59	а	а			
2,4,5-Trichlorophenol	59	а	24			
Benzoic Acid	0	0	nc		R	
Benzyl Alcohol	56	64	а		UJ	
Carbazole	60	а	24			

a-acceptable

LCS/LCSD WG1407204-2&3							
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied		
1,4-Dichlorobenzene	а	69	а	MW33_090220	J-, UJ		
Hexachlorocyclopentadiene	а	66	а	MW31_090220			
2,4-Dimethylphenol	63	66	а	- MW34_090220 - MW32_090220			
Phenol	60	64	а	MW26 090220			
Benzoic Acid	0	64	200	MW30_090220 GWFB02_090220	J,R		

a-acceptable nc-not calculated

Sample results for the target compounds identified were qualified as estimated (UJ) due to low LCS and/or LCSD recoveries and/or high LCS/LCSD RPD. The results for benzoic acid in all samples except MW34_090220 were rejected because the LCS and/or LCSD recoveries were <10%. The result for benzoic acid in MW34_092020 was qualified as estimated (J) due low LCSD recovery and high RPD.

C. Semi-Volatile Organics (Selected Ion Monitoring [SIM] Analysis)

1. Calibration

One IC was performed in support of sample analysis. All RRFs and RSDs or correlation coefficients were acceptable (RSD <20%; correlation coefficient >0.99). The method of linear regression analysis has the potential for a significant bias at the lower portion of a calibration curve, while the relative percent difference and quadratic methods of calibration do not have this potential bias. When using the linear regression model, a minimum quantitation check on the viability of the lowest calibration point should be performed by recalculating the low concentration calibration standard back against the curve. The recalculated concentration of the low calibration point should be within ± 30% of the standard's true concentration. Linear regression was used for benzo(a)anthracene and the recovery in the low standard was 135%. The results for benzo(a)anthracene in all samples were qualified as estimated (J, UJ) on this basis.

One second source ICV standard was analyzed following the IC and all %Ds were acceptable (%D<30). One CC standard was analyzed and all %Ds were acceptable (<20%D).

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2. Blanks

One field blank was submitted with this sample set and two method blanks were prepared in analyzed in support of sample analysis. The table below summarizes blank concentrations that impacted sample results:

Blank	Compound	Conc. (ug/L)	Samples Affected		
Method Blank	Benzo(a)anthracene	0.01	GWDUP01_090220		
9/4/2020	Benzo(k)fluoranthene	0.01			
	Chrysene	0.02			
Method Blank	Phenanthrene	0.03	MW32_090220		
9/6/2020			MW26_090220		
GWFB02_090220	Naphthalene	0.08	MW26_090220		

Sample results were qualified as not detected (U) at the reporting limit due to associated blank contamination.

3. Surrogates:

Six surrogates (fluorophenol- d_5 [2FP], phenol- d_5 [PHL], nitrobenzene- d_5 [NBZ], 2-fluorobiphenyl [FBP], 2,4,6-tribromophenol [TBP], and terphenyl- d_{14} [TPHL]) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate							
	2- Fluoro- phenol	Phenol- d ⁵	Nitro- benzene- d₅	2- Fluorobiphenyl	2,4,6- TBP	Terphenyl- d ₁₄		
MW33_090220	66	58	а	а	а	148		
MW31_090220	а	62	а	а	а	150		
MW34_090220	а	65	а	а	а	167		
MW32_090220	а	66	а	а	а	160		
MW26_090220	64	57	а	а	а	165		
MW30_090220	а	а	а	а	137	171		
GWDUP01_090220	а	а	а	а	а	164		
GWFB02 090220	68	63	а	а	а	170		

a-acceptable

Sample results were qualified as follows:

 The results for pentachlorophenol in MW33_090220, MW26_090220 and GWFB02_090220 were qualified as estimated (UJ) because two or more acid surrogates exhibited low recoveries. Mr. Joseph Yanowitz November 6, 2020 Page 13 of 24



- The results for pyrene in MW26_090220, MW32_090220 and MW34_090220 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery.
- The results for benzo(a)anthracene, benzo(b)fluoranthene, and pyrene in MW33_090220 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery:
- The results for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, benzo(g,h,i)perylene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene in MW30_090220 were qualified as estimated (J+) because terphenyl-d₁₄ exhibited high recovery.

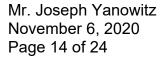
Where the surrogate recovery was high and the associated compounds were not detected, no qualification of sample results was warranted.

No qualification of sample results was made to MW31_090220, MW34_090220 and MW32_090220 based on low recovery of phenol-d5 because no target compounds associated with this surrogate were reported in the SIM analysis.

4. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for two LCS/LCSD pairs associated with the sample analyses were reported in the data package. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%, RPD<20. Exceedances are detailed below:

LCS/LCSD WG1406785-2&3					
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Acenaphthene	а	62	23	GWDUP01_090220	J, UJ
2-Chloronaphthalene	а	57	25		
Hexachlorobutadiene	63	49	25		
Naphthalene	а	54	26		
Benzo(a)anthracene	а	60	26		
Benzo(a)pyrene	а	64	20		
Benzo(b)fluoranthene	а	61	24	-	
Benzo(k)fluoranthene	а	66	26	-	
Chrysene	а	64	26	-	
Acenaphthylene	а	65	24		
Anthracene	а	66	24		
Benzo(ghi)perylene	а	69	25	-	
Fluorene	а	63	23	-	
Phenanthrene	а	64	22		
Indeno(1,2,3-cd)pyrene	а	67	27	-	
2-Methylnaphthalene	а	57	26	1	
Pentachlorophenol	а	45	46	1	
Hexachlorobenzene	а	57	22]	





LCS/LCSD WG1406785-2&3					
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Hexachloroethane	68	51	29		

The results for the compounds noted above were qualified as estimated (UJ) in sample GWDUP01_090220 due to low LCS and/or LCSD recoveries and high RPD between the LCS and LCSD.

LCS/LCSD WG1407203-2&3					
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Fluoranthene	а	132	а	MW33_090220 MW31_090220 MW34_090220 MW32_090220 MW26_090220 MW30_090220	J+
Benzo(k)fluoranthene	а	134	а	MW30_090220	
Benzo(ghi)perylene	а	139	а	MW30_090220	
Dibenz(a,h)anthracene	а	140	а	MW30_090220]
Indeno(1,2,3-cd)pyrene	а	138	а	MW30_090220]
Pyrene	131	134	а	MW30_090220 MW31_090220 MW33_090220 MW34_090220 MW32_090220 MW26_090220	

Sample results were qualified as estimated (J+) because the LCS and/or LCSD exhibited high recoveries.

5. Compound Identification

For SIM analysis, ion ratios are determined during initial calibration using the integrated areas for the primary and secondary ions and confirmation from their respective mass chromatograms. Identification in samples is made by verifying the ratio of the secondary ion to the primary. The following sample results were qualified as estimated (J) and presumptively present (N) because the ion ratio was outside acceptance limits:

- o MW33 090220
 - Benzo(a)anthracene
 - Benzo(b)fluoranthene
 - Acenaphthylene
- o MW31 090220
 - Acenaphthylene
- o MW34_090220

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- Fluoranthene
- Anthracene
- Fluorene
- Pyrene
- o MW32 090220
 - Fluoranthene
 - Pyrene
- o MW26 090220
 - Pyrene
 - 2-Methylnphthatlene
- o MW30 090220
 - Acenaphthene
 - Benzo(a)anthracene
 - Benzo(b)fluoranthene
 - Anthracene
 - Benzo(g,hi)perylene
 - Dibenz(a,h)anthracene
 - Indeno(1,2,3-c,d)pyrene
 - Pyrene
- o GWDUP01 090220
 - Fluoranthene
 - Naphthalene
 - Anthracene
 - Benzo(g,h,i)perylene
 - Dibenz(a,h)anthracene
 - Indeno(1,2,3-c,d)pyrene

The J,N qualifier takes precedence over previous qualifications (J+, J-).

D. 1,4-Dioxane (SIM)

The results for 1,4-dioxane were determined to be valid, as reported. No qualifications were made to the sample results.

E. Pesticides

1. Calibration

Two ICs were performed in support of sample analyses. All RSDs or correlation coefficients were acceptable. In the IC performed on instrument 'pest10', linear regression was used for all target analytes. The method of linear regression has the potential for a significant bias to the lower portion of a calibration curve. When calculating the calibration curves using the linear regression, a minimum quantitation check on the viability of the lowest calibration point should be performed by recalculating the low concentration calibration standard back against the curve. The recalculated concentration of the low calibration point should be within ± 30% of the standard's true concentration. All recoveries were acceptable one at least one column, with the exception of endosulfan I on both columns 57/58%R. The results for endosulfan I in MW33 090220,

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 $MW32_090220,\ MW26_090220,\ MW34_090220$ and $GWFB02_090220$ were qualified as estimated (UJ) on this basis.

A second source ICV was analyzed following each IC and all percent differences were acceptable (<30%D). Continuing calibrations were performed at the appropriate frequencies and all percent differences were acceptable (20%D).

2. Surrogates

Two surrogates (TCX = 2,4,5,6-tetrachloro-m-xylene and DCBP = decachlorobiphenyl) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:

Sample	Surrogate					
	TCX 1	TCX 2	DCB 1	DCB 2		
MW26_090220	61	61	58	а		
MW30_090220	а	а	68	61		
GWDUP01 090220			55	47		

a=acceptable

The results for all pesticide compounds in the samples noted above were qualified as estimated (UJ) because one or more surrogates exhibited low recoveries on both analytical columns.

3. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for two LCS/LCSD pairs associated with the sample analyses were reported in the data package. Percent recoveries and RPDs were acceptable (70-130%R, RPD<20) with the exceptions noted below:

LCS/LCSD WG1406964					
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Delta-BHC	62	59	а	MW33_090220	UJ
Lindane	58	58	а	MW34_090220	
Alpha-BHC	63	63	а	MW32_090220	
Heptachlor	55	54	а	MW26_090220 GWFB02 090220	
Aldrin	44	44	а	OWI DOZ_000220	
Heptachlor epoxide	57	57	а		
Endrin	61	58	а		
Endrin aldehyde	49	46	а		
Endrin ketone	а	64	26		
Dieldrin	59	57	а		
4,4'-DDE	53	51	а		
4,4'-DDD	а	63	а		



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LCS/LCSD WG1406964					
Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
4,4'-DDT	а	61	а		
Endosulfan I	62	61	а		
Endosulfan II	65	61	а		
Endosulfan sulfate	а	65	28		
cis-Chlordane	54	53	а		
trans-Chlordane	55	58	а		

Parameter	LCS %R	LCSD %R	RPD	Samples Affected	Qualifiers Applied
Delta-BHC	60	57	a	MW31_090220	UJ
Lindane	58	56	а	MW30_090220	
Alpha-BHC	61	61	а	GWDUP01_090220	
Beta-BHC	а	69	а		
Heptachlor	54	53	а		
Aldrin	45	46	а		
Heptachlor epoxide	57	56	а		
Endrin	59	57	а		
Endrin aldehyde	53	46	а		
Endrin ketone	а	60	31		
Dieldrin	58	58	а		
4,4'-DDE	52	52	а		
4,4'-DDD	а	60	а		
4,4'-DDT	а	64	а		
Endosulfan I	62	62	а		
Endosulfan II	63	60	а		
Endosulfan sulfate	а	61	28		
cis-Chlordane	52	52	а		
trans-Chlordane	55	56	а		

F. Polychlorinated Biphenyls (PCBs as Aroclors)

1. Surrogates

Two surrogates (TCX and DCBP) were used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Surrogate recoveries were acceptable with the exceptions noted below:



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Sample	Surrogate				
	TCX 1	TCX 2	DCB 1	DCB 2	
MW33_090220	60	62	58	52	
MW31_090220	59	66	а	66	
MW34_090220	55	60	48	48	
MW32_090220	58	60	57	54	
MW26_090220	55	57	69	63	
MW30_090220	53	58	52	51	
GWDUP01_090220	55	58	58	55	
GWFB02_090220	47	50	36	34	

a=acceptable

The results for all Aroclors in all samples were qualified as estimated (J-, UJ) due low surrogate recoveries on both analytical columns.

2. Laboratory Control Sample (LCS)/LCS Duplicate (LCSD):

Results for one LCS/LCSD pair associated with the sample analyses were reported in the data package. LCS/LCSD recoveries were acceptable (70-130%R, RPD<20), with the following exceptions:

Parameter	LCS %R	LCSD %R	LCS/LCSD RPD	Samples Affected	Qualifiers Applied
Aroclor 1016	а	65	а	(All)	J-, UJ
Aroclor 1260	а	62	а		

The results for all Aroclors in all samples were qualified as estimated (J-, UJ) due to low recoveries in the LCS/LCSD.

G. Herbicides

1. Surrogates

One surrogate (2,4-dichlorophenylacetic acid [DCPAA]) was used. The laboratory's acceptance limits are excessively wide and low; therefore, recoveries were assessed against validation criteria of 70-130%. Exceedances are detailed below:

0	Surrogate / Column				
Sample	DCPAA / 1	DCPAA / 2			
MW34_090220	59	64			
MW32_090220	49	55			
MW26_090220	57	67			
GWDUP01 090220	62	69			

The results for all herbicide compounds in the samples noted above were qualified as estimated (UJ) because a low surrogate recovery was exhibited on both analytical columns.

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H. Metals

1. Blanks

One field blank was submitted with these samples. One method blank was prepared for, total metals, and one method blank was prepared for dissolved metals. Initial and continuing calibration blanks (ICB, CCB) were analyzed at the appropriate frequencies. The table below summarizes the maximum concentration detected in the blanks that impacted sample results:

Blank	Analyte	Conc (mg/L)	Samples Affected
ICB	Thallium	0.000786	MW33_090220 (total and dissolved)
			GWFB02_090220 (total)
CCB	Iron	0.0637	GWFB02_090220 (total)
9/4/3			_ , ,
2020 08:56			

Sample results were qualified as not detected (U) at the reporting limit because the sample due to associated blank contamination.

2. Internal Standard Responses

Internal standard area responses were acceptable (70-130%R of the original response in the calibration blank) with the exceptions noted below:

Sample	⁶ Li	Associated	⁴⁵ Sc	Associated Target
-	%R	Target Analytes	%R	Analytes
MW33_090220 (dissolved)	148	Beryllium,	156	Vanadium,
MW31_090220 (dissolved)	143	Barium,	140	Chromium,
MW32_090220 (dissolved)	154	Magnesium	157	Iron,
MW26_090220 (dissolved)	170	Aluminum,	168	Cobalt ,
MW30_090220 (dissolved)	160	Potassium,	154	Nickel,
GWDUP01_090220 (dissolved)	157	Calcium	150	Copper,
GWFB02_090220 (dissolved)	а	Sodium	136	Zinc
MW33_090220 (total)	157		162	
MW31_090220 (total)	152		144	
MW34_090220 (total)	158		158	
MW32_090220 (total)	157		158	
MW26_090220 (total)	168		160	
MW30_090220 (total)	165		155	
GWDUP01_090220 (total)	164		154	
GWFB02 090220 (total)	132		141	

Sample	⁷² Ge %R	Associated Target Analytes	¹¹⁵ In %R	Associated Target Analytes
MW33_090220 (dissolved)	135	Arsenic,	а	Antimony,
MW31_090220 (dissolved)	136	Selenium	а	Barium
MW32_090220 (dissolved)	138		132	



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MW26_090220 (dissolved)	142
MW30_090220 (dissolved)	142
GWDUP01_090220 (dissolved)	142
GWFB02_090220 (dissolved)	а
MW33_090220 (total)	141
MW31_090220 (total)	139
MW34_090220 (total)	138
MW32_090220 (total)	142
MW26_090220 (total)	146
MW30_090220 (total)	146
GWDUP01_090220 (total)	144
GWFB02_090220 (total)	а

a-acceptable

^{*-}from dilution

Sample	¹⁰³ Rh	Associated Target
	%R	Analytes
MW32_090220 (dissolved)	135	Cadmium,
MW26_090220 (total)	124	Silver
MW30_090220 (total)	133	
GWDUP01_090220 (total)	134	
MW32_090220 (total)	136	

Sample results were qualified as estimated (J, UJ) due to unacceptable internal standard responses as detailed above.

It should be noted that the internal standard area summary forms do not report the recovery of ¹⁰³Rh or ¹⁵⁹TB. The validator manually verified the recoveries in each sample.

3. Matrix Spike (MS)

MS analyses were performed on MW33_090220 (total and dissolved). All percent recoveries were acceptable (75-125%R) with the exception of sodium in both the total and dissolved analyses (0%R, 10%R, respectively). The sample concentration was more than four times the concentration spiked in the MS and a meaningful recovery is not expected. No qualification of sample results was made based on the low MS recoveries.

i. Per- and Polyfluoroalkyl Substances (PFAS)

1. Calibration:

One IC was reported in support of the sample analyses. All RRFs and RSDs or correlation coefficients (r2) were acceptable. Recoveries of the target analytes were within 50-150% of the true value in the lowest concentration IC standard and within 70-130% of the true value in all other IC standards.

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One second source ICV standard was analyzed following the IC and %Ds were acceptable (<30%D), except for linear NMeFOSAA (137%). The results for NMeFOSAA in all samples were qualified as estimated (J, UJ) due to unacceptable %D in the ICV.

Three CCs were analyzed in support of sample analysis, and all recoveries were acceptable (50-150% for the low concentration CC and 70-130% for other CC concentrations) with the exceptions noted below:

СС	Compound	%R	Affected Samples	Qualifiers Applied
Low Level CC	N-Methyl		(All)	J-, UJ
9/9/2020 13:51	Perfluorooctanesulfonamidoacetic	36.9		
	Acid-Branched (br-NMeFOSAA)			
Low Level CC	br-NMeFOSAA?	20.7		
9/9/2020 20:49		20.1		

Since NMeFOSAA is reported as the sum of the linear and branched isomers, the results for NMeFOSAA in all samples were qualified as estimated (J-,UJ) due to low recoveries in the CC standard.

2. Blanks

One field blank and one equipment blank were submitted with this sample set. Perfluorohexanoic Acid (PFHxA) was detected in the equipment blank and Perfluorotetradecanoic Acid (PFTA) was detected in the field blank. These compounds were not detected in the samples or the sample concentrations were greater than ten times the concentration in the associated blank and no qualification of sample results was warranted.

PFUnA (0.336 ng/L) was detected in the method blank. PFUnA was qualified as not detected (U) at the reporting limit in MW31_090220, MW34_090220, MW30_090220 and GWDUP01_090220 because the sample concentration was less than ten times the method blank concentration.

3. Surrogates (Extracted Internal Standards/ Labeled Analogs):

All labeled analog recoveries were acceptable (50-150%R) with the following exceptions:

Sample	Labeled Analog	%R
MW33_090220	M2-6:2FTS	208
	M2-8:2FTS	224
	M8FOSA	33
MW31_090220	M2-6:2FTS	215
	M2-8:2FTS	284
MW34_090220	M2-6:2FTS	213
	M2-8:2FTS	251
	M8FOSA	35
MW32_090220	M2-6:2FTS	187
	M2-8:2FTS	227



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	M8FOSA	38
MW26_090220	M2-6:2FTS	234
_	M2-8:2FTS	279
	M8FOSA	43
MW30_090220	M2-6:2FTS	198
	M2-8:2FTS	255
	M8FOSA	46
GWDUP01_090220	M2-6:2FTS	191
	M2-8:2FTS	227
	M8FOSA	41
GWFB04_090220	M8FOSA	31
GWEB01_090220	M8FOSA	24

Sample results were qualified as detailed below based on recoveries outside acceptance limits for the labeled analog:

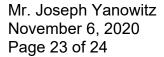
- The results for FOSA in all samples except MW31_090220 were qualified as estimated (J-, UJ) due to low recovery in the labeled analog.
- The results for 1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2FTS) in MW31_090220, MW34_090220, MW32_090220 and GWDUP01_090220 were qualified as estimated (J+) due to high recovery in the labeled analog.
- The results for 1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2FTS) in GWDUP01_090220 was qualified as estimated (J+) due to high recovery in the labeled analog.

No qualification of sample results was warranted where the recovery of the labeled analog was high and the corresponding target compound was not detected in the sample.

4. Extracted Internal Standards

Internal standard areas were acceptable (within 50-150% of the IC) in all samples except as noted below:

Sample	M3PFBA	Affected Target Compounds
	IS %	
MW31_090220	46.1	Perfluorobutanoic Acid (PFBA)
MW26_090220	49.9	Perfluorobutanesulfonic Acid
MW30_090220	47.6	(PFBS)
GWDUP01_090220	49.2	
Sample	M2PFOA	Affected Target Compounds
	IS %	
MW31_090220	37.6	Perfluorooctanoic Acid (PFOA)





MW30_090220	41.2	
GWDUP01_090220	40.8	
Sample	M4PFOS	Affected Target Compounds
	IS %	3 .
MW31 090220		Perfluorooctanesulfonic Acid

Sample results were qualified as estimated (J, UJ) as detailed in the table above due to low internal standard area response.

5. Matrix Spike (MS)

MS analysis was performed on MW33_090220. All percent recoveries were acceptable (70-130%R) with the exceptions noted below:

MS/MSD			
Parameter	MS %R	Samples Affected	Qualifiers Applied
Perfluorononanoic Acid (PFNA)	139	MW33_090220 MW31_090220 MW34_090220 MW32_090220 MW26_090220 MW30_090220 GWDUP01_090220	J+
Perfluoroundecanoic Acid (PFUnA)	144	MW33_090220 MW32_090220	

Sample results were qualified as estimated (J+) as detailed above to high recovery in the MS. Where the compound was not detected or previously qualified as not detected (U) based on blank detections, no qualification of sample results was warranted based on the high MS %R, as is not detailed above.

J. Cyanide

1. Blanks

One method was prepared and analyzed with the samples. Cyanide (0.004mg/L) was detected in the field blank. The results for cyanide in MW33_090220, MW31_090220, MW32_090220, MW30_090220 and GWDUP01_090220 were qualified as not detected (U) at the reporting limit due to blank detection of cyanide.

K. Hexavalent Chromium

The results for hexavalent chromium were determined to be valid, as reported. No qualifications were made to the sample results.

No other sample results were qualified as a result of the validation effort.

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Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Jeri Rossi, CEAC

gui Resse.

Sr. Environmental Chemist

(908) 370-3431

jrossi@ddmsinc.com



ATTACHMENT A

EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. L2036293

ДІРНА	NEW YORK CHAIN OF CUSTODY	Service Centers Mahwah, NJ 07430: 35 Whit Albany, NY 12205: 14 Walk Tonawanda, NY 14150: 275	er Way	5	Page		r	Date in I	Rec'o	9	131	20		ALPHA J96# 36293	3
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TEL: 508-898-9220	TEL: 508-822-9300	Project Name: 25		treat				ASP-	A		X	ASP-	3	Same as Client Info	
FAX: 508-898-9193	FAX: 508-822-3288	Project Location:	ew York,	NY				EQui	S (1 F	ile)		EQuI:	S (4 File)	PO#	
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Fax:		Stand	fard 🗵	Due Date	:			NY Ur	restric	ted Use	•			□ NJ □ NY	
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36293-01	MW33-0902		09/02/2020	0850	W	TZ	×	X	X	X	X				
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03	MW34-090			1035		TZ	×	×	×		×	_			_
01	MW32-00			1110	\vdash	LH	×	×	×	×	X	_	_		_
05	MW26-00			1300		15	X	×	×	×	×				_
06	MW 30_00			1405		Lif	×	X	×	×	X	_	_		_
07	GWDUPOI-			10			*	×	×	×	×				_
08	GWFB02_			1355		TZ	×	X	×	×	×				-
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Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Client Information Client:		Service Centers Mahwah, NJ 07430: 35 Whitney Albany, NY 12205: 14 Walker V Tonawanda, NY 14150: 275 Co Project Information Project Name: 2 5 0 Project Location: N e. Project # 1703812 (Use Project name as Project Manager: Toss ALPHAQuote #:	Water Starte 10:	heet NY	Page 2 of		Delive	rables ASP-A EQUIS (1 F Other etory Requiry TOGS	ile)	3/90 ASP	B S (4 File) art 375	ALPHA Job # 2036293 Billing Information Same as Client Info Po# Disposal Site Information Please identify below location of applicable disposal facilities.	
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Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH	= None			Container Type Preservative							Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are		
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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. L2036293

Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406399-3 Analysis Date : 09/03/20 08:54 File ID : V08200903A01 LCSD Sample ID : WG1406399-4 Analysis Date : 09/03/20 09:16 File ID : V08200903A02

	Laborator	y Control Samp	ole	Laborator	y Control Dup				
_	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
trans-1,2-Dichloroethene	10	10	100	10	9.8	98	2	70-130	20
Trichloroethene	10	10	100	10	10	100	0	70-130	20
1,2-Dichlorobenzene	10	9.9	99	10	9.5	95	4	70-130	20
1,3-Dichlorobenzene	10	10	100	10	9.5	95	5	70-130	20
1,4-Dichlorobenzene	10	10	100	10	9.4	94	6	70-130	20
Methyl tert butyl ether	10	8.7	87	10	8.9	89	2	63-130	20
p/m-Xylene	20	20	100	20	19	95	5	70-130	20
o-Xylene	20	21	105	20	19	95	10	70-130	20
cis-1,2-Dichloroethene	10	11	110	10	9.9	99	11	70-130	20
Dibromomethane	10	9.5	95	10	9.3	93	2	70-130	20
1,2,3-Trichloropropane	10	8.0	80	10	8.1	81	1	64-130	20
Acrylonitrile	10	8.4	84	10	8.4	84	0	70-130	20
Styrene	20	20	100	20	19	95	5	70-130	20
Dichlorodifluoromethane	10	6.8	68	10	6.5	65	5	36-147	20
Acetone	10	8.2	82	10	8.2	82	0	58-148	20
Carbon disulfide	10	9.3	93	10	8.9	89	4	51-130	20
2-Butanone	10	7.7	77	10	7.6	76	1	63-138	20
Vinyl acetate	10	7.4	74	10	7.8	78	5	70-130	20
4-Methyl-2-pentanone	10	7.5	75	10	7.7	77	3	59-130	20
2-Hexanone	10	6.6	66	10	6.9	69	4	57-130	20
Bromochloromethane	10	10	100	10	10	100	0	70-130	20
2,2-Dichloropropane	10	11	110	10	10	100	10	63-133	20
1,2-Dibromoethane	10	8.8	88	10	8.4	84	5	70-130	20
1,3-Dichloropropane	10	9.0	90	10	8.7	87	3	70-130	20
1,1,1,2-Tetrachloroethane	10	11	110	10	9.6	96	14	64-130	20
Bromobenzene	10	10	100	10	9.4	94	6	70-130	20



Evaluate Continuing Calibration Report

Data Path : I:\VOLATILES\VOA108\2020\200807P\

Data File : V08200807P20.D

Acq On : 8 Aug 2020 12:55 am

Operator : VOA108:MKS
Sample : C8260STDL10PPB
Misc : WG1397008

ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 08 08:34:18 2020

Quant Method : I:\VOLATILES\VOA108\2020\200807P\V108_200807P_8260.m

Quant Title : VOLATILES BY GC/MS

QLast Update : Sat Aug 08 08:26:50 2020

Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min

Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev Are	ea% D	ev(min)
1	I	Fluorobenzene	1.000	1.000	0.0	104	-0.01
	TP	Dichlorodifluoromethane	0.167	0.260	-55.7#		0.00
3	TP	Chloromethane	0.405	0.503	-24.2#	124	0.00
4	TC	Vinyl chloride	0.325	0.337	-3.7	102	0.00
5	TP	Bromomethane	0.155	0.159	-2.6	102	0.00
6	TP	Chloroethane	0.165	0.179	-8.5	103	0.00
7	TP	Trichlorofluoromethane	0.343	0.374	-9.0	105	0.00
8	TP	Ethyl ether	0.136	0.137	-0.7	99	0.00
10	TC	1,1-Dichloroethene	0.212	0.213	-0.5	97	0.00
11		Carbon disulfide	0.535	0.611	-14.2	118	0.00
	TP	Freon-113	0.212	0.225	-6.1	108	0.00
	TP	Acrolein	0.034	0.050#	-47.1#		0.00
15		Methylene chloride	0.264	0.268	-1.5	100	0.00
17		Acetone	0.094	0.102	-8.5	115	0.00
18		trans-1,2-Dichloroethene	0.229	0.236	-3.1	98	0.00
	TP	Methyl acetate	0.243	0.267	-9.9	121	0.00
	TP	Methyl tert-butyl ether	0.696	0.678	2.6	97	0.00
	TP	tert-Butyl alcohol	0.032	0.032#	0.0	113	0.00
	TP	Diisopropyl ether	1.401	1.415	-1.0	108	0.00
	TP	1,1-Dichloroethane	0.561	0.522	7.0	90	0.00
	TP	Halothane	0.176	0.173	1.7	96	0.00
	TP	Acrylonitrile	0.124	0.135	-8.9	108	0.00
	TP	Ethyl tert-butyl ether	1.115	1.083	2.9	100	0.00
27		Vinyl acetate	0.876	0.782	10.7	99	0.00
28		cis-1,2-Dichloroethene	0.290	0.273	5.9	92	0.00
	TP	2,2-Dichloropropane	0.342	0.300	12.3	88	-0.02
	TP	Bromochloromethane	0.121	0.128	-5.8	103	-0.01
31		Cyclohexane	0.622	0.628	-1.0	102	-0.02
	TC	Chloroform	0.466	0.455	2.4	95	0.00
	TP	Ethyl acetate	0.346	0.317	8.4	97	0.00
	TP	Carbon tetrachloride	0.273	0.252	7.7	99	0.00
	TP	Tetrahydrofuran	0.112	0.100	10.7	81	0.00
36		Dibromofluoromethane	0.251	0.260	-3.6	105	0.00
	TP	1,1,1-Trichloroethane	0.390	0.391	-0.3	99	0.00
39		2-Butanone	0.140	0.142	-1.4	114	0.00
	TP	1,1-Dichloropropene	0.357	0.350	2.0	97	0.00
41		Benzene	1.039	0.952	8.4	94	0.00
42		tert-Amyl methyl ether	0.734	0.689	6.1	101	0.00
43	S	1,2-Dichloroethane-d4	0.345	0.339	1.7	104	0.00

V108_200807P_8260.m Sat Aug 08 08:44:39 2020

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Instrument ID : VOA108

Lab File ID : V08200903A01 Sample No : WG1406399-2

Channel:

Lab Number : L2036293
Project Number : 170381202

Calibration Date : 09/03/20 08:54 Init. Calib. Date(s) : 08/07/20 08/07/20

Init. Calib. Times : 19:03 22:21

Compound	Ave. RRF	RRF	Min RRF	%D 0	Max %D	Area%	Dev(mi
Fluorobenzene	1 0.107	1 0 111	-		20		01
Dichlorodifluoromethane	0.167	0.114	-	31.7*	20	51	0
Chloromethane	0.405	0.437	-	-7.9	20	79	0
Vinyl chloride	0.325	0.271	-	16.6	20	60	0
Bromomethane	0.155	0.13	-	16.1	20	61	0
Chloroethane	0.165	0.168	-	-1.8	20	71	0
Trichlorofluoromethane	0.343	0.345	-	-0.6	20	71	0
Ethyl ether	0.136	0.122	-	10.3	20	64	01
1,1-Dichloroethene	0.212	0.208	-	1.9	20	70	0
Carbon disulfide	0.535	0.498	-	6.9	20	71	0
Freon-113	0.212	0.223	-	-5.2	20	78	0
lodomethane	10	1.57	-	84.3*	20	11	0
Acrolein	0.034	0.036*	-	-5.9	20	87	0
Methylene chloride	0.264	0.254	-	3.8	20	69	01
Acetone	0.094	0.077*	-	18.1	20	63	0
trans-1,2-Dichloroethene	0.229	0.229	-	0	20	70	0
Methyl acetate	0.243	0.211	-	13.2	20	70	01
Methyl tert-butyl ether	0.696	0.607	-	12.8	20	64	02
tert-Butyl alcohol	0.032	0.022*	-	31.3*	20	58	02
Diisopropyl ether	1.401	1.396	-	0.4	20	78	01
1,1-Dichloroethane	0.561	0.62	-	-10.5	20	78	01
Halothane	0.176	0.179	-	-1.7	20	73	02
Acrylonitrile	0.124	0.105	-	15.3	20	62	01
Ethyl tert-butyl ether	1.115	1.092	-	2.1	20	74	02
Vinyl acetate	0.876	0.653	-	25.5*	20	61	01
cis-1,2-Dichloroethene	0.29	0.31	-	-6.9	20	76	01
2,2-Dichloropropane	0.342	0.377	-	-10.2	20	81	02
Bromochloromethane	0.121	0.124	-	-2.5	20	73	02
Cyclohexane	0.622	0.623	-	-0.2	20	74	02
Chloroform	0.466	0.496	-	-6.4	20	76	01
Ethyl acetate	0.346	0.279	-	19.4	20	63	02
Carbon tetrachloride	0.273	0.306	-	-12.1	20	89	01
Tetrahydrofuran	0.112	0.094	-	16.1	20	56	01
Dibromofluoromethane	0.251	0.258	-	-2.8	20	77	01
1,1,1-Trichloroethane	0.39	0.427	<u> </u>	-9.5	20	79	02
2-Butanone	0.14	0.108	<u> </u>	22.9*	20	63	01
1,1-Dichloropropene	0.357	0.35		2	20	71	0
Benzene	1.039	1.034	<u> </u>	0.5	20	75	01
tert-Amyl methyl ether	0.734	0.654	<u> </u>	10.9	20	70	02
1,2-Dichloroethane-d4	0.734	0.654	-		20	81	02
·				-4.1 -2	20	81	01
1,2-Dichloroethane	0.45	0.459	-				
Methyl cyclohexane	0.404	0.391	-	3.2	20	74	01
Trichloroethene	0.264	0.277	-	-4.9	20	76	01

^{*} Value outside of QC limits.



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Instrument ID : VOA108

Lab File ID : V08200903A01 Sample No : WG1406399-2

Channel:

Lab Number : L2036293
Project Number : 170381202

Calibration Date : 09/03/20 08:54

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Dibromomethane	0.161	0.153	-	5	20	73	0
1,2-Dichloropropane	0.348	0.349	-	-0.3	20	76	01
2-Chloroethyl vinyl ether	0.195	0.099	-	49.2*	20	39	0
Bromodichloromethane	0.357	0.371	-	-3.9	20	83	01
1,4-Dioxane	0.00219	0.00181*	-	17.4	20	64	01
cis-1,3-Dichloropropene	0.422	0.409	-	3.1	20	75	01
Chlorobenzene-d5	1	1	-	0	20	78	01
Toluene-d8	1.373	1.338	-	2.5	20	77	01
Toluene	0.909	0.871	-	4.2	20	74	01
4-Methyl-2-pentanone	0.174	0.13	-	25.3*	20	61	01
Tetrachloroethene	0.372	0.339	-	8.9	20	71	01
trans-1,3-Dichloropropene	0.529	0.481	-	9.1	20	74	01
Ethyl methacrylate	0.423	0.318	-	24.8*	20	59	0
1,1,2-Trichloroethane	0.276	0.249	-	9.8	20	70	01
Chlorodibromomethane	0.326	0.321	-	1.5	20	80	01
1,3-Dichloropropane	0.572	0.513	-	10.3	20	69	0
1,2-Dibromoethane	0.307	0.271	-	11.7	20	69	01
2-Hexanone	0.342	0.225	-	34.2*	20	56	0
Chlorobenzene	0.975	0.987	-	-1.2	20	77	01
Ethylbenzene	1.712	1.708	-	0.2	20	76	01
1,1,1,2-Tetrachloroethane	0.329	0.353	-	-7.3	20	88	0
p/m Xylene	0.627	0.644	-	-2.7	20	76	0
o Xylene	0.581	0.605	-	-4.1	20	77	01
Styrene	0.984	1.005		-2.1	20	75	0
1,4-Dichlorobenzene-d4	1	1		0	20	76	0
Bromoform	0.382	0.366		4.2	20	77	0
Isopropylbenzene	3.477	3.616		-4	20	76	0
4-Bromofluorobenzene	1.079	1.098		-1.8	20	77	0
Bromobenzene	0.82	0.82	-	0	20	75	0
n-Propylbenzene	4.125	4.213		-2.1	20	74	0
1,4-Dichlorobutane	1.66	1.56	<u> </u>	6	20	70	0
1,1,2,2-Tetrachloroethane	0.814	0.703		13.6	20	65	0
4-Ethyltoluene	3.209	3.339	<u> </u>	-4.1	20	75	0
2-Chlorotoluene	2.873	2.98		-3.7	20	77	0
1,3,5-Trimethylbenzene	2.894	3.05		-5.4	20	76	0
1,2,3-Trichloropropane	0.693	0.558	-	19.5	20	61	0
• •						69	0
trans-1,4-Dichloro-2-buten	0.296	0.253		14.5	20 20	76	0
4-Chlorotoluene	2.579	2.671	-	-3.6		67	
tert-Butylbenzene	2.687	2.488	-	7.4	20		01
1,2,4-Trimethylbenzene	2.847	2.966	-	-4.2	20	75	0
sec-Butylbenzene	3.386	3.464	-	-2.3	20	74	0
p-Isopropyltoluene	2.978	3.108	-	-4.4	20	76	0
1,3-Dichlorobenzene	1.525	1.564	-	-2.6	20	77	0

^{*} Value outside of QC limits.



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Instrument ID : VOA108

Lab File ID : V08200903A01 Sample No : WG1406399-2

Channel :

Lab Number : L2036293
Project Number : 170381202
Calibration Date : 09/03/20 08:54

Init. Calib. Date(s) : 08/07/20 08/07/20

Init. Calib. Times : 19:03 22:21

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,4-Dichlorobenzene	1.546	1.602	-	-3.6	20	79	0
p-Diethylbenzene	1.684	1.661	-	1.4	20	72	0
n-Butylbenzene	2.763	2.702	-	2.2	20	70	0
1,2-Dichlorobenzene	1.442	1.431	-	0.8	20	75	0
1,2,4,5-Tetramethylbenzene	2.649	2.633	-	0.6	20	72	0
1,2-Dibromo-3-chloropropan	10	7.99	-	20.1*	20	65	0
1,3,5-Trichlorobenzene	0.997	1.013	-	-1.6	20	77	0
Hexachlorobutadiene	0.373	0.383	-	-2.7	20	74	0
1,2,4-Trichlorobenzene	0.944	0.884	-	6.4	20	71	0
Naphthalene	2.21	1.798	-	18.6	20	63	0
1,2,3-Trichlorobenzene	0.869	0.785	-	9.7	20	72	0



^{*} Value outside of QC limits.

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Instrument ID : GONZO Lab File ID : VG200904A01 Sample No : WG1407080-2

Channel:

ntal Lab Number : L2036293 Project Number : 170381202 Calibration Date : 09/04/20 09:19

Init. Calib. Date(s) : 09/02/20 09/03/20 Init. Calib. Times : 21:44 01:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(m
Fluorobenzene	1	1	-	0	20	100	0
Dichlorodifluoromethane	0.252	0.203	-	19.4	20	82	0
Chloromethane	0.26	0.265	-	-1.9	20	103	0
Vinyl chloride	0.268	0.237	-	11.6	20	88	0
Bromomethane	0.181	0.121	-	33.1*	20	71	0
Chloroethane	0.153	0.152	-	0.7	20	103	0
Trichlorofluoromethane	0.34	0.281	-	17.4	20	81	0
Ethyl ether	0.095	0.095	-	0	20	99	0
1,1-Dichloroethene	0.199	0.181	-	9	20	92	0
Carbon disulfide	0.466	0.427	-	8.4	20	93	0
Freon-113	0.197	0.161	-	18.3	20	79	0
lodomethane	10	6.12	-	38.8*	20	73	0
Acrolein	0.023	0.022*	-	4.3	20	100	0
Methylene chloride	0.215	0.214	-	0.5	20	105	0
Acetone	0.032	0.04*	-	-25*	20	135	0
trans-1,2-Dichloroethene	0.206	0.2	-	2.9	20	97	0
Methyl acetate	0.089	0.085*	-	4.5	20	98	0
Methyl tert-butyl ether	0.479	0.475	-	0.8	20	100	0
tert-Butyl alcohol	0.012	0.015*	-	-25*	20	129	0
Diisopropyl ether	0.65	0.651	-	-0.2	20	101	0
1,1-Dichloroethane	0.4	0.398	-	0.5	20	101	0
Halothane	0.176	0.159	-	9.7	20	92	01
Acrylonitrile	0.041	0.041*	-	0	20	95	0
Ethyl tert-butyl ether	0.624	0.619	-	0.8	20	101	0
Vinyl acetate	0.423	0.41	-	3.1	20	100	0
cis-1,2-Dichloroethene	0.243	0.244	-	-0.4	20	102	0
2,2-Dichloropropane	0.307	0.32	-	-4.2	20	99	0
Bromochloromethane	0.097	0.104		-7.2	20	101	0
Cyclohexane	0.384	0.302	-	21.4*	20	79	0
Chloroform	0.371	0.37	-	0.3	20	104	0
Ethyl acetate	0.128	0.131	-	-2.3	20	102	0
Carbon tetrachloride	0.306	0.278	-	9.2	20	88	0
Tetrahydrofuran	0.039	0.04*	<u> </u>	-2.6	20	104	0
Dibromofluoromethane	0.244	0.239	<u> </u>	2	20	99	01
1,1,1-Trichloroethane	0.244	0.239	-	5.6	20	99	0
	0.354	0.334	-	-7.4	20	108	0
2-Butanone				5	20		
1,1-Dichloropropene	0.301	0.286	-			93	0
Benzene	0.881	0.893	-	-1.4	20	102	0
tert-Amyl methyl ether	0.554	0.547	-	1.3	20	100	0
1,2-Dichloroethane-d4	0.256	0.262	-	-2.3	20	100	0
1,2-Dichloroethane	0.258	0.255	-	1.2	20	99	0
Methyl cyclohexane	0.399	0.303	-	24.1*	20	75	0
Trichloroethene	0.237	0.233	-	1.7	20	99	0

^{*} Value outside of QC limits.



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Instrument ID : GONZO

Lab File ID : VG200904A01 Sample No : WG1407080-2

Channel

: L2036293 Lab Number Project Number : 170381202

Calibration Date : 09/04/20 09:19

Init. Calib. Date(s) : 09/02/20 09/03/20 Init. Calib. Times : 21:44 01:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(m
Dibromomethane	0.119	0.113	-	5	20	99	0
1,2-Dichloropropane	0.22	0.217	-	1.4	20	100	0
2-Chloroethyl vinyl ether	0.113	0.109	-	3.5	20	99	0
Bromodichloromethane	0.286	0.28	-	2.1	20	102	0
1,4-Dioxane	0.00129	0.00125*	-	3.1	20	95	0
cis-1,3-Dichloropropene	0.345	0.352	-	-2	20	103	0
Chlorobenzene-d5	1	1	-	0	20	100	0
Toluene-d8	1.337	1.329	-	0.6	20	99	0
Toluene	0.769	0.783	-	-1.8	20	102	0
4-Methyl-2-pentanone	0.076	0.071*	-	6.6	20	99	01
Tetrachloroethene	0.348	0.333	-	4.3	20	92	0
trans-1,3-Dichloropropene	0.406	0.407	-	-0.2	20	103	0
Ethyl methacrylate	0.282	0.282	-	0	20	99	0
1,1,2-Trichloroethane	0.193	0.18	-	6.7	20	100	0
Chlorodibromomethane	0.27	0.266	-	1.5	20	100	01
1,3-Dichloropropane	0.379	0.372	-	1.8	20	99	0
1,2-Dibromoethane	0.222	0.214	-	3.6	20	99	0
2-Hexanone	0.12	0.12	-	0	20	100	0
Chlorobenzene	0.825	0.855	-	-3.6	20	102	0
Ethylbenzene	1.489	1.492	-	-0.2	20	99	0
1,1,1,2-Tetrachloroethane	0.297	0.301	-	-1.3	20	101	0
p/m Xylene	0.579	0.592	-	-2.2	20	99	0
o Xylene	0.526	0.536	-	-1.9	20	100	0
Styrene	0.883	0.92	-	-4.2	20	102	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	102	0
Bromoform	0.35	0.351	-	-0.3	20	103	0
Isopropylbenzene	2.925	2.781	-	4.9	20	96	0
4-Bromofluorobenzene	0.946	0.904	-	4.4	20	100	0
Bromobenzene	0.702	0.707	-	-0.7	20	102	0
n-Propylbenzene	3.371	3.221	-	4.4	20	97	0
1,4-Dichlorobutane	0.699	0.667	-	4.6	20	102	0
1,1,2,2-Tetrachloroethane	0.494	0.477	-	3.4	20	103	0
4-Ethyltoluene	2.724	2.624	-	3.7	20	98	01
2-Chlorotoluene	1.959	1.906	-	2.7	20	98	01
1,3,5-Trimethylbenzene	2.414	2.363	-	2.1	20	99	0
1,2,3-Trichloropropane	0.406	0.382	-	5.9	20	95	0
trans-1,4-Dichloro-2-buten	0.128	0.12	-	6.3	20	102	0
4-Chlorotoluene	2.021	2.004	-	0.8	20	102	01
tert-Butylbenzene	2.039	1.913	-	6.2	20	94	0
1,2,4-Trimethylbenzene	2.328	2.346	-	-0.8	20	102	0
sec-Butylbenzene	2.88	2.612	-	9.3	20	90	0
p-Isopropyltoluene	2.552	2.399		6	20	92	0
1,3-Dichlorobenzene	1.274	1.33	<u> </u>	-4.4	20	105	0

^{*} Value outside of QC limits.



Lab Number

Project Number

: L2036293

: 170381202

: 21:44

: 09/04/20 09:19

09/03/20

01:33

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Instrument ID : GONZO

Calibration Date Lab File ID Init. Calib. Date(s) : 09/02/20 : VG200904A01 Init. Calib. Times Sample No : WG1407080-2

Channel

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,4-Dichlorobenzene	1.289	1.338	-	-3.8	20	104	0
p-Diethylbenzene	1.434	1.358	-	5.3	20	95	0
n-Butylbenzene	2.249	2.088	-	7.2	20	94	0
1,2-Dichlorobenzene	1.145	1.194	-	-4.3	20	104	0
1,2,4,5-Tetramethylbenzene	2.024	2.044	-	-1	20	103	01
1,2-Dibromo-3-chloropropan	0.076	0.074	-	2.6	20	105	0
1,3,5-Trichlorobenzene	0.837	0.88	-	-5.1	20	106	0
Hexachlorobutadiene	0.403	0.337	-	16.4	20	91	0
1,2,4-Trichlorobenzene	0.723	0.751	-	-3.9	20	110	0
Naphthalene	1.278	1.284	-	-0.5	20	110	0
1.2.3-Trichlorobenzene	0.581	0.581	-	0	20	109	0



^{*} Value outside of QC limits.

Surrogate Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental Project Name: 250 WATER STREET

Lab Number: L2036293 Project Number: 170381202 Matrix: Water/Field Blank

CLIENT ID	S 1	S2	S3	S4	S5	S6	тот
(LAB SAMPLE NO.)	(2FP)	(PHL)	(NBZ)	(FBP)	(TBP)	(TPH)	OUT
MW33_090220 (L2036293-01)	70	58	92	92	90	87	0
MW31_090220 (L2036293-02)	85	63	108	103	120	102	0
MW34_090220 (L2036293-03)	72	59	95	99	116	107	0
MW32_090220 (L2036293-04)	80	64	94	91	103	99	0
MW26_090220 (L2036293-05)	67	55	85	91	99	98	0
MW30_090220 (L2036293-06)	77	65	115	93	108	99	0
GWDUP01_090220 (L2036293-07)	66	59	90	93	125*	117	1
GWFB02_090220 (L2036293-08)	66	51	80	83	86	96	0
WG1406783-1BLANK	60	44	69	72	62	71	0
WG1406783-2LCS	51	44	57	55	55	54	0
WG1406783-3LCSD	57	48	68	71	76	73	0
WG1407204-1BLANK	53	43	66	75	80	90	0
WG1407204-2LCS	76	63	92	92	98	79	0
WG1407204-3LCSD	72	66	92	96	104	92	0

QC LIMITS

(21-120) 2FP = 2-FLUOROPHENOL (10-120) PHL = PHENOL-D6 (23-120) NBZ = NITROBENZENE-D5 (15-120) FBP = 2-FLUOROBIPHENYL (10-120) TBP = 2,4,6-TRIBROMOPHENOL

(41-149) TPH = 4-TERPHENYL-D14

FORM II NYTCL-8270-LVI



^{*} Values outside of QC limits

Client : Langan Engineering & Environmental Lab Nu
Project Name : 250 WATER STREET Project
Matrix : WATER
LCS Sample ID : WG1406783-2 Analysis Date : 09/05/20 00:20 Lab Number : L2036293 Project Number: 170381202

File ID : 406783-2 LCSD Sample ID : WG1406783-3 Analysis Date : 09/05/20 00:46 File ID : 406783-3

	Laboratory Control Sample		ole	Laboratory Control Duplicate					
_	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Acenaphthene	18	10.	56	18	13.	70	22	37-111	30
1,2,4-Trichlorobenzene	18	8.6	47	18	11.	59	23	39-98	30
Hexachlorobenzene	18	9.7	54	18	14.	75	33 Q	40-140	30
Bis(2-chloroethyl)ether	18	9.7	54	18	12.	68	23	40-140	30
2-Chloronaphthalene	18	9.5	52	18	13.	70	30	40-140	30
1,2-Dichlorobenzene	18	8.4	46	18	10.	57	21	40-140	30
1,3-Dichlorobenzene	18	8.1	44	18	10.	57	26	40-140	30
1,4-Dichlorobenzene	18	8.3	46	18	10.	57	21	36-97	30
3,3'-Dichlorobenzidine	18	10.	58	18	13.	72	22	40-140	30
2,4-Dinitrotoluene	18	11.	60	18	13.	73	20	48-143	30
2,6-Dinitrotoluene	18	10.	57	18	13.	73	25	40-140	30
Fluoranthene	18	9.9	54	18	13.	70	26	40-140	30
4-Chlorophenyl phenyl ether	18	10.	58	18	14.	75	26	40-140	30
4-Bromophenyl phenyl ether	18	10.	58	18	14.	77	28	40-140	30
Bis(2-chloroisopropyl)ether	18	8.2	45	18	11.	58	25	40-140	30
Bis(2-chloroethoxy)methane	18	10.	56	18	12.	68	19	40-140	30
Hexachlorobutadiene	18	8.5	47	18	11.	61	26	40-140	30
Hexachlorocyclopentadiene	18	8.0	44	18	11.	60	31 Q	40-140	30
Hexachloroethane	18	8.0	44	18	9.9	55	22	40-140	30
Isophorone	18	9.7	53	18	12.	66	22	40-140	30
Naphthalene	18	9.3	51	18	12.	66	26	40-140	30
Nitrobenzene	18	9.3	51	18	12.	65	24	40-140	30
NDPA/DPA	18	11.	58	18	14.	79	31 Q	40-140	30
n-Nitrosodi-n-propylamine	18	9.8	54	18	12.	68	23	29-132	30
Bis(2-ethylhexyl)phthalate	18	13.	73	18	18.	99	30	40-140	30
Butyl benzyl phthalate	18	12.	66	18	16.	89	30	40-140	30



Client : Langan Engineering & Environmental Lab Nu
Project Name : 250 WATER STREET Project
Matrix : WATER
LCS Sample ID : WG1406783-2 Analysis Date : 09/05/20 00:20 Lab Number : L2036293 Project Number: 170381202

File ID : 406783-2 LCSD Sample ID : WG1406783-3 Analysis Date : 09/05/20 00:46 File ID : 406783-3

	Laborator	y Control Samp	ole	Laboratory	Laboratory Control Duplicate				
_	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Di-n-butylphthalate	18	11.	59	18	14.	78	28	40-140	30
Di-n-octylphthalate	18	13.	71	18	17.	94	28	40-140	30
Diethyl phthalate	18	11.	62	18	15.	82	28	40-140	30
Dimethyl phthalate	18	11.	59	18	14.	76	25	40-140	30
Benzo(a)anthracene	18	12.	64	18	15.	83	26	40-140	30
Benzo(a)pyrene	18	10.	56	18	14.	74	28	40-140	30
Benzo(b)fluoranthene	18	11.	62	18	14.	77	22	40-140	30
Benzo(k)fluoranthene	18	10.	58	18	14.	76	27	40-140	30
Chrysene	18	11.	59	18	14.	75	24	40-140	30
Acenaphthylene	18	9.8	54	18	13.	71	27	45-123	30
Anthracene	18	11.	58	18	14.	75	26	40-140	30
Benzo(ghi)perylene	18	11.	60	18	14.	79	27	40-140	30
Fluorene	18	11.	59	18	14.	76	25	40-140	30
Phenanthrene	18	10.	57	18	14.	75	27	40-140	30
Dibenzo(a,h)anthracene	18	11.	61	18	14.	77	23	40-140	30
Indeno(1,2,3-cd)pyrene	18	11.	62	18	15.	81	27	40-140	30
Pyrene	18	9.8	54	18	13.	72	29	26-127	30
Biphenyl	18	10.	56	18	13.	73	26	40-140	30
4-Chloroaniline	18	8.2	45	18	9.8	54	18	40-140	30
2-Nitroaniline	18	10.	58	18	13.	71	20	52-143	30
3-Nitroaniline	18	10.	57	18	12.	64	12	25-145	30
4-Nitroaniline	18	11.	60	18	13.	71	17	51-143	30
Dibenzofuran	18	10.	57	18	13.	73	25	40-140	30
2-Methylnaphthalene	18	9.4	52	18	12.	67	25	40-140	30
1,2,4,5-Tetrachlorobenzene	18	9.1	50	18	12.	66	28	2-134	30
Acetophenone	18	9.9	54	18	12.	67	21	39-129	30



Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406783-2 Analysis Date : 09/05/20 00:20 File ID : 406783-2 LCSD Sample ID : WG1406783-3 Analysis Date : 09/05/20 00:46 File ID : 406783-3

	Laborator	y Control Samp	ole	Laborator	y Control Dupl	icate			
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
2,4,6-Trichlorophenol	18	11.	61	18	14.	76	22	30-130	30
p-Chloro-m-cresol	18	11.	59	18	14.	75	24	23-97	30
2-Chlorophenol	18	9.4	52	18	11.	63	19	27-123	30
2,4-Dichlorophenol	18	10.	56	18	12.	69	21	30-130	30
2,4-Dimethylphenol	18	9.7	54	18	12.	67	21	30-130	30
2-Nitrophenol	18	9.9	54	18	12.	66	20	30-130	30
4-Nitrophenol	18	9.7	53	18	12.	64	19	10-80	30
2,4-Dinitrophenol	18	9.1	50	18	9.8	54	8	20-130	30
4,6-Dinitro-o-cresol	18	10.	57	18	13.	71	22	20-164	30
Pentachlorophenol	18	7.4	41	18	10.	55	29	9-103	30
Phenol	18	7.9	44	18	9.0	50	13	12-110	30
2-Methylphenol	18	9.8	54	18	12.	66	20	30-130	30
3-Methylphenol/4-Methylphenol	18	11.	59	18	13.	71	18	30-130	30
2,4,5-Trichlorophenol	18	11.	59	18	14.	75	24	30-130	30
Benzoic Acid	18	ND	0 Q	18	ND	0 Q	NC	10-164	30
Benzyl Alcohol	18	10.	56	18	12.	64	13	26-116	30
Carbazole	18	11.	60	18	14.	76	24	55-144	30



Client : Langan Engineering & Environmental Lab Nu
Project Name : 250 WATER STREET Project
Matrix : WATER
LCS Sample ID : WG1407204-2 Analysis Date : 09/09/20 00:04 Lab Number : L2036293 Project Number: 170381202

File ID : 407204-2 LCSD Sample ID : WG1407204-3 Analysis Date : 09/09/20 00:30 File ID : 407204-3

	Laborator	y Control Samı	ole	Laborator	Laboratory Control Duplicate				
_	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
1,2,4-Trichlorobenzene	18	14.	75	18	14.	76	1	39-98	30
Bis(2-chloroethyl)ether	18	16.	85	18	15.	84	1	40-140	30
1,2-Dichlorobenzene	18	13.	73	18	13.	72	1	40-140	30
1,3-Dichlorobenzene	18	13.	74	18	13.	71	4	40-140	30
1,4-Dichlorobenzene	18	13.	74	18	12.	69	7	36-97	30
3,3'-Dichlorobenzidine	18	15.	80	18	16.	87	8	40-140	30
2,4-Dinitrotoluene	18	18.	96	18	18.	99	3	48-143	30
2,6-Dinitrotoluene	18	16.	88	18	19.	103	16	40-140	30
4-Chlorophenyl phenyl ether	18	16.	91	18	17.	92	1	40-140	30
4-Bromophenyl phenyl ether	18	17.	95	18	17.	94	1	40-140	30
Bis(2-chloroisopropyl)ether	18	13.	74	18	14.	74	0	40-140	30
Bis(2-chloroethoxy)methane	18	16.	88	18	17.	94	7	40-140	30
Hexachlorocyclopentadiene	18	14.	76	18	12.	66	14	40-140	30
Isophorone	18	15.	82	18	16.	90	9	40-140	30
Nitrobenzene	18	15.	84	18	16.	86	2	40-140	30
NDPA/DPA	18	17.	92	18	18.	98	6	40-140	30
n-Nitrosodi-n-propylamine	18	15.	84	18	16.	89	6	29-132	30
Bis(2-ethylhexyl)phthalate	18	23.	128	18	24.	131	2	40-140	30
Butyl benzyl phthalate	18	17.	92	18	19.	104	12	40-140	30
Di-n-butylphthalate	18	17.	95	18	19.	103	8	40-140	30
Di-n-octylphthalate	18	19.	106	18	20.	112	6	40-140	30
Diethyl phthalate	18	18.	99	18	19.	105	6	40-140	30
Dimethyl phthalate	18	18.	102	18	20.	112	9	40-140	30
Biphenyl	18	16.	88	18	17.	93	6	40-140	30
4-Chloroaniline	18	14.	76	18	15.	82	8	40-140	30
2-Nitroaniline	18	16.	86	18	17.	95	10	52-143	30



Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1407204-2 Analysis Date : 09/09/20 00:04 File ID : 407204-2 LCSD Sample ID : WG1407204-3 Analysis Date : 09/09/20 00:30 File ID : 407204-3

	Laboratory Control Sample			Laboratory Control Duplicate					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
3-Nitroaniline	18	14.	77	18	16.	86	11	25-145	30
4-Nitroaniline	18	15.	82	18	16.	90	9	51-143	30
Dibenzofuran	18	16.	87	18	16.	88	1	40-140	30
1,2,4,5-Tetrachlorobenzene	18	15.	82	18	15.	83	1	2-134	30
Acetophenone	18	16.	88	18	16.	89	1	39-129	30
2,4,6-Trichlorophenol	18	17.	94	18	18.	102	8	30-130	30
p-Chloro-m-cresol	18	17.	94	18	18.	101 Q	7	23-97	30
2-Chlorophenol	18	15.	81	18	14.	80	1	27-123	30
2,4-Dichlorophenol	18	16.	86	18	18.	98	13	30-130	30
2,4-Dimethylphenol	18	11.	63	18	12.	66	5	30-130	30
2-Nitrophenol	18	16.	87	18	16.	88	1	30-130	30
4-Nitrophenol	18	13.	74	18	15.	82 Q	10	10-80	30
2,4-Dinitrophenol	18	16.	88	18	18.	98	11	20-130	30
4,6-Dinitro-o-cresol	18	17.	92	18	18.	99	7	20-164	30
Phenol	18	11.	60	18	12.	64	6	12-110	30
2-Methylphenol	18	14.	78	18	15.	81	4	30-130	30
3-Methylphenol/4-Methylphenol	18	16.	86	18	17.	92	7	30-130	30
2,4,5-Trichlorophenol	18	17.	95	18	19.	106	11	30-130	30
Benzoic Acid	18	ND	0 Q	18	12.	64	200	10-164	30
Benzyl Alcohol	18	14.	78	18	16.	85	9	26-116	30
Carbazole	18	16.	88	18	18.	96	9	55-144	30



Surrogate Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental Project Name: 250 WATER STREET

Lab Number: L2036293 Project Number: 170381202 Matrix: Water/Field Blank

CLIENT ID	S1	S2	S3	S4	S5	S6	тот
(LAB SAMPLE NO.)	(2FP)	(PHL)	(NBZ)	(FBP)	(TBP)	(TPH)	OUT
MW33_090220 (L2036293-01)	66	58	93	90	104	148	0
MW34_090220 (L2036293-03)	73	65	102	105	120	167*	1
MW32_090220 (L2036293-04)	73	66	102	102	119	160*	1
MW26_090220 (L2036293-05)	64	57	93	96	124*	165*	2
MW30_090220 (L2036293-06)	81	72	109	106	137*	171*	2
GWDUP01_090220 (L2036293-07)	70	71	97	99	121*	164*	2
GWFB02_090220 (L2036293-08)	68	63	97	98	117	170*	1
WG1406785-1BLANK	61	49	76	79	85	123	0
WG1406785-2LCS	59	52	77	77	87	124	0
WG1406785-3LCSD	53	48	59	61	71	97	0
WG1407203-1BLANK	52	46	73	81	92	151*	1
WG1407203-2LCS	63	57	88	88	105	151*	1
WG1407203-3LCSD	62	58	91	93	106	155*	1

QC LIMITS

(21-120) 2FP = 2-FLUOROPHENOL (10-120) PHL = PHENOL-D6 (23-120) NBZ = NITROBENZENE-D5 (15-120) FBP = 2-FLUOROBIPHENYL (10-120) TBP = 2,4,6-TRIBROMOPHENOL (41-149) TPH = 4-TERPHENYL-D14

FORM II NYTCL-8270-SIM-LVI



^{*} Values outside of QC limits

Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406785-2 Analysis Date : 09/05/20 09:10 File ID : 406785-2 LCSD Sample ID : WG1406785-3 Analysis Date : 09/05/20 09:30 File ID : 406785-3

	Laborator	Laboratory Control Sample			Laboratory Control Duplicate				
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Acenaphthene	3.6	2.8	78	3.6	2.2	62	23	40-140	40
2-Chloronaphthalene	3.6	2.6	73	3.6	2.1	57	25	40-140	40
Fluoranthene	3.6	3.3	90	3.6	2.6	71	24	40-140	40
Hexachlorobutadiene	3.6	2.3	63	3.6	1.8	49	25	40-140	40
Naphthalene	3.6	2.6	70	3.6	2.0	54	26	40-140	40
Benzo(a)anthracene	3.6	2.8	78	3.6	2.2	60	26	40-140	40
Benzo(a)pyrene	3.6	2.8	78	3.6	2.3	64	20	40-140	40
Benzo(b)fluoranthene	3.6	2.8	78	3.6	2.2	61	24	40-140	40
Benzo(k)fluoranthene	3.6	3.1	86	3.6	2.4	66	26	40-140	40
Chrysene	3.6	3.0	83	3.6	2.3	64	26	40-140	40
Acenaphthylene	3.6	3.0	83	3.6	2.4	65	24	40-140	40
Anthracene	3.6	3.0	84	3.6	2.4	66	24	40-140	40
Benzo(ghi)perylene	3.6	3.2	89	3.6	2.5	69	25	40-140	40
Fluorene	3.6	2.9	79	3.6	2.3	63	23	40-140	40
Phenanthrene	3.6	2.9	80	3.6	2.3	64	22	40-140	40
Dibenzo(a,h)anthracene	3.6	3.4	92	3.6	2.6	71	26	40-140	40
Indeno(1,2,3-cd)pyrene	3.6	3.2	88	3.6	2.4	67	27	40-140	40
Pyrene	3.6	3.4	92	3.6	2.6	72	24	40-140	40
2-Methylnaphthalene	3.6	2.7	74	3.6	2.1	57	26	40-140	40
Pentachlorophenol	3.6	2.6	72	3.6	1.6	45	46 Q	40-140	40
Hexachlorobenzene	3.6	2.6	71	3.6	2.1	57	22	40-140	40
Hexachloroethane	3.6	2.5	68	3.6	1.9	51	29	40-140	40



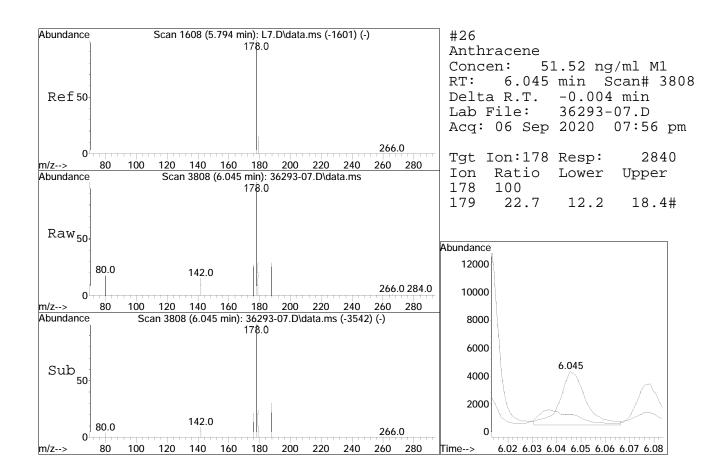
Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

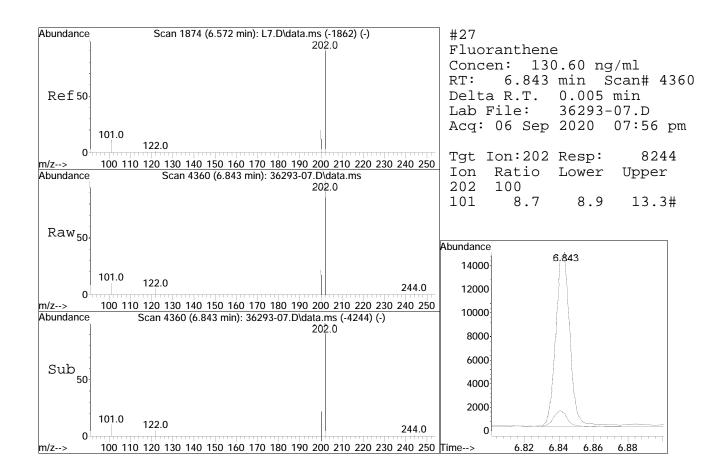
Matrix : WATER

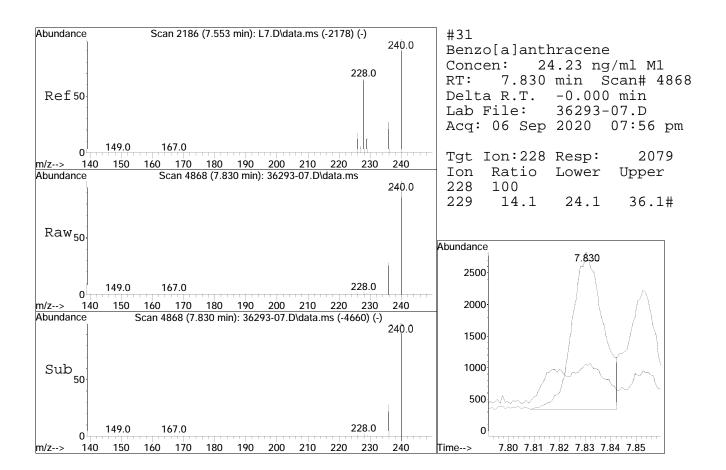
LCS Sample ID : WG1407203-2 Analysis Date : 09/09/20 11:20 File ID : 407203-2 LCSD Sample ID : WG1407203-3 Analysis Date : 09/09/20 11:41 File ID : 407203-3

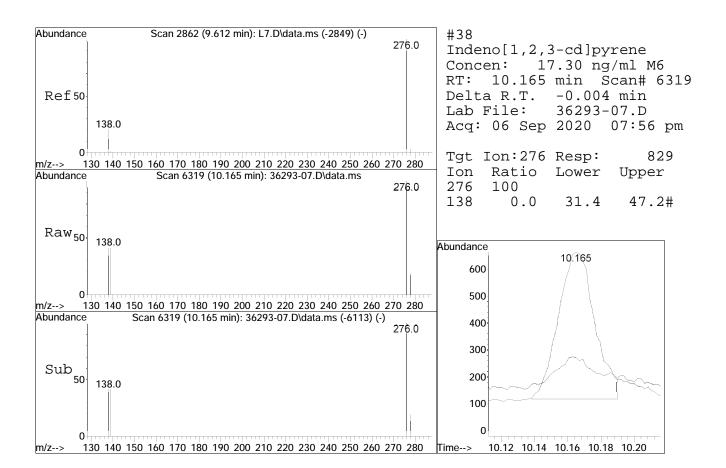
	Laboratory Control Sample			Laboratory Control Duplicate					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Acenaphthene	3.6	3.7	102	3.6	3.9	106	4	40-140	40
2-Chloronaphthalene	3.6	3.4	93	3.6	3.6	99	6	40-140	40
Fluoranthene	3.6	4.7	129	3.6	4.8	132	2	40-140	40
Hexachlorobutadiene	3.6	2.9	79	3.6	3.0	82	4	40-140	40
Naphthalene	3.6	3.3	92	3.6	3.5	96	4	40-140	40
Benzo(a)anthracene	3.6	3.9	108	3.6	4.3	119	10	40-140	40
Benzo(a)pyrene	3.6	4.1	114	3.6	4.4	120	5	40-140	40
Benzo(b)fluoranthene	3.6	4.1	112	3.6	4.4	120	7	40-140	40
Benzo(k)fluoranthene	3.6	4.6	127	3.6	4.9	134	5	40-140	40
Chrysene	3.6	4.4	120	3.6	4.3	118	2	40-140	40
Acenaphthylene	3.6	3.9	107	3.6	4.1	113	5	40-140	40
Anthracene	3.6	4.2	116	3.6	4.4	121	4	40-140	40
Benzo(ghi)perylene	3.6	4.7	129	3.6	5.0	139	7	40-140	40
Fluorene	3.6	3.9	108	3.6	4.0	111	3	40-140	40
Phenanthrene	3.6	4.0	111	3.6	4.2	115	4	40-140	40
Dibenzo(a,h)anthracene	3.6	4.7	129	3.6	5.1	140	8	40-140	40
Indeno(1,2,3-cd)pyrene	3.6	4.4	120	3.6	5.0	138	14	40-140	40
Pyrene	3.6	4.8	131	3.6	4.9	134	2	40-140	40
2-Methylnaphthalene	3.6	3.4	95	3.6	3.6	100	5	40-140	40
Pentachlorophenol	3.6	3.4	94	3.6	4.3	119	23	40-140	40
Hexachlorobenzene	3.6	3.6	98	3.6	3.6	100	2	40-140	40
Hexachloroethane	3.6	3.1	85	3.6	3.1	86	1	40-140	40

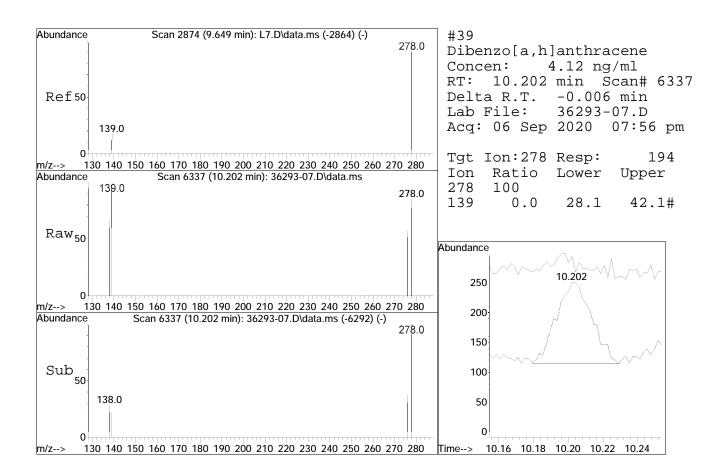


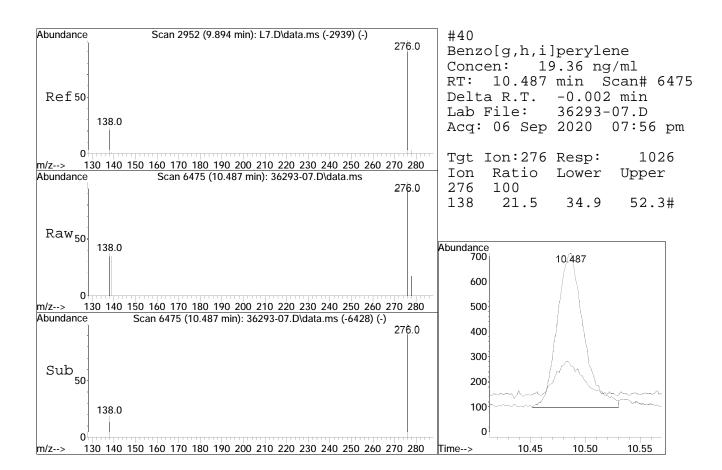


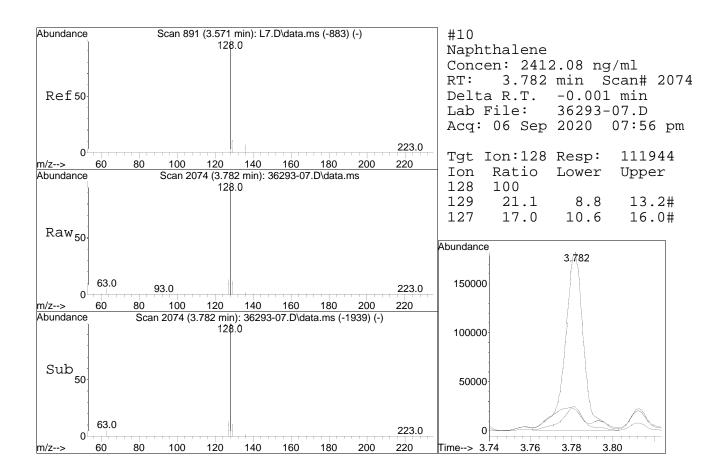


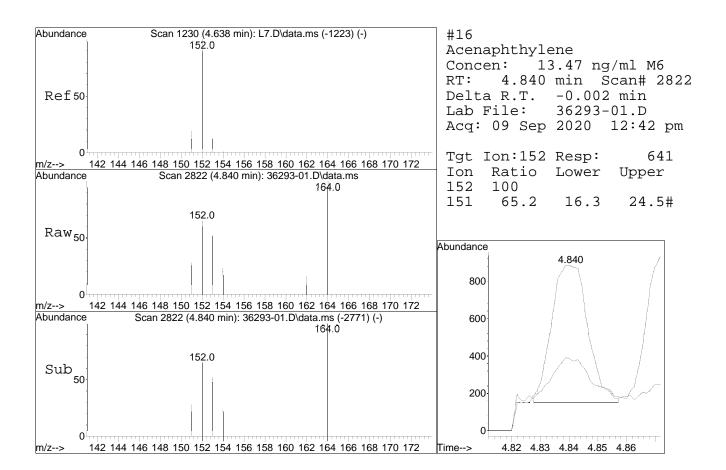


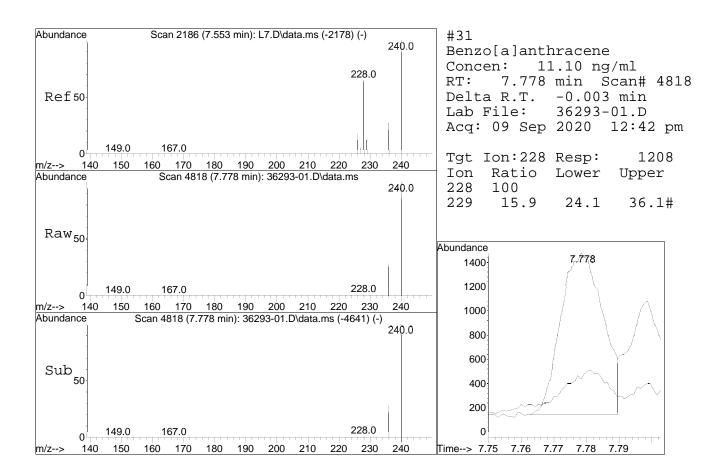


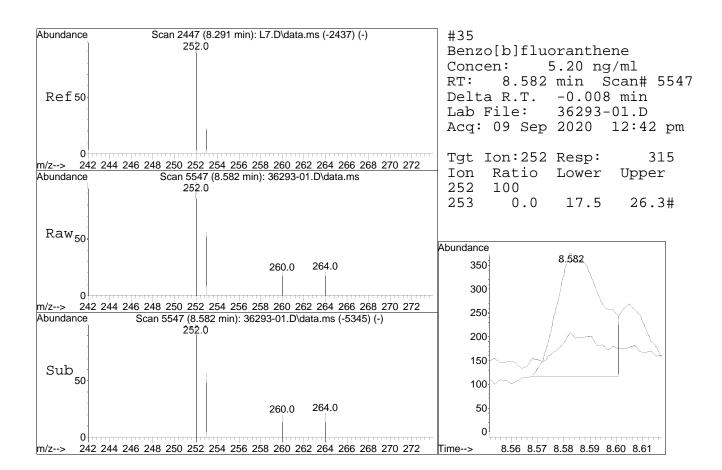


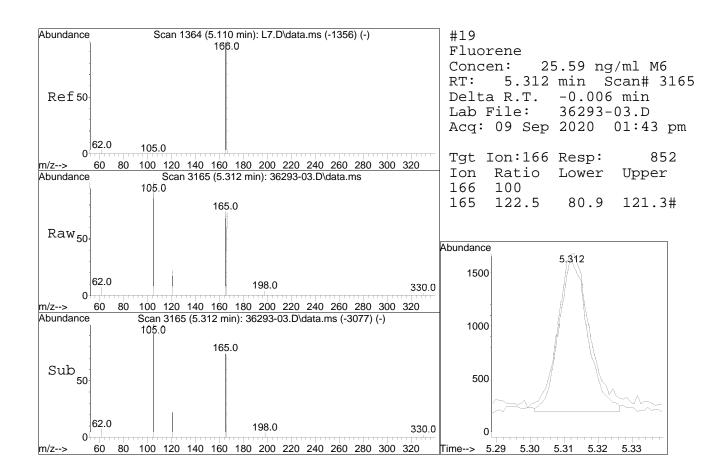


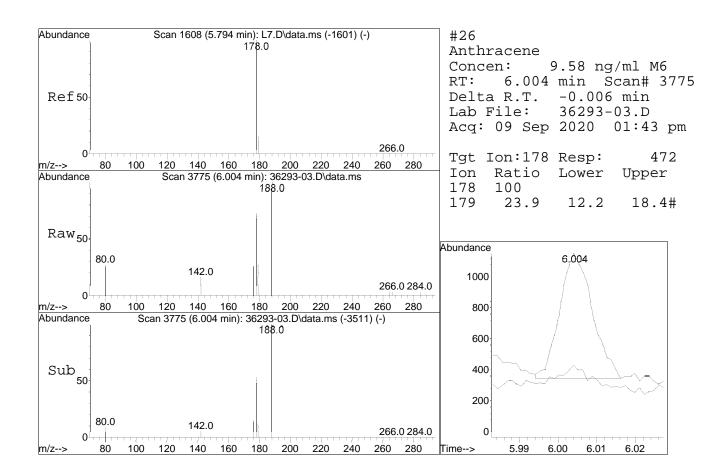


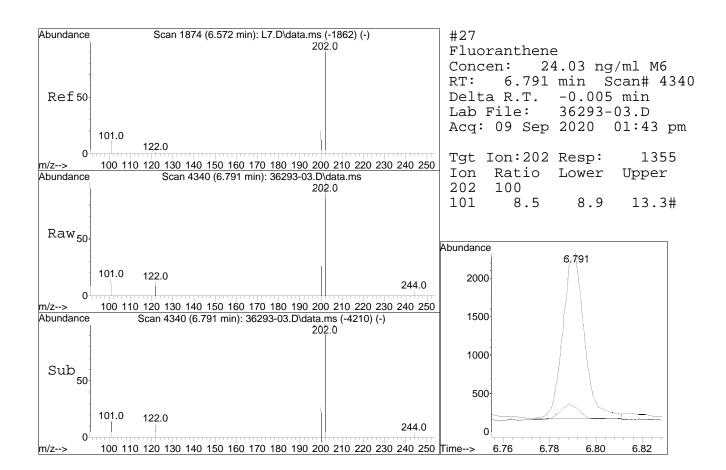


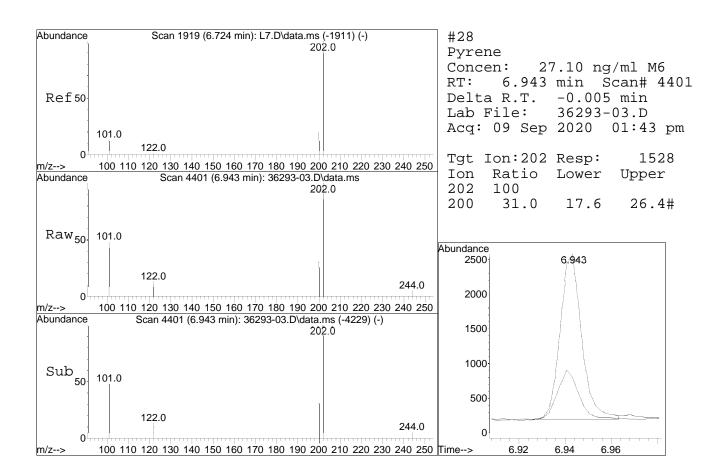


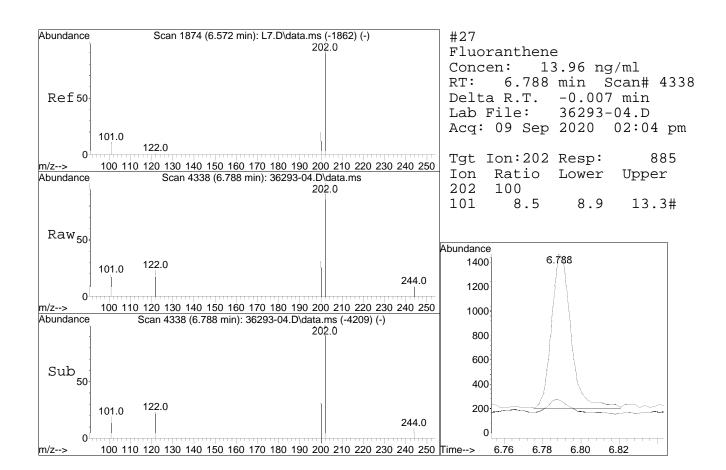


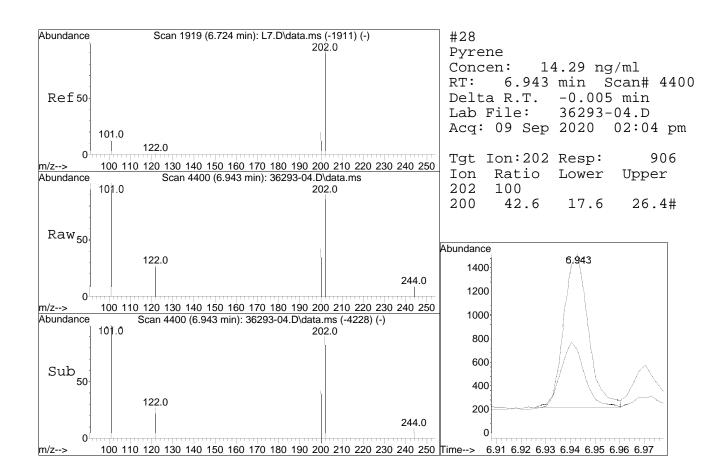


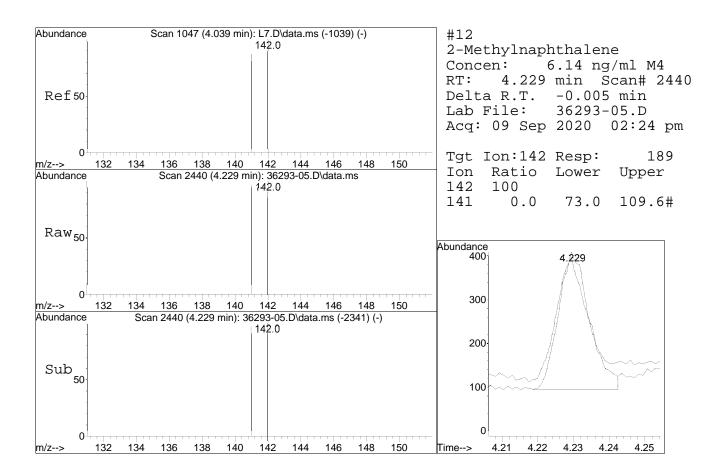


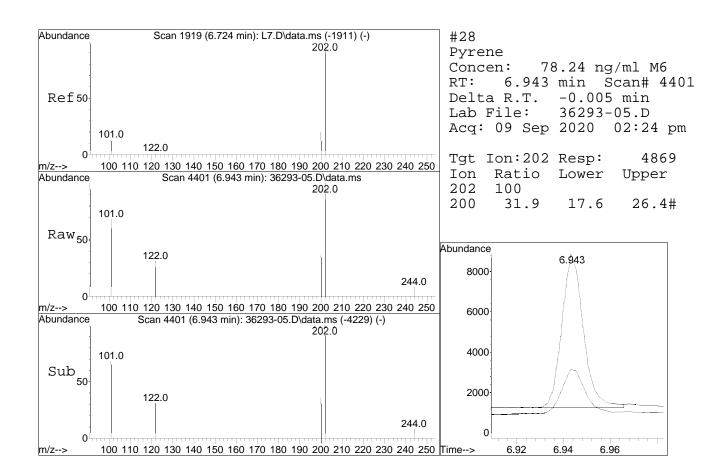


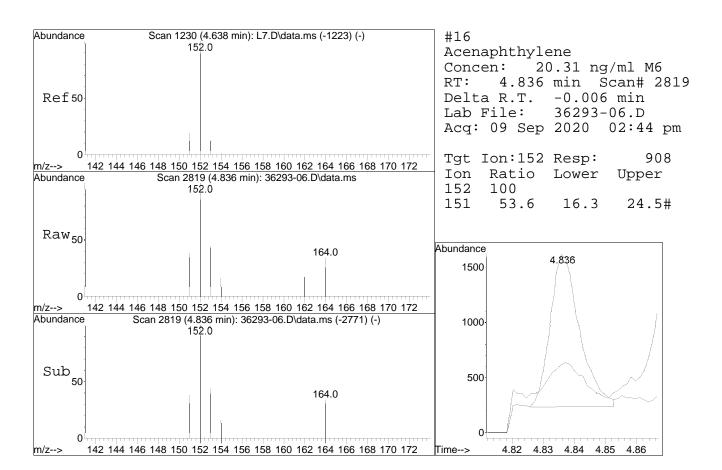


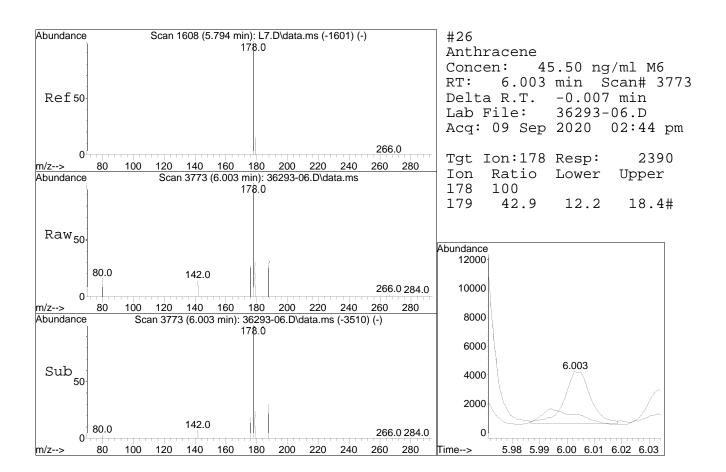


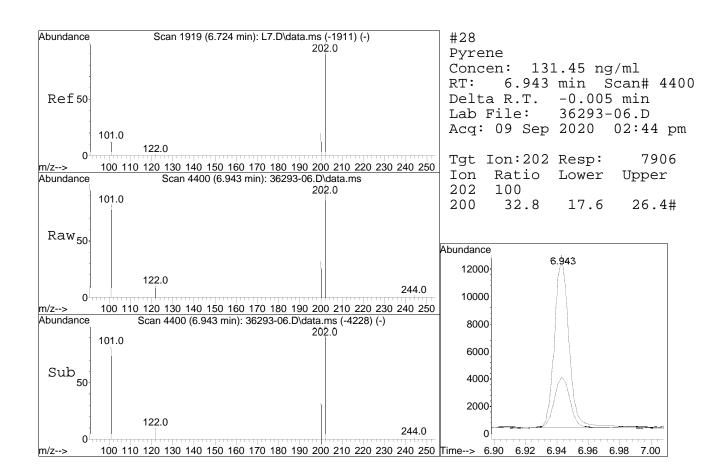


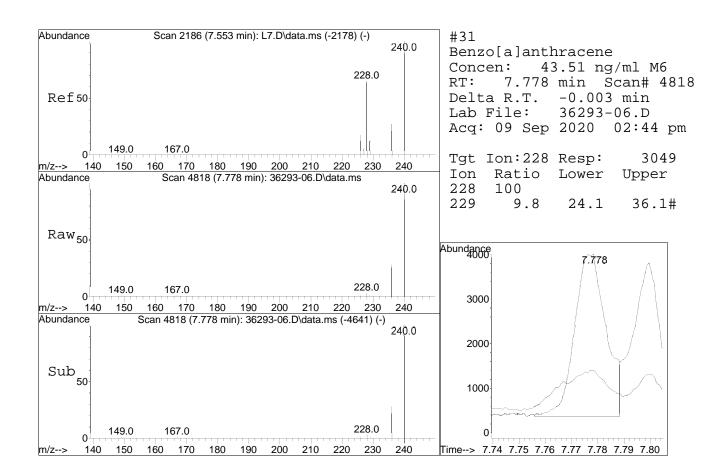


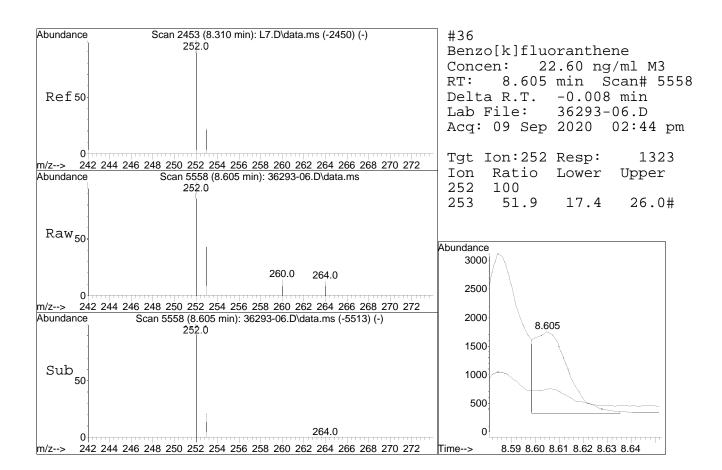


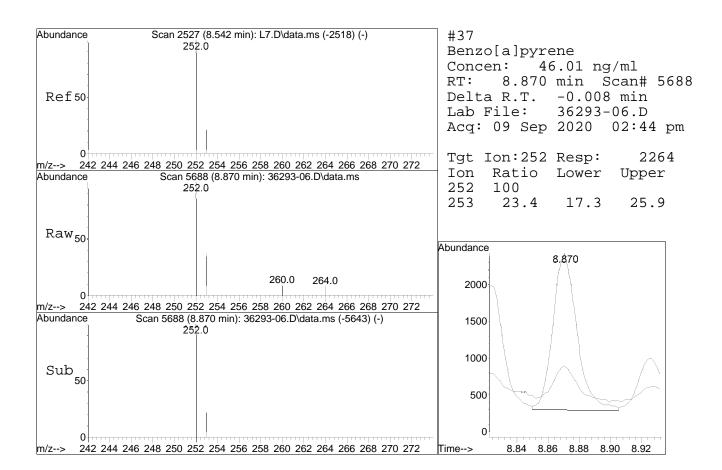


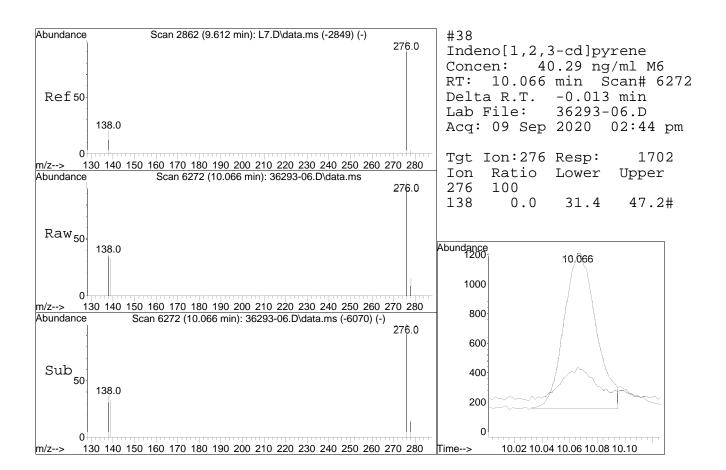


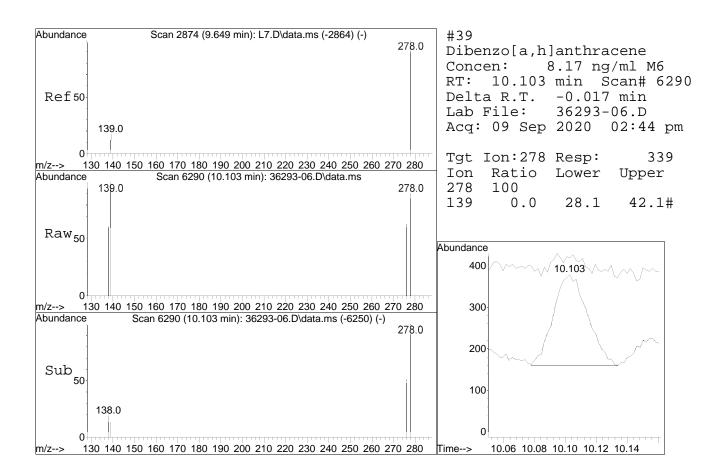


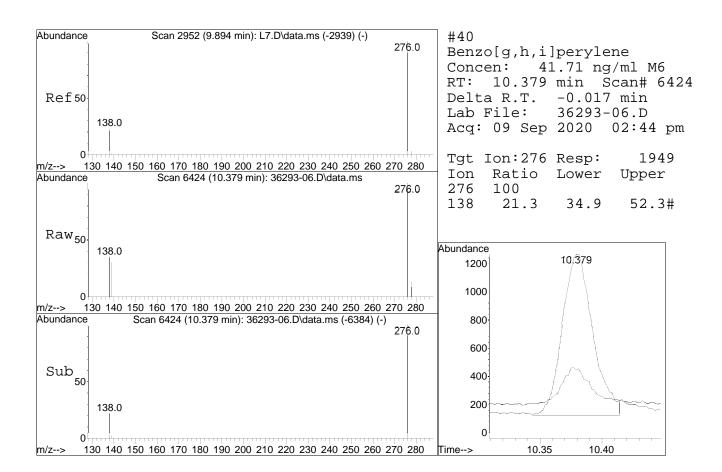












Quantitation Report (QT Reviewed)

Data Path : I:\8270SIM\SV119\200805LVIical\

Data File : IL1.D

: 05 Aug 2020 09:08 pm Acq On

Operator : sv119:dv : IL1,32,,0.005 Sample : LL1,32,,0.0... : wg1397671,,ical Misc

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 11 13:29:38 2020

Quant Method: I:\8270SIM\SV119\200805LVIical\SIM-LVI_200805_sv119.M

Quant Title : Semivolatiles by GC/MS by modified 8270

QLast Update: Tue Aug 11 13:29:34 2020 Response via: Initial Calibration

CCAL FILE(s) : 1 - I:\8270SIM\SV119\200805LVIical\IL7.D

: Default - All compounds listed

Compound	R.T. QIon Response Conc Units Dev(Min)
Internal Standards 1) 1,4-Dichlorobenzene-d4 Standard Area 1 = 83930	2.991 152 65467 4000.000 ng/ml 0.00 Recovery = 78.00%
9) Naphthalene-d8	3.822 136 226066 4000.000 ng/ml # 0.00
Standard Area 1 = 293187 17) Acenaphthene-d10 Standard Area 1 = 155577	Recovery = 77.11% 5.020 164 119029 4000.000 ng/ml 0.00 Recovery = 76.51%
21) Phenanthrene-d10 Standard Area 1 = 338925	6.043 188 262341 4000.000 ng/ml # 0.00 Recovery = 77.40%
30) Chrysene-d12 Standard Area 1 = 263259	7.880 240 222946 4000.000 ng/ml # 0.00 Recovery = 84.69%
34) Perylene-d12 Standard Area 1 = 215972	9.089 264 198320 4000.000 ng/ml 0.00 Recovery = 91.83%
	Recovery = 91.63%
System Monitoring Compounds 3) 2-Fluorophenol	2.205 112 62 4.481 ng/ml 0.00
Spiked Amount 5.000 4) Phenol-d6	Range 15 - 110 Recovery = 89.62% 2.772 99 71 4.491 ng/ml 0.00
Spiked Amount 5.000 8) Nitrobenzene-d5	Range 15 - 110 Recovery = 89.82% 3.351 82 76 5.142 ng/ml 0.00
Spiked Amount 2.500 14) 2-Fluorobiphenyl	Range 30 - 130 Recovery = 205.68%# 4.567 172 232 5.307 ng/ml 0.00
Spiked Amount 2.500 20) 2,4,6-Tribromophenol	Range 30 - 130 Recovery = 212.28%# 0.000 330 0 0.000 ng/ml
Spiked Amount 5.000 29) 4-Terphenyl-d14	Range 15 - 110 Recovery = 0.00%# 7.165 244 193 5.681 ng/ml 0.00
Spiked Amount 2.500	Range 30 - 130 Recovery = 227.24%#
Target Compounds 2) 1,4-Dioxane	Qvalue 0.000 0 N.D.
5) Bis(2-chloroethyl)ether 6) n-nitrosodi-n-propylamine	3.675 93 96 4.967 ng/ml# 82
7) Hexachloroethane 10) Naphthalene	3.318 117 46M2 5.953 ng/ml 3.835 128 321 5.818 ng/ml# 69
11) Hexachlorobutadiene	3.933 225 74 5.850 ng/ml# 19
12) 2-Methylnaphthalene13) 1-Methylnaphthalene	4.308 142 192 5.288 ng/ml 99 4.374 142 178 5.152 ng/ml 97
15) 2-Chloronaphthalene16) Acenaphthylene	4.637 162 200 5.155 ng/ml 96 4.921 152 267 4.925 ng/ml 99
18) Acenaphthene	5.041 153 208 5.493 ng/ml 96

Page: 1

SIM-LVI_200805_sv119.M Tue Aug 11 13:45:03 2020

Quantitation Report (QT Reviewed)

Data Path : I:\8270SIM\SV119\200805LVIical\

Data File : IL1.D

: 05 Aug 2020 09:08 pm Acq On

Operator : sv119:dv Sample : IL1,32,,0.005 Misc : wg1397671,,ical

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 11 13:29:38 2020

Quant Method: I:\8270SIM\SV119\200805LVIical\SIM-LVI_200805_sv119.M

Quant Title : Semivolatiles by GC/MS by modified 8270

QLast Update : Tue Aug 11 13:29:34 2020

Response via : Initial Calibration

CCAL FILE(s) : 1 - I:\8270SIM\SV119\200805LVIical\IL7.D

Sub List : Default - All compounds listed

Compound	R.T	. QIon	Response	Conc Unit	ts Dev(M	in)
19) Fluorene 22) 4,6-Dinitro-o-cresol	5.398 0.000	166	218	5.440 N.D	ng/ml	97
23) Hexachlorobenzene	5.781	284	104		ng/ml#	36
24) Pentachlorophenol	5.923	266	42	10.498	ng/ml#	18
25) Phenanthrene	6.057	178	443		ng/ml	98
26) Anthracene	6.093	178	337		ng/ml	97
27) Fluoranthene	6.883	202	417		ng/ml#	71
28) Pyrene	7.035	202	405		ng/ml	97
<pre>31) Benzo[a]anthracene</pre>	7.879	228	1048	6.750	ng/ml	94
32) Chrysene	7.895	228	390	5.464	_	99
33) Bis(2-ethylhexyl)phtha	7.939	149	299	40.498		99
<pre>35) Benzo[b]fluoranthene</pre>	8.721	252	306	4.870	ng/ml	99
<pre>36) Benzo[k]fluoranthene</pre>	8.748	252	300M1	4.746	_	
<pre>37) Benzo[a]pyrene</pre>	9.028	252	263	4.950	ng/ml	97
38) Indeno[1,2,3-cd]pyrene	10.287	276	211		ng/ml#	36
<pre>39) Dibenzo[a,h]anthracene</pre>	10.328	278	204		ng/ml#	40
40) Benzo[g,h,i]perylene	10.619	276	246	4.875	ng/ml#	70

^{(#) =} qualifier out of range (m) = manual integration (+) = signals summed

Surrogate Recovery Summary Form 2 Pesticides

Client: Langan Engineering & Environmental Project Name: 250 WATER STREET

Lab Number: L2036293 Project Number: 170381202 Matrix: Water/Field Blank

Project Name. 250 WATER STREE

GC Column 1: STX-CLP1 GC Column 2: STX-CLP2

CLIENT ID	1	2	1	2	OTHER	OTHER	тот	
(LAB SAMPLE NO.)	%REC	%REC	%REC	%REC	(1)	(2)	OUT	
MW33_090220 (L2036293-01)	67	75					0	
MW31_090220 (L2036293-02)	61	71					0	
MW34_090220 (L2036293-03)	59	64					0	
MW32_090220 (L2036293-04)	49	55					0	
MW26_090220 (L2036293-05)	57	67					0	
MW30_090220 (L2036293-06)	65	76					0	
GWDUP01_090220 (L2036293-07)	62	69					0	
GWFB02_090220 (L2036293-08)	57	70					0	
WG1406943-1BLANK	66	68					0	
WG1406943-2LCS	67	110					0	
WG1406943-3LCSD	66	101					0	

QC LIMITS
(30-150) S1 = DCAA

FORM II HERB-APA



^{*} Values outside of QC limits

Surrogate Recovery Summary Form 2 PCBs

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036293 Project Number: 170381202 Matrix: Water/Field Blank

GC Column 1: CLP-Pesticide GC Column 2: CLP-PesticideII

CLIENT ID	TCX 1	TCX 2	DCB 1	DCB 2	OTHER	OTHER	TOT
(LAB SAMPLE NO.)	%REC	%REC	%REC	%REC	(1)	(2)	OUT
MW33_090220 (L2036293-01)	60	62	58	52			0
MW31_090220 (L2036293-02)	59	66	73	66			0
MW34_090220 (L2036293-03)	55	60	48	48			0
MW32_090220 (L2036293-04)	58	60	57	54			0
MW26_090220 (L2036293-05)	55	57	69	63			0
MW30_090220 (L2036293-06)	53	58	52	51			0
GWDUP01_090220 (L2036293-07)	55	58	58	55			0
GWFB02_090220 (L2036293-08)	47	50	36	34			0
WG1406957-1BLANK	67	67	77	67			0
WG1406957-2LCS	71	70	79	70			0
WG1406957-3LCSD	60	59	68	58			0

QC LIMITS

(30-150) TCX = 2,4,5,6-TETRACHLORO-M-XYLENE (30-150) DCBP = DECACHLOROBIPHENYL

FORM II NYTCL-8082-LVI



^{*} Values outside of QC limits

Laboratory Control Sample Summary Form 3 PCBs

Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406957-2 Analysis Date : 09/05/20 14:23 File ID : 13200905a-17 LCSD Sample ID : WG1406957-3 Analysis Date : 09/05/20 14:31 File ID : 13200905a-18

	Laboratory Control Sample			Laboratory					
Parameter	True (ug/l)	Found (ug/l)	%R	True (ug/l)	Found (ug/l)	%R	RPD	Recovery Limits	RPD Limit
Aroclor 1016	1.78	1.39	78	1.78	1.16	65	18	40-140	50
Aroclor 1260	1.78	1.28	72	1.78	1.10	62	15	40-140	50



Surrogate Recovery Summary Form 2 Pesticides

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036293 Project Number: 170381202 Matrix: Water/Field Blank

GC Column 1: CLPPesticides
GC Column 2: CLPPesticidesII

CLIENT ID	TCX 1	TCX 2	DCB 1	DCB 2	OTHER	OTHER	TOT	
(LAB SAMPLE NO.)	%REC	%REC	%REC	%REC	(1)	(2)	OUT	
MW33_090220 (L2036293-01)	79	68	73	75			0	
MW31_090220 (L2036293-02D)	80	77	74	72			0	
MW34_090220 (L2036293-03)	81	74	89	96			0	
MW32_090220 (L2036293-04)	81	71	66	80			0	
MW26_090220 (L2036293-05)	61	61	58	82			0	
MW30_090220 (L2036293-06D)	94	91	68	61			0	
GWDUP01_090220 (L2036293-07D)	80	71	55	47			0	
GWFB02_090220 (L2036293-08)	74	73	73	84			0	
WG1406964-1BLANK	104	70	87	74			0	
WG1406964-2LCS	72	52	82	70			0	
WG1406964-3LCSD	76	55	85	72			0	
WG1408073-1BLANK	103	67	78	61			0	
WG1408073-2LCS	71	52	65	59			0	
WG1408073-3LCSD	74	55	62	59			0	

QC LIMITS

(30-150) TCX = 2,4,5,6-TETRACHLORO-M-XYLENE (30-150) DCBP = DECACHLOROBIPHENYL

FORM II NYTCL-8081



^{*} Values outside of QC limits

Laboratory Control Sample Summary Form 3 Pesticides

Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1406964-2 Analysis Date : 09/06/20 18:42 File ID : 20200906a-24 LCSD Sample ID : WG1406964-3 Analysis Date : 09/06/20 18:53 File ID : 20200906a-25

	Laborator	Laboratory Control Sample			Laboratory Control Duplicate					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD	
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit	
Delta-BHC	0.357	0.220	62	0.357	0.210	59	5	30-150	20	
Lindane	0.357	0.208	58	0.357	0.206	58	1	30-150	20	
Alpha-BHC	0.357	0.224	63	0.357	0.224	63	0	30-150	20	
Beta-BHC	0.357	0.262	73	0.357	0.250	70	5	30-150	20	
Heptachlor	0.357	0.198	55	0.357	0.192	54	3	30-150	20	
Aldrin	0.357	0.158	44	0.357	0.158	44	0	30-150	20	
Heptachlor epoxide	0.357	0.204	57	0.357	0.204	57	0	30-150	20	
Endrin	0.357	0.218	61	0.357	0.208	58	5	30-150	20	
Endrin aldehyde	0.357	0.175	49	0.357	0.164	46	7	30-150	20	
Endrin ketone	0.357	0.297	83	0.357	0.229	64	26 Q	30-150	20	
Dieldrin	0.357	0.212	59	0.357	0.205	57	3	30-150	20	
4,4'-DDE	0.357	0.188	53	0.357	0.181	51	4	30-150	20	
4,4'-DDD	0.357	0.264	74	0.357	0.225	63	16	30-150	20	
4,4'-DDT	0.357	0.249	70	0.357	0.217	61	14	30-150	20	
Endosulfan I	0.357	0.222	62	0.357	0.216	61	3	30-150	20	
Endosulfan II	0.357	0.232	65	0.357	0.219	61	6	30-150	20	
Endosulfan sulfate	0.357	0.308	86	0.357	0.233	65	28 Q	30-150	20	
Methoxychlor	0.357	0.419	117	0.357	0.294	82	35 Q	30-150	20	
cis-Chlordane	0.357	0.192	54	0.357	0.189	53	2	30-150	20	
trans-Chlordane	0.357	0.197	55	0.357	0.207	58	5	30-150	20	



Laboratory Control Sample Summary Form 3 Pesticides

Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Matrix : WATER

LCS Sample ID : WG1408073-2 Analysis Date : 09/10/20 01:03 File ID : 20200909b-28 LCSD Sample ID : WG1408073-3 Analysis Date : 09/10/20 01:14 File ID : 20200909b-29

	Laboratory Control Sample			Laboratory Control Duplicate					
	True	Found	%R	True	Found	%R	RPD	Recovery	RPD
Parameter	(ug/l)	(ug/l)		(ug/l)	(ug/l)			Limits	Limit
Delta-BHC	0.357	0.215	60	0.357	0.205	57	5	30-150	20
Lindane	0.357	0.207	58	0.357	0.200	56	4	30-150	20
Alpha-BHC	0.357	0.219	61	0.357	0.216	61	1	30-150	20
Beta-BHC	0.357	0.271	76	0.357	0.246	69	10	30-150	20
Heptachlor	0.357	0.192	54	0.357	0.190	53	1	30-150	20
Aldrin	0.357	0.159	45	0.357	0.165	46	4	30-150	20
Heptachlor epoxide	0.357	0.202	57	0.357	0.200	56	1	30-150	20
Endrin	0.357	0.209	59	0.357	0.205	57	2	30-150	20
Endrin aldehyde	0.357	0.188	53	0.357	0.164	46	14	30-150	20
Endrin ketone	0.357	0.293	82	0.357	0.215	60	31 Q	30-150	20
Dieldrin	0.357	0.208	58	0.357	0.207	58	0	30-150	20
4,4'-DDE	0.357	0.187	52	0.357	0.185	52	1	30-150	20
4,4'-DDD	0.357	0.251	70	0.357	0.214	60	16	30-150	20
4,4'-DDT	0.357	0.259	73	0.357	0.227	64	13	30-150	20
Endosulfan I	0.357	0.223	62	0.357	0.222	62	0	30-150	20
Endosulfan II	0.357	0.225	63	0.357	0.213	60	6	30-150	20
Endosulfan sulfate	0.357	0.285	80	0.357	0.216	61	28 Q	30-150	20
Methoxychlor	0.357	0.410	115	0.357	0.276	77	39 Q	30-150	20
cis-Chlordane	0.357	0.186	52	0.357	0.185	52	1	30-150	20
trans-Chlordane	0.357	0.198	55	0.357	0.201	56	2	30-150	20



Method Path : I:\Pest10\200708ical\

Method File : pest10_07_08_20_ugL_ical.m

Title : pest

Last Update : Thu Jul 09 23:59:44 2020

	Res	spon	se Via : Initial (Calibrat	ion											
	Cal 1 6	=1	ation Files 0200708i-03.d 2 0200708i-08.d 7						708i-05 708i-19						=10200708 =10200708	
			Compound		1	2	3	4	5	6	7	8	9	10	Avg	%RSD
	1)	i	1-br-2-nb_Pestics 2,4,5,6-Tetra									0.964	0.947	0.879	1.112	14.54
	3)	t	Hexachloroben			1.577	1.447	1.390	1.284	1.313	1.192	1.039	1.012	0.953	1.245	17.10
	4)	t	alpha-BHC			1.921	1.828	1.774	1.684	1.715	1.475	1.413	1.424	1.515	1.639	11.44
4	5)	t	gamma-BHC (li	2.	445	1.907	1.780	1.761	1.650	1.659	1.426	1.311	1.307	1.388	*L	0.998
4	6)	t	beta-BHC				0.872	0.829	0.777	0.795	0.677	0.580	0.557	0.574	*L	0.999
2	7)	t	delta-BHC			1.904	1.811	1.747	1.643	1.663	1.409	1.340	1.339	1.443	*L	0.998
6	8)	t	Heptachlor			1.948	1.827	1.764	1.666	1.681	1.418	1.270	1.227	1.264	*L	0.998
7	9)	t	Aldrin			1.963	1.736	1.765	1.583	1.603	1.340	1.231	1.195	1.244	*L	0.998
8	10)	t	Alachlor			0.263	0.270	0.251	0.237	0.243	0.238	0.205	0.184	0.160	0.228	16.35
	11)	t	Chlorpyrifos			1.063	1.017	0.979	0.910	0.923	0.842	0.694	0.626	0.548	*L	0.994
	12)	t	Heptachlor Ep			1.683	1.678	1.576	1.498	1.565	1.271	1.143	1.096	1.142	*L	0.998
	13)	t	gamma-Chlorda				1.748	1.681	1.572	1.610	1.347	1.197	1.163	1.241	*L	0.998
	14)	t	alpha-Chlorda				1.862	1.736	1.625	1.635	1.381	1.177	1.130	1.201	*L	0.998
	15)	t	4,4'-DDE			1.698	1.618	1.550	1.478	1.511	1.263	1.161	1.117	1.198	*L	0.998
2	16)	t	Endosulfan I			1.655	1.566	1.512	1.434	1.465	1.208	1.082	1.008	1.075	*L	0.997

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6

Matrix Spike Sample Summary Form 3 Semivolatiles

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET
Client Sample ID : MW33_090220
Lab Sample ID : L2036293-01
Matrix Spike : WG1408408-4

Matrix Spike Dup :

Lab Number : L2036293
Project Number : 170381202
Matrix : WATER
Analysis Date : 09/11/20 15:26

Analysis Date : 09/11/20 15:26 MS Analysis Date : 09/11/20 15:43

MSD Analysis Date:

		Matrix Spike Sample		Matrix Spi	ke Duplicate					
	Sample	Spike	Spike		Spike	Spike				
_	Conc.	Added	Conc.	%R	Added	Conc.	%R	RPD	Recovery	RPD
Parameter	(ng/l)	(ng/l)	(ng/l)		(ng/l)	(ng/l)			Limits	Limit
Perfluorobutanoic Acid (PFBA)	16.9	35.7	53.6	103					67-148	30
Perfluoropentanoic Acid (PFPeA)	10.7	35.7	50.2	111					63-161	30
Perfluorobutanesulfonic Acid	9.96	31.7	42.0	101					65-157	30
(PFBS)										
Perfluorohexanoic Acid (PFHxA)	9.16	35.7	47.6	108					69-168	30
Perfluoroheptanoic Acid (PFHpA)	5.92	35.7	42.9	103					58-159	30
Perfluorohexanesulfonic Acid	3.71	32.7	39.2	109					69-177	30
(PFHxS)										
Perfluorooctanoic Acid (PFOA)	61.6	35.7	87.6	73					63-159	30
1H,1H,2H,2H-Perfluorooctanesulfon	ND	34	37.0	109					49-187	30
ic Acid (6:2FTS)										
Perfluoroheptanesulfonic Acid	0.763J	34	33.5	96					61-179	30
(PFHpS)										
Perfluorononanoic Acid (PFNA)	10.3	35.7	59.9	139					68-171	30
Perfluorooctanesulfonic Acid	36.9	33.2	68.2	94					52-151	30
(PFOS)										
Perfluorodecanoic Acid (PFDA)	0.944J	35.7	39.9	109					63-171	30
1H,1H,2H,2H-Perfluorodecanesulfon	ND	34.3	33.4	97					56-173	30
ic Acid (8:2FTS)										
N-Methyl Perfluorooctanesulfonami	ND	35.7	31.8	89					60-166	30
doacetic Acid (NMeFOSAA)										
Perfluoroundecanoic Acid (PFUnA)	4.92	35.7	56.4	144					60-153	30



Surrogate (Extracted Internal Standard) Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036293 Project Number: 170381202 Matrix: Water/Field Blank

CLIENT ID	S1	S2	S3	S4	S5	S6	S7
(LAB SAMPLE NO.)	0	()	()	()	()	()	()
MW33_090220 (L2036293-01)	95	82	98	78	83	87	94
MW31_090220 (L2036293-02)	97	63	102	70	80	94	101
MW34_090220 (L2036293-03)	92	88	101	76	82	101	95
MW32_090220 (L2036293-04)	91	74	94	71	78	97	93
MW26_090220 (L2036293-05)	95	73	97	69	78	90	98
MW30_090220 (L2036293-06)	100	72	97	76	82	96	100
GWDUP01_090220 (L2036293-07)	95	68	90	72	80	91	99
GWFB04_090220 (L2036293-09)	92	115	103	94	93	96	93
GWEB01_090220 (L2036293-10)	89	110	101	90	90	100	93
WG1408408-1BLANK	106	125	118	109	106	104	106
WG1408408-2LCS	101	116	114	107	106	100	103
WG1408408-3LCSD	103	118	121	106	104	111	104
MW33_090220MS	94	82	101	77	82	90	96
MW31_090220DUP	100	65	101	71	81	108	103

QC LIMITS

(2-156)	S1 = PERFLUORO[13C4]BUTANOIC ACID (MPFBA)
(16-173)	S2 = PERFLUORO[13C5]PENTANOIC ACID (M5PFPEA)
(31-159)	S3 = PERFLUORO[2,3,4-13C3]BUTANESULFONIC ACID (M3PFBS)
(21-145)	S4 = PERFLUORO[1,2,3,4,6-13C5]HEXANOIC ACID (M5PFHXA)
(30-139)	S5 = PERFLUORO[1,2,3,4-13C4]HEPTANOIC ACID (M4PFHPA)
(47-153)	S6 = PERFLUORO[1,2,3-13C3]HEXANESULFONIC ACID (M3PFHXS)
(47-153)	S7 = PERFLUORO[13C8]OCTANOIC ACID (M8PFOA)

^{*} Values outside of QC limits

ΔLPHA

FORM II A2-NY-537-ISOTOPE

Surrogate (Extracted Internal Standard) Recovery Summary Form 2 Semivolatiles

Client: Langan Engineering & Environmental

Project Name: 250 WATER STREET

Lab Number: L2036293 Project Number: 170381202 Matrix: Water/Field Blank

CLIENT ID	S8	S9	S10	S11	S12	S13	S14	
(LAB SAMPLE NO.)	0	()	()	()	()	()	()	
MW33_090220 (L2036293-01)	208	107	103	91	224*	89	91	
MW31_090220 (L2036293-02)	215	125	110	91	284*	102	105	
MW34_090220 (L2036293-03)	213	105	104	85	251*	92	94	
MW32_090220 (L2036293-04)	187	105	97	84	227*	98	92	
MW26_090220 (L2036293-05)	234	120	106	91	279*	95	89	
MW30_090220 (L2036293-06)	198	121	103	88	255*	89	93	
GWDUP01_090220 (L2036293-07)	191	109	91	82	227*	89	87	
GWFB04_090220 (L2036293-09)	70	98	97	85	80	66	90	
GWEB01_090220 (L2036293-10)	76	103	96	85	136	74	64	
WG1408408-1BLANK	88	108	106	100	96	82	105	
WG1408408-2LCS	82	111	105	97	91	67	97	
WG1408408-3LCSD	92	106	109	98	90	87	97	
MW33_090220MS	213	107	106	90	229*	99	98	
MW31_090220DUP	215	125	113	88	276*	94	98	

QC LIMITS

(1-244)	S8 = 1H.1H.2H.2H-PERFLUORO[1.2-13C2]OCTANESULFONIC ACID (M2-6:2FTS)
(1-244)	30 = 10.10.20.20 FENELUUNUI 1.2 1302100 I ANESULFUNIO ACID (WZ 0.2F 13)

⁽³⁴⁻¹⁴⁶⁾ S9 = PERFLUORO[13C9]NONANOIC ACID (M9PFNA)

FORM II A2-NY-537-ISOTOPE (Continued)



⁽⁴²⁻¹⁴⁶⁾ S10 = PERFLUORO[13C8]OCTANESULFONIC ACID (M8PFOS)

⁽³⁸⁻¹⁴⁴⁾ S11 = PERFLUORO[1,2,3,4,5,6-13C6]DECANOIC ACID (M6PFDA)

⁽⁷⁻¹⁷⁰⁾ S12 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]DECANESULFONIC ACID (M2-8:2FTS)

⁽¹⁻¹⁸¹⁾ S13 = N-DEUTERIOMETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D3-NMEFOSAA)

⁽¹⁻¹⁸¹⁾ S14 = PERFLUORO[1,2,3,4,5,6,7-13C7]UNDECANOIC ACID (M7-PFUDA)

^{*} Values outside of QC limits

Surrogate (Extracted Internal Standard) Recovery Summary Form 2 **Semivolatiles**

Client: Langan Engineering & Environmental **Project Name: 250 WATER STREET**

Lab Number: L2036293 Project Number: 170381202

Matrix: Water/Field Blank

CLIENT ID	S15	S16	S17	S18	S19	S20	S21	TOT
(LAB SAMPLE NO.)	0	()	()	()	()	()	()	OUT
MW33_090220 (L2036293-01)	33	91	88	81				1
MW31_090220 (L2036293-02)	51	108	112	115				1
MW34_090220 (L2036293-03)	35	92	95	88				1
MW32_090220 (L2036293-04)	38	88	89	92				1
MW26_090220 (L2036293-05)	43	96	91	85				1
MW30_090220 (L2036293-06)	46	86	92	104				1
GWDUP01_090220 (L2036293-07)	41	84	97	104				1
GWFB04_090220 (L2036293-09)	31	67	76	74				0
GWEB01_090220 (L2036293-10)	14	58	68	66				0
WG1408408-1BLANK	50	90	88	89				0
WG1408408-2LCS	45	78	90	86				0
WG1408408-3LCSD	48	84	91	89				0
MW33_090220MS	35	85	90	86				1
MW31_090220DUP	53	100	106	113				1

QC LIMITS

(1-87) S15 = PERFLUORO[13C8]OCTANESULFONAMIDE (M8FOSA)

(23-146) S16 = N-DEUTERIOETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D5-NETFOSAA)

(24-161) S17 = PERFLUORO[1,2-13C2]DODECANOIC ACID (MPFDOA) (33-143) S18 = PERFLUORO[1,2-13C2]TETRADECANOIC ACID (M2PFTEDA)

FORM II A2-NY-537-ISOTOPE (Continued)



^{*} Values outside of QC limits

Internal Standard Area and RT Summary Form 8a Semivolatiles

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Instrument ID : LCMS01 Sample No : WG1408938-1 Lab Number : L2036293
Project Number : 170381202
Analysis Date : 09/11/20 13:57

Lab File ID : I26208

	МЗРГВА		M2PFOA		M4PFOS	
	Area	RT	Area	RT	Area	RT
WG1408938-1	49709	2.05	100664	9.17	10945	9.98
Upper Limit	99418	2.55	201328	9.67	21890	10.48
Lower Limit	24855	1.55	50332	8.67	5473	9.48
Sample ID						
WG1408408-1 BLANK	34954	2.08	76244	9.17	8114	9.98
WG1408408-2 LCS	33356	2.05	68288	9.17	7536	9.98
WG1408408-3 LCSD	32179	2.05	68137	9.17	7038	9.98
MW33_090220	28074	2.03	58440	9.16	6384	9.97
MW33_090220 MS	27722	2.03	59225	9.16	6498	9.98
MW31_090220	22910*	2.00	37816*	9.15	5063*	9.97
MW31_090220 DUP	22817*	1.99	38293*	9.15	5186*	9.97
MW34_090220	26407	2.03	59639	9.16	6456	9.98
MW32_090220	27243	2.02	53747	9.15	6365	9.97
MW26_090220	24784*	2.01	52961	9.15	6128	9.97
MW30_090220	23642*	2.00	41433*	9.14	5665	9.97
GWDUP01_090220	24462*	2.04	41106*	9.16	5660	9.98

Area Upper Limit = +100% of internal standard area
Area Lower Limit = -50% of internal standard area

RT Upper Limit = +0.50 minutes of internal standard RT RT Lower Limit = -0.50 minutes of internal standard RT



^{*} Values outside of QC limits

Results Summary Form 1 Perfluorinated Alkyl Acids by Isotope Dilution

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET Lab ID : WG1408408-1

Client ID : WG1408408-1BLANK

Sample Location :

Sample Matrix : WATER

Analytical Method : 134,LCMSMS-ID

Lab File ID : 126209 Sample Amount : 250 g

Extraction Method : ALPHA 23528

Extract Volume : 1000 uL GPC Cleanup : N

Lab Number : L2036293 Project Number : 170381202

Date Collected : NA
Date Received : NA

Date Analyzed : 09/11/20 14:20

Date Extracted : 09/10/20

Dilution Factor : 1
Analyst : RS
Instrument ID : LCMS01

GC Column : Acquity UPLC BEH C18

%Solids : N/A Injection Volume : 3 uL

			ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier	
075 00 4	Double web who we in Anid (DEDA)	ND	0.00	0.400		
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	2.00	0.408	U	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U	
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	2.00	0.328	U	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	2.00	0.225	U	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U	
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	2.00	0.236	U	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid	ND	2.00	1.33	U	
	(6:2FTS)					
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U	
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U	
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U	
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid	ND	2.00	1.21	U	
	(8:2FTS)					
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti	ND	2.00	0.648	U	
	c Acid (NMeFOSAA)					
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	0.336	2.00	0.260	J	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U	
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U	
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic	ND	2.00	0.804	U	
	Acid (NEtFOSAA)					



Results Summary Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Client ID : WG1408408-1BLANK Date Received : NA Sample Location : Date Analyzed : 09/11/20 14:20

Sample Matrix : WATER Date Extracted : 09/10/20
Analytical Method : 134,LCMSMS-ID Dilution Factor : 1

Analytical Method : 134,LCMSMS-ID Dilution Factor : 1
Lab File ID : 126209 Analyst : RS
Sample Amount : 250 g Instrument ID : LCMS01

Extraction Method : ALPHA 23528 GC Column : Acquity UPLC BEH C18

Extract Volume : 1000 uL %Solids : N/A GPC Cleanup : N Injection Volume : 3 uL

			ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U	
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U	
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U	
NONE	PFOA/PFOS, Total	ND	2.00	0.236	U	



Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

 Lab File ID
 : 126100
 Init. Calib. Date(s)
 : 08/19/20

 Sample No
 : WG1407927-1
 Init. Calib. Times
 : 18:10
 20:06

Channel:

	Concentration	True Value		
Compound	(ng/ml)	(ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	0.416	0.500	83.2	50-150
Perfluoropentanoic Acid (PFPeA)	0.439	0.500	87.8	50-150
Perfluorobutanesulfonic Acid (PFBS)	0.312	0.440	70.6	50-150
Perfluorohexanoic Acid (PFHxA)	0.475	0.500	95.1	50-150
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.353	0.470	75.6	50-150
Perfluoropentanesulfonic Acid (PFPeS)	0.357	0.470	76	50-150
Perfluoroheptanoic Acid (PFHpA)	0.406	0.500	81.2	50-150
Perfluorohexanesulfonic Acid-Branched (br-PFHxS)	0.049	0.086	58	50-150
Perfluorohexanesulfonic Acid-Linear (L-PFHxS)	0.260	0.370	70.3	50-150
Perfluorohexanesulfonic Acid (PFHxS)	0.309	0.460	-	50-150
Perfluorooctanoic Acid-Branched (br-PFOA)			-	50-150
Perfluorooctanoic Acid-Linear (L-PFOA)	0.407		81.5	50-150
Perfluorooctanoic Acid (PFOA)	0.407	0.500	-	50-150
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.373	0.480	78.5	50-150
Perfluoroheptanesulfonic Acid (PFHpS)	0.291	0.480	61.3	50-150
Perfluorononanoic Acid (PFNA)	0.409	0.500	81.9	50-150
Perfluorooctanesulfonic Acid-Branched (br-PFOS)	0.080	0.098	81.5	50-150
Perfluorooctanesulfonic Acid-Linear (L-PFOS)	0.301	0.365	82.2	50-150
Perfluorooctanesulfonic Acid (PFOS)	0.381	0.460	-	50-150
Perfluorodecanoic Acid (PFDA)	0.439	0.500	87.9	50-150
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.381	0.480	79.3	50-150
Perfluorononanesulfonic Acid (PFNS)	0.382	0.480	79.7	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.281	0.500	-	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NMeFOSAA)	0.044		36.9*	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NMeFOSAA)	0.237	0.500	62.3	50-150
Perfluoroundecanoic Acid (PFUnA)	0.343	0.500	68.6	50-150
Perfluorodecanesulfonic Acid (PFDS)	0.302	0.480	62.6	50-150
Perfluorooctanesulfonamide (FOSA)	0.444	0.500	88.9	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.307	0.500	-	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NEtFOSAA)	0.062		55.5	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NEtFOSAA)	0.244	0.500	63	50-150
Perfluorododecanoic Acid (PFDoA)	0.381	0.500	76.2	50-150
Perfluorotridecanoic Acid (PFTrDA)	0.428	0.500	85.5	50-150
Perfluorotetradecanoic Acid (PFTA)	0.462	0.500	92.3	50-150
Perfluoro[13C4]Butanoic Acid (MPFBA)	10.021	10.000	100.2	50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	10.113	10.000	101.1	50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	9.693	10.000	96.9	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	6.036	10.000	60.4	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	10.432	10.000	104.3	50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	10.217	10.000	102.2	50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	9.701	10.000	97	50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	9.994	10.000	99.9	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	5.590	10.000	55.9	50-150

^{*} Value outside of QC limits.



Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

 Lab File ID
 : 126100
 Init. Calib. Date(s)
 : 08/19/20

 Sample No
 : WG1407927-1
 Init. Calib. Times
 : 18:10
 20:06

Channel :

	Concentration	True Value		
Compound	(ng/ml)	(ng/ml)	% Recovery	QC Limits
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	10.178	10.000	101.8	50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	9.285	10.000	92.9	50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	9.804	10.000	98	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	6.378	10.000	63.8	50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	8.804	10.000	88	50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	9.732	10.000	97.3	50-150
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	9.757	10.000	97.6	50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	7.815	10.000	78.2	50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	9.704	10.000	97	50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	10.216	10.000	102.2	50-150
M4PFOS	14.658		146.6	
M2PFDA	12.597		126	
M2PFOA	12.443		124.4	
M3PFBA	12.909		129.1	



^{*} Value outside of QC limits.

Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

 Lab File ID
 : 126122
 Init. Calib. Date(s)
 : 08/19/20
 08/19/20

 Sample No
 : WG1407927-3
 Init. Calib. Times
 : 18:10
 20:06

Channel :

	Concentration	True Value		
Compound	(ng/ml)	(ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	0.404	0.500	80.8	50-150
Perfluoropentanoic Acid (PFPeA)	0.442	0.500	88.4	50-150
Perfluorobutanesulfonic Acid (PFBS)	0.306	0.440	69.1	50-150
Perfluorohexanoic Acid (PFHxA)	0.466	0.500	93.2	50-150
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.343	0.470	73.4	50-150
Perfluoropentanesulfonic Acid (PFPeS)	0.315	0.470	67.1	50-150
Perfluoroheptanoic Acid (PFHpA)	0.420	0.500	84.1	50-150
Perfluorohexanesulfonic Acid-Branched (br-PFHxS)	0.057	0.086	66.9	50-150
Perfluorohexanesulfonic Acid-Linear (L-PFHxS)	0.268	0.370	72.5	50-150
Perfluorohexanesulfonic Acid (PFHxS)	0.325	0.460	-	50-150
Perfluorooctanoic Acid-Branched (br-PFOA)			-	50-150
Perfluorooctanoic Acid-Linear (L-PFOA)	0.407		81.3	50-150
Perfluorooctanoic Acid (PFOA)	0.407	0.500	-	50-150
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.450	0.480	94.7	50-150
Perfluoroheptanesulfonic Acid (PFHpS)	0.330	0.480	69.5	50-150
Perfluorononanoic Acid (PFNA)	0.395	0.500	79.1	50-150
Perfluorooctanesulfonic Acid-Branched (br-PFOS)	0.088	0.098	90.2	50-150
Perfluorooctanesulfonic Acid-Linear (L-PFOS)	0.277	0.365	75.7	50-150
Perfluorooctanesulfonic Acid (PFOS)	0.366	0.460	-	50-150
Perfluorodecanoic Acid (PFDA)	0.460	0.500	91.9	50-150
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.328	0.480	68.4	50-150
Perfluorononanesulfonic Acid (PFNS)	0.359	0.480	74.8	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.418	0.500	-	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NMeFOSAA)	0.055		45.9*	50-150
N-Methyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NMeFOSAA)	0.363	0.500	95.4	50-150
Perfluoroundecanoic Acid (PFUnA)	0.312	0.500	62.3	50-150
Perfluorodecanesulfonic Acid (PFDS)	0.286	0.480	59.4	50-150
Perfluorooctanesulfonamide (FOSA)	0.341	0.500	68.1	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.475	0.500	-	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Branched (br-NEtFOSAA)	0.023		20.7*	50-150
N-Ethyl Perfluorooctanesulfonamidoacetic Acid-Linear (L-NEtFOSAA)	0.452	0.500	116.7	50-150
Perfluorododecanoic Acid (PFDoA)	0.435	0.500	87.1	50-150
Perfluorotridecanoic Acid (PFTrDA)	0.435	0.500	87.1	50-150
Perfluorotetradecanoic Acid (PFTA)	0.472	0.500	94.4	50-150
Perfluoro[13C4]Butanoic Acid (MPFBA)	10.073	10.000	100.7	50-150
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	10.806	10.000	108.1	50-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	9.608	10.000	96.1	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	6.391	10.000	63.9	50-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	10.525	10.000	105.2	50-150
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	10.327	10.000	103.3	50-150
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	9.890	10.000	98.9	50-150
Perfluoro[13C8]Octanoic Acid (M8PFOA)	10.058	10.000	100.6	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	5.729	10.000	57.3	50-150
,,	•		<u> </u>	

^{*} Value outside of QC limits.



Client : Langan Engineering & Environmental Lab Number : L2036093
Project Name : 250 WATER STREET Project Number : 170381202

Channel:

	Concentration	True Value		
Compound	(ng/ml)	(ng/ml)	% Recovery	QC Limits
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	10.495	10.000	105	50-150
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	9.313	10.000	93.1	50-150
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	9.803	10.000	98	50-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	7.155	10.000	71.6	50-150
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	7.223	10.000	72.2	50-150
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	9.752	10.000	97.5	50-150
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	10.097	10.000	101	50-150
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	6.521	10.000	65.2	50-150
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	9.813	10.000	98.1	50-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	9.847	10.000	98.5	50-150
M4PFOS	13.696		137	
M2PFDA	12.174		121.7	
M2PFOA	11.545		115.5	
M3PFBA	11.404		114	



^{*} Value outside of QC limits.

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Instrument ID : ICPMSQ Start Date : 09/04/20

 Lab Number
 : L2036293

 Project Number
 : 170381202

 Analysis Method
 : 1,6020B

 End Date
 : 09/04/20

Sample #	Time	Intern	al Standards %RI	For:			
		Lithium	Scandium	Ge	In	Bismuth	
R1346746-1 ICV	08:26:53	103	121	103	108	107	
R1346746-2 ICB	08:31:50	93	101	94	101	100	
R1346746-3 ICSA	08:36:48	107	141	109	109	105	
R1346746-4 CCV	08:51:36	103	128	103	101	105	
R1346746-5 CCB	08:56:34	93	101	96	90	94	
R1346746-6 CCV	09:58:09	125	155	118	116	110	
R1346746-7 CCB	10:03:07	107	114	106	105	100	
WG1406342-1 BLANK	10:23:41	128	138	121	113	105	
WG1406342-2 LCS	10:28:34	130	149	123	116	112	
WG1406342-3 MS	10:33:27	129	139	121	115	106	
WG1406342-5 PS	10:38:15	126	147	120	119	108	
WG1406342-4 DUP	10:43:08	137	149	128	119	102	
L2036293-01	10:48:02	148	156	135	122	102	
WG1406342-6 SERDIL	10:52:56	146	156	134	126	111	
R1346746-8 CCV	10:57:50	135	166	127	125	112	
R1346746-9 CCB	11:02:48	116	122	112	109	100	
L2036293-08	11:12:39	119	136	121	120	109	
L2036293-02	11:17:31	143	140	136	129	107	
L2036293-03	11:22:26	154	160	135	132	109	
L2036293-04	11:27:20	154	157	138	132	100	
L2036293-05	11:32:16	170	165	142	139	108	
L2036293-06	11:37:11	162	154	142	140	113	
L2036293-07	11:42:04	157	150	142	139	112	
R1346746-10 CCV	11:56:43	139	164	127	134	116	
R1346746-11 CCB	12:01:41	121	125	117	125	108	
R1346746-13 CCV	12:56:22	140	164	127	137	117	
R1346746-14 CCB	13:01:20	122	124	116	125	109	



Client : Langan Engineering & Environmental Lab Number : L2036293
Project Name : 250 WATER STREET Project Number : 170381202

Instrument ID : ICPMSQ Analysis Method : 1,6020B Start Date : 09/04/20 End Date : 09/04/20

Sample #	Time	Internal Standards %RI For:				Internal Standards %RI For:				
		Lithium	Scandium	Ge	ln	Bismuth				
L2036293-04	13:52:47	154	157	138	148	123				
R1346746-15 CCV	13:57:40	146	177	129	142	120				
R1346746-16 CCB	14:02:38	126	127	119	130	110				



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Instrument ID : ICPMSQ Start Date : 09/04/20

 Lab Number
 : L2036293

 Project Number
 : 170381202

 Analysis Method
 : 1,6020B

 End Date
 : 09/04/20

Sample #	Time	Intern	al Standards %RI	For:			
		Lithium	Scandium	Ge	In	Bismuth	
R1346746-1 ICV	08:26:53	103	121	103	108	107	
R1346746-2 ICB	08:31:50	93	101	94	101	100	
R1346746-3 ICSA	08:36:48	107	141	109	109	105	
R1346746-4 CCV	08:51:36	103	128	103	101	105	
R1346746-5 CCB	08:56:34	93	101	96	90	94	
R1346746-6 CCV	09:58:09	125	155	118	116	110	
R1346746-7 CCB	10:03:07	107	114	106	105	100	
R1346746-8 CCV	10:57:50	135	166	127	125	112	
R1346746-9 CCB	11:02:48	116	122	112	109	100	
WG1406339-1 BLANK	11:07:46	120	127	118	116	105	
R1346746-10 CCV	11:56:43	139	164	127	134	116	
R1346746-11 CCB	12:01:41	121	125	117	125	108	
WG1406339-2 LCS	12:07:22	134	149	126	132	115	
WG1406339-3 MS	12:12:16	136	143	128	133	118	
WG1406339-5 PS	12:17:10	136	152	125	132	115	
WG1406339-4 DUP	12:22:04	147	155	133	132	105	
L2036293-01	12:26:59	157	162	141	137	107	
WG1406339-6 SERDIL	12:51:27	146	154	133	140	118	
R1346746-13 CCV	12:56:22	140	164	127	137	117	
R1346746-14 CCB	13:01:20	122	124	116	125	109	
L2036293-08	13:08:38	132	141	122	129	113	
L2036293-02	13:23:20	152	144	139	140	110	
L2036293-03	13:28:14	158	158	138	142	116	
L2036293-04	13:33:08	157	158	142	143	109	
L2036293-05	13:38:02	168	160	146	149	114	
L2036293-06	13:42:57	165	155	146	148	116	
L2036293-07	13:47:52	164	154	144	147	118	



Client : Langan Engineering & Environmental Lab Number

Project Name : 250 WATER STREET

Instrument ID : ICPMSQ Start Date : 09/04/20

 Lab Number
 : L2036293

 Project Number
 : 170381202

 Analysis Method
 : 1,6020B

 End Date
 : 09/04/20

Sample #	Time	Intern	al Standards %RI	For:			
		Lithium	Scandium	Ge	In	Bismuth	
R1346746-15 CCV	13:57:40	146	177	129	142	120	
R1346746-16 CCB	14:02:38	126	127	119	130	110	
L2036293-04	14:12:30	157	158	140	146	122	
R1346746-17 CCV	14:17:24	148	178	131	142	123	
R1346746-18 CCB	14:22:21	126	127	120	133	114	





November 4, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Alpha Analytical Laboratories – Soil Vapor Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic analysis by Alpha Analytical Laboratories for 14 soil vapor samples from the 250 Water Street site, which were reported in a single data package under Job No. L2029074, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

AA02_070920	SV12_070920	SV17_070920
SV19 070920	SV21 070920	SV14 070920
SV23 070920	SV24 070920	SV28 070920
SV29 070920	SV30 070920	SV37 070920
SV32 070920	DUP01 070920	_

Analyses were performed in accordance with EPA Method TO-15. ddms' review was performed, to the extent possible, in accordance with the analytical method and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

Mr. Joseph Yanowitz November 4, 2020 Page 2 of 4



Based on the data review effort, the results are usable, with the following qualifications:

- The results for benzyl chloride in all samples were qualified as estimated (UJ) due to high relative standard deviation (RSD) over the calibration.
- The results for trichlorofluoromethane, chloroform, 2,2,4-trimethylpentane, 2-hexanone and tetrachloroethene in all samples were qualified as estimated (J, UJ) due to imprecision in field duplicate samples.

Region II qualifier definitions are provided in Attachment A. Copies of the chain of custody records are provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - Internal standards
 - Field Duplicates
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

Mr. Joseph Yanowitz November 4, 2020 Page 3 of 4



Improper editing was observed on the COCs. When edits must be made, there should be
a single line drawn through the incorrect information, the correct information added, and
the date and initials of the editor included.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of July 9, 2020. The samples were received by the laboratory on the same day as sample collection. All samples were analyzed within the method-specified holding time.

Tetrachloroethene (0.029 ppbv) was reported in the clean canister certification for sample DUP01_070920. The concentration of tetrachloroethene in the sample was such that the detection in canister certification had no impact on the results. No qualification to sample results was made on this basis.

A. Volatile Organics

1. Calibration

One initial calibration (IC) was reported in support of sample analyses. All relative response factors (RRFs) and RSDs were acceptable with the exception of benzyl chloride (RSD=30.75). The results for benzyl chloride in all samples were qualified as estimated (UJ) due to high RSD over the calibration.

One second source initial calibration verification (ICV) standard and one continuing calibration (CC) standard were analyzed and all percent differences (%D) were acceptable (<30%D for compounds ≥5 times the reporting limits).

2. Field Duplicates

DUP01_070920 was submitted as a field duplicate of SV17_070920. Precision between paired samples was acceptable (RPD<20) with the exceptions noted below:

Compound	SV17_070920 (ppbv)	DUP01_070920 (ppbv)	RPD
Trichlorofluoromethane	1.56	1.18	26.9
Chloroform	5.82	3.76	44.6
2,2,4-Trimethylpentane	41.5	26.6	43.8
2-Hexanone	4.16	5.67	30.7
Tetrachloroethene	8.87	5.60	45.2

The results for trichlorofluoromethane, chloroform, 2,2,4-trimethylpentane, 2-hexanone and tetrachloroethene in all samples were qualified as estimated (J, UJ) due to imprecision in field duplicate samples.

No other sample results were qualified as a result of the validation effort. However, it should be noted that the laboratory

Mr. Joseph Yanowitz November 4, 2020 Page 4 of 4



performed a laboratory control sample (LCS) only and did not perform an LCS duplicate or laboratory sample duplicate analysis; therefore, laboratory precision could not be assessed.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Jeri Rossi, CEAC

Sr. Environmental Chemist

gui Resse.

(908) 370-3431

jrossi@ddmsinc.com



ATTACHMENT A

EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. L2029074

	AIR A CHAIN OF CUSTODY Mansfield, MA 02048 0 FAX: 508-822-3288	Project Informatio	THE RESERVE OF THE PARTY OF THE	Report Info	-	110/20 Data Delivera	bles	Billing In	Job#: LZ	
Client Information Client: Land Address: 360 New Year Phone: 212	on D.C.	Project Location: // Project #: 170 Project Manager: (ALPHA Quote #: Turn-Around Time	SO Waster S Jawhostforn, NY 38/20/ Paul McMahon	Criteria (Default	ormats: andard pdf Deliverable	s:	1)		ry Requiremen	ts/Report Limit Res / Comm
Other Project S	walken () lawyour. (c) ave been previously analysed by Alpha Specific Requirements/Com Target Compound List: (Date Due:	Time:					Consumer to Consum	ALYSIS	
ALPHA Lab ID (Lab Use Only)	Sample ID	COLL	Below Must	Sample Samp	ler's Can	ID ID-Flow Can Controller	70.15 70.15 SIIM	Fixed Gases	Sample C	omments (i.e. PID)
29074-01	AA02_070920		13:47-29.95 -6.28	AA TS	4.	2808 0735			- Journal of	Aminorità (t.o. Fib)
02	5412_070920	4/1/2020 13:52 1	5:57-3006-3.25			1942 0426	V			
03	SV17_076920	7/01/200 43:05	15:02 -36.68 -8.36	5V TS	1.0	182/01834	1			
04	549-070920	F/9/200 16:21	18:21-36.15-774	SV TS	64	2637 01078				
CS	6V21_070920	4/.1	2.29 -30.48-5.45	61/	11	1554 0938	-			
06	SV14_070920	4.	5:03-30.28-2.48		1	638 61453				
07	SV23_070920	7/9/2020 15:48 1	7:48 -36.28 -1.44	5V T5	-	2886 01924				
C8	5v24-070920		3:01 -30.16-7.47			905 01532				
09	5V28_070920	7/9/00 16:06 1	8:06-3022-5:49	6V 75	61	2940 0341	1			
10	5v29_070920	7/9/2020 14:32	16:35 -20 51 -6 57	5V-TC	61	2157 61446	-			
*SAMPLI	MATRIX CODES S	A = Ambient Air (Indoor/Or V = Soil Vapor/Landfill Gas ther = Please Specify Relinquished By:		Aug Re	Container ceived By:	Туре	Date/	Time: /845	logged in and clock will not s guities are res	learly, legibly and amples can not be turnaround time start until any ambi- olived. All samples subject to Alpha's notitions.
Form No: 101-02 Rev: (25- Page 17 of 96		200	Ac 7/10/2082			TAC T	10120	03.2	See reverse s	

	AIR AN	IALYS	SIS	PAG	E 2 0	-4	Date Re	ec'd in Lai	7	110	120		ALF	PHA J	lob#:	Lzoz	29074
320 Forbes Blvd, Man FEL: 508-822-9300 Client Information		Project Nam	ne: 25	O W	der ban	1 1 2 1	FAX	Ex		oata D	eliverab	les	1	ing In	STATE OF THE PERSON.	-	
oddress: 360 W New York Phone: 212-4 Fax: Jyan Su Email: PMCs These samples have	, 31st street	Project #: Project Man ALPHA Que Turn-Arc	FC pager: Va	3812 ml pl	8 Mark	a	□ EM.	Criteria Che (Default base Other Form All. (stand dittional Del to: (if different	d on Regula ats: ard pdf re iverables	eport)	riu Indicated		11111	e/Fed	A STATE OF	rogram	/Report Limi
	Target Compound List:		umns	s Bel	ow N	lust			1775-1	ıt		1,5	APH SIM	Fixed Gases	on & Mercaptans by		
ALPHA Lab ID (Lab Use Only)	Sample ID	End Date	COL Start Time	LECTION End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	s Can Size	I D Can	ID - Flow Controller	70.15	APH 2	Subs.	4	Sample Co	mments (i.e. Pl
11	SV30-070920	7/1/2020	15:13		-27.5	-4.98	SV	TS	bL	2729	0954	~			4		
12	SV37_070920	7/9/200			-29.88			75	86L			~					
13	5V32-070920	7/1/2020	15:33	17:33	-29.97		SV	75	6L	629	01199	1	Ш				
14	DUPO1_070920	7/9/2020	>		-30.07	-8,65	SV	TS	6L	1614	6575						
*SAMPLE	MATRIX CODES S	AA = Ambient V = Soil Vap Other = Please	or/Landfill (Containe	г Туре						completely.	elearly, legibly and Samples can not l turnaround time
Form No: 101-02 Rev. (25-	Sep-15)	Relinquis	hed By:	DAC	7-9-7/10/	2 6:3 2 0 20	(5 C)	M Pec	eived By:	XX	24.7	19	Date/Ti	/8 200	45 20 3. 20	guities are re	



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. L2029074

Response Factor Report

Method Path : 0:\Forensics\Data\Airlab16\2020\06\200609T_I\

Method File : TFS16_200609.M

Title : TO-14A/TO-15 SIM/Full Scan Analysis

Last Update : Wed Jun 10 11:25:58 2020

Response Via: Initial Calibration

Calibration Files

0.2 =r1617540.D 0.5 =r1617541.D 1.0 =r1617542.D 5.0 =r1617543.D 10 =r1617544.D 20 =r1617545.D

50 =r1617546.D 100 =r1617547.D

	Compound	0.2	0.5	1.0	5.0	10	20	50	100	Avg	%RSD
94)	n-propylbenzene	2.176	2.531	2.673	3.079	3.016	2.914	2.569	2.293	2.6564	12.41
95)	4-chlorotoluene	2.034	2.295	2.313	2.599	2.588	2.528	2.254	2.060	2.3339	9.53
96)	4-ethyl toluene	0.782	0.877							0.8855	12.79
97)	1,3,5-trimethylbenzene		7.241		8.806	8.558	7.740	6.591	5.647	7.3848	14.06
98)	tert-butylbenzene	6.896	7.119				7.474	6.261	5.105	7.1820	15.73
99)	1,2,4-trimethylbenzene	6.433	7.007	7.503	8.616	8.359	7.245	6.016	4.864	7.0054	17.59
100)	decane	4.760	5.058	5.374	6.061	5.954	5.303	4.767	4.293	5.1962	11.67
101) C	Benzyl Chloride									3.7724	30.75#
102)	1,3-dichlorobenzene	4.544	5.260	5.482	6.233	6.198	5.631	4.909	4.213	5.3089	13.74
103) C	1,4-dichlorobenzene	4.483	5.062	5.139	5.993	6.135	5.491	4.906	4.291	5.1874	12.69
104)	sec-butylbenzene	0.972	1.010	1.087	1.224	1.197	1.059	0.903	0.762	1.0266	14.78
105)	1,2,3-trimethylbenzene									7.0759	17.39
106)	p-isopropyltoluene									0.8553	16.39
107)	1,2-dichlorobenzene	4.157	4.992	5.186	5.882	5.909	5.246	4.739	4.252	5.0454	13.02
108)	n-butylbenzene	6.378	6.962	7.287	8.599	8.701	7.664	6.811	6.080	7.3101	13.15
109)	indan	6.729	7.806	8.262	9.360	9.248	8.311	7.351	6.344	7.9264	13.78
110)	indene	4.545	5.580	0.0-0		7.422			000	6.1323	15.96
111) C	1,2-dibromo-3-chloropropane	1.085	1.303	1.387	1.814	1.952	1.692	1.590	1.448	1.5340	18.53
112)	undecane	4.354	5.316	5.615	6.380	6.505	5.551	5.093	4.637	5.4314	13.95
113)	1,2,4,5-tetramethylbenzene	6.672	8.147	8.585	9.415	9.845	8.420	7.483	6.610	8.1470	14.47
114)	dodecane	2.232	4.293	5.198	5.415	6.366	4.504	4.420	4.164	4.5740	26.22
115) C	1,2,4-trichlorobenzene	1.068	1.672	2.046	2.603	3.203	2.592	2.849	2.715	2.3437	29.86
116)	naphthalene	0.341	0.546	0.636	0.821	1.008	0.780	0.816	0.772	0.7148	28.44
117)	1,2,3-trichlorobenzene	1.182	1.860	2.146	2.533	3.130	2.374	2.556	2.506	2.2860	25.20
118)	benzothiophene	2.229	3.876	4.965	6.205	8.440	7.369	8.209	7.960	6.1565	36.94#
119) C	hexachlorobutadiene	1.609	2.295	2.476	2.542	2.787	2.151	2.034	1.813	2.2134	17.70
120)	2-methylnaphthalene									1.4281	36.76#
121)	1-methylnaphthalene			2.961	2.849	4.938	2.871	3.964	4.282	3.6443	24.17

(#) = Out of Range

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Lab ID : L2029074-03
Client ID : SV17_070920
Sample Location : MANHATTAN, NY
Sample Matrix : SOIL_VAPOR

Analytical Method : 48,TO-15 Lab File ID : R1618247

Sample Amount : 250 ml

Lab Number : L2029074 Project Number : 170381201

Date Collected : 07/09/20 17:21

Date Received : 07/09/20
Date Analyzed : 07/15/20 20:28

Dilution Factor : 1 Analyst : TS

Instrument ID : AIRLAB16 GC Column : RTX-1

			ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	
75-71-8	Dichlorodifluoromethane	2.67	0.200		13.2	0.989			
74-87-3	Chloromethane	ND	0.200		ND	0.413		U	
76-14-2	Freon-114	ND	0.200		ND	1.40		U	
75-01-4	Vinyl chloride	ND	0.200		ND	0.511		U	
106-99-0	1,3-Butadiene	ND	0.200		ND	0.442		U	
74-83-9	Bromomethane	ND	0.200		ND	0.777		U	
75-00-3	Chloroethane	ND	0.200		ND	0.528		U	
64-17-5	Ethanol	10.8	5.00		20.3	9.42			
593-60-2	Vinyl bromide	ND	0.200		ND	0.874		U	
67-64-1	Acetone	77.6	1.00		184	2.38			
75-69-4	Trichlorofluoromethane	1.56	0.200		8.77	1.12			
67-63-0	Isopropanol	0.655	0.500		1.61	1.23			
75-35-4	1,1-Dichloroethene	ND	0.200		ND	0.793		U	
75-65-0	Tertiary butyl Alcohol	2.78	0.500		8.43	1.52			
75-09-2	Methylene chloride	0.962	0.500		3.34	1.74			
107-05-1	3-Chloropropene	ND	0.200		ND	0.626		U	
75-15-0	Carbon disulfide	0.541	0.200		1.68	0.623			
76-13-1	Freon-113	ND	0.200		ND	1.53		U	
156-60-5	trans-1,2-Dichloroethene	ND	0.200		ND	0.793		U	
75-34-3	1,1-Dichloroethane	ND	0.200		ND	0.809		U	
1634-04-4	Methyl tert butyl ether	ND	0.200		ND	0.721		U	
78-93-3	2-Butanone	17.2	0.500		50.7	1.47			
156-59-2	cis-1,2-Dichloroethene	ND	0.200		ND	0.793		U	
141-78-6	Ethyl Acetate	ND	0.500		ND	1.80		U	
67-66-3	Chloroform	5.92	0.200		28.9	0.977			
109-99-9	Tetrahydrofuran	ND	0.500		ND	1.47		U	



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Lab ID : L2029074-03
Client ID : SV17_070920
Sample Location : MANHATTAN, NY
Sample Matrix : SOIL_VAPOR

Analytical Method : 48,TO-15 Lab File ID : R1618247

Sample Amount : 250 ml

Lab Number : L2029074 Project Number : 170381201

Date Collected : 07/09/20 17:21

Date Received : 07/09/20
Date Analyzed : 07/15/20 20:28

Dilution Factor : 1 Analyst : TS

Instrument ID : AIRLAB16 GC Column : RTX-1

Samp	E AIIIOUIIL . 230 IIII				ac c	Julilli	. 1112	N- I	
			ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	
107-06-2	1,2-Dichloroethane	ND	0.200		ND	0.809		U	
110-54-3	n-Hexane	15.4	0.200		54.3	0.705			
71-55-6	1,1,1-Trichloroethane	ND	0.200		ND	1.09		U	
71-43-2	Benzene	0.424	0.200		1.35	0.639			
56-23-5	Carbon tetrachloride	ND	0.200		ND	1.26		U	
110-82-7	Cyclohexane	0.559	0.200		1.92	0.688			
78-87-5	1,2-Dichloropropane	ND	0.200		ND	0.924		U	
75-27-4	Bromodichloromethane	ND	0.200		ND	1.34		U	
1330-20-7	Xylenes, Total	2.76	0.200		12.0	0.869			
123-91-1	1,4-Dioxane	ND	0.200		ND	0.721		U	
79-01-6	Trichloroethene	ND	0.200		ND	1.07		U	
540-84-1	2,2,4-Trimethylpentane	41.5	0.200		194	0.934			
142-82-5	Heptane	4.45	0.200		18.2	0.820			
10061-01-5	cis-1,3-Dichloropropene	ND	0.200		ND	0.908		U	
108-10-1	4-Methyl-2-pentanone	ND	0.500		ND	2.05		U	
10061-02-6	trans-1,3-Dichloropropene	ND	0.200		ND	0.908		U	
79-00-5	1,1,2-Trichloroethane	ND	0.200		ND	1.09		U	
108-88-3	Toluene	1.34	0.200		5.05	0.754			
591-78-6	2-Hexanone	4.16	0.200		17.0	0.820			
124-48-1	Dibromochloromethane	ND	0.200		ND	1.70		U	
106-93-4	1,2-Dibromoethane	ND	0.200		ND	1.54		U	
127-18-4	Tetrachloroethene	8.87	0.200		60.1	1.36			
108-90-7	Chlorobenzene	ND	0.200		ND	0.921		U	
100-41-4	Ethylbenzene	0.356	0.200		1.55	0.869			
179601-23-1	p/m-Xylene	1.85	0.400		8.04	1.74			
75-25-2	Bromoform	ND	0.200		ND	2.07		U	



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Lab ID : L2029074-03
Client ID : SV17_070920
Sample Location : MANHATTAN, NY

Sample Matrix : SOIL_VAPOR Analytical Method : 48,TO-15 Lab File ID : R1618247

Sample Amount : 250 ml

Lab Number : L2029074
Project Number : 170381201

Date Collected : 07/09/20 17:21
Date Received : 07/09/20

Date Analyzed : 07/15/20 20:28

Dilution Factor : 1 Analyst : TS

Instrument ID : AIRLAB16
GC Column : RTX-1

			ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	
100-42-5	Styrene	ND	0.200		ND	0.852		U	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.200		ND	1.37		U	
95-47-6	o-Xylene	0.907	0.200		3.94	0.869			
622-96-8	4-Ethyltoluene	ND	0.200		ND	0.983		U	
108-67-8	1,3,5-Trimethylbenzene	0.251	0.200		1.23	0.983			
95-63-6	1,2,4-Trimethylbenzene	0.815	0.200		4.01	0.983			
100-44-7	Benzyl chloride	ND	0.200		ND	1.04		U	
541-73-1	1,3-Dichlorobenzene	ND	0.200		ND	1.20		U	
106-46-7	1,4-Dichlorobenzene	ND	0.200		ND	1.20		U	
95-50-1	1,2-Dichlorobenzene	ND	0.200		ND	1.20		U	
120-82-1	1,2,4-Trichlorobenzene	ND	0.200		ND	1.48		U	
87-68-3	Hexachlorobutadiene	ND	0.200		ND	2.13		U	

Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Lab ID : L2029074-14
Client ID : DUP01_070920
Sample Location : MANHATTAN, NY
Sample Matrix : SOIL_VAPOR

Analytical Method : 48,TO-15 Lab File ID : R1618258

Sample Amount : 250 ml

Lab Number : L2029074
Project Number : 170381201

Date Collected : 07/09/20 00:00

Date Received : 07/09/20
Date Analyzed : 07/16/20 03:39

Dilution Factor : 1 Analyst : TS

Instrument ID : AIRLAB16 GC Column : RTX-1

Jann	DE AIIIOUIIL . 230 IIII				ac co	Julilli	. 1112	N- I	
			ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	
75-71-8	Dichlorodifluoromethane	2.15	0.200		10.6	0.989			
74-87-3	Chloromethane	0.220	0.200		0.454	0.413			
76-14-2	Freon-114	ND	0.200		ND	1.40		U	
75-01-4	Vinyl chloride	ND	0.200		ND	0.511		U	
106-99-0	1,3-Butadiene	ND	0.200		ND	0.442		U	
' 4-83-9	Bromomethane	ND	0.200		ND	0.777		U	
75-00-3	Chloroethane	ND	0.200		ND	0.528		U	
64-17-5	Ethanol	16.5	5.00		31.1	9.42		-	
93-60-2	Vinyl bromide	ND	0.200		ND	0.874		U	
67-64-1	Acetone	90.6	1.00		215	2.38			
75-69-4	Trichlorofluoromethane	1.19	0.200		6.69	1.12			
7-63-0	Isopropanol	1.39	0.500		3.42	1.23			
75-35-4	1,1-Dichloroethene	ND	0.200		ND	0.793		U	
' 5-65-0	Tertiary butyl Alcohol	3.24	0.500		9.82	1.52		-	
75-09-2	Methylene chloride	0.878	0.500		3.05	1.74			
07-05-1	3-Chloropropene	ND	0.200		ND	0.626		U	
75-15-0	Carbon disulfide	0.528	0.200		1.64	0.623			
76-13-1	Freon-113	ND	0.200		ND	1.53		U	
156-60-5	trans-1,2-Dichloroethene	ND	0.200		ND	0.793		U	
75-34-3	1,1-Dichloroethane	ND	0.200		ND	0.809		U	
634-04-4	Methyl tert butyl ether	ND	0.200		ND	0.721		U	
78-93-3	2-Butanone	19.7	0.500		58.1	1.47			
56-59-2	cis-1,2-Dichloroethene	ND	0.200		ND	0.793		U	
41-78-6	Ethyl Acetate	ND	0.500		ND	1.80		U	
7-66-3	Chloroform	3.76	0.200		18.4	0.977		-	
09-99-9	Tetrahydrofuran	ND	0.500		ND	1.47		U	



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Lab ID : L2029074-14
Client ID : DUP01_070920
Sample Location : MANHATTAN, NY
Sample Matrix : SOIL_VAPOR
Analytical Method : 48,TO-15

Lab File ID : R1618258 Sample Amount : 250 ml Date Analyzed : 07/16/20 03:39
Dilution Factor : 1
Analyst : TS

Lab Number

Project Number

Date Collected

Date Received

Instrument ID : AIRLAB16 GC Column : RTX-1

: L2029074

: 170381201

: 07/09/20

: 07/09/20 00:00

			ppbV			ug/m3			
CAS NO.	Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	
107-06-2	1,2-Dichloroethane	ND	0.200		ND	0.809		U	
110-54-3	n-Hexane	12.9	0.200		45.5	0.705			
71-55-6	1,1,1-Trichloroethane	ND	0.200		ND	1.09		U	
71-43-2	Benzene	0.436	0.200		1.39	0.639			
56-23-5	Carbon tetrachloride	ND	0.200		ND	1.26		U	
110-82-7	Cyclohexane	0.388	0.200		1.34	0.688			
78-87-5	1,2-Dichloropropane	ND	0.200		ND	0.924		U	
75-27-4	Bromodichloromethane	ND	0.200		ND	1.34		U	
1330-20-7	Xylenes, Total	2.00	0.200		8.69	0.869			
123-91-1	1,4-Dioxane	ND	0.200		ND	0.721		U	
79-01-6	Trichloroethene	ND	0.200		ND	1.07		U	
540-84-1	2,2,4-Trimethylpentane	26.6	0.200		124	0.934			
142-82-5	Heptane	4.05	0.200		16.6	0.820			
10061-01-5	cis-1,3-Dichloropropene	ND	0.200		ND	0.908		U	
108-10-1	4-Methyl-2-pentanone	0.672	0.500		2.75	2.05			
10061-02-6	trans-1,3-Dichloropropene	ND	0.200		ND	0.908		U	
79-00-5	1,1,2-Trichloroethane	ND	0.200		ND	1.09		U	
108-88-3	Toluene	1.19	0.200		4.48	0.754			
591-78-6	2-Hexanone	5.67	0.200		23.2	0.820			
124-48-1	Dibromochloromethane	ND	0.200		ND	1.70		U	
106-93-4	1,2-Dibromoethane	ND	0.200		ND	1.54		U	
127-18-4	Tetrachloroethene	5.60	0.200		38.0	1.36			
108-90-7	Chlorobenzene	ND	0.200		ND	0.921		U	
100-41-4	Ethylbenzene	0.290	0.200		1.26	0.869			
179601-23-1	p/m-Xylene	1.37	0.400		5.95	1.74			
75-25-2	Bromoform	ND	0.200		ND	2.07		U	



Client : Langan Engineering & Environmental

Project Name : 250 WATER STREET

Lab ID : L2029074-14
Client ID : DUP01_070920
Sample Location : MANHATTAN, NY
Sample Matrix : SOIL_VAPOR

Analytical Method : 48,TO-15
Lab File ID : R1618258

Sample Amount : 250 ml

Lab Number : L2029074 Project Number : 170381201

Date Collected : 07/09/20 00:00

Date Received : 07/09/20
Date Analyzed : 07/16/20 03:39

Dilution Factor : 1 Analyst : TS

Instrument ID : AIRLAB16 GC Column : RTX-1

		ppbV			ug/m3			
Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	
Styrene	ND	0.200		ND	0.852		U	
1,1,2,2-Tetrachloroethane	ND	0.200		ND	1.37		U	
o-Xylene	0.636	0.200		2.76	0.869			
4-Ethyltoluene	ND	0.200		ND	0.983		U	
1,3,5-Trimethylbenzene	ND	0.200		ND	0.983		U	
1,2,4-Trimethylbenzene	0.556	0.200		2.73	0.983			
Benzyl chloride	ND	0.200		ND	1.04		U	
1,3-Dichlorobenzene	ND	0.200		ND	1.20		U	
1,4-Dichlorobenzene	ND	0.200		ND	1.20		U	
1,2-Dichlorobenzene	ND	0.200		ND	1.20		U	
1,2,4-Trichlorobenzene	ND	0.200		ND	1.48		U	
Hexachlorobutadiene	ND	0.200		ND	2.13		U	
	Styrene 1,1,2,2-Tetrachloroethane o-Xylene 4-Ethyltoluene 1,3,5-Trimethylbenzene 1,2,4-Trimethylbenzene Benzyl chloride 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene	Styrene ND 1,1,2,2-Tetrachloroethane ND o-Xylene 0.636 4-Ethyltoluene ND 1,3,5-Trimethylbenzene ND 1,2,4-Trimethylbenzene 0.556 Benzyl chloride ND 1,3-Dichlorobenzene ND 1,4-Dichlorobenzene ND 1,2-Dichlorobenzene ND 1,2-Dichlorobenzene ND	Parameter Results RL Styrene ND 0.200 1,1,2,2-Tetrachloroethane ND 0.200 o-Xylene 0.636 0.200 4-Ethyltoluene ND 0.200 1,3,5-Trimethylbenzene ND 0.200 1,2,4-Trimethylbenzene 0.556 0.200 Benzyl chloride ND 0.200 1,3-Dichlorobenzene ND 0.200 1,4-Dichlorobenzene ND 0.200 1,2-Dichlorobenzene ND 0.200 1,2,4-Trichlorobenzene ND 0.200	Parameter Results RL MDL Styrene ND 0.200 1,1,2,2-Tetrachloroethane ND 0.200 o-Xylene 0.636 0.200 4-Ethyltoluene ND 0.200 1,3,5-Trimethylbenzene ND 0.200 1,2,4-Trimethylbenzene 0.556 0.200 Benzyl chloride ND 0.200 1,3-Dichlorobenzene ND 0.200 1,4-Dichlorobenzene ND 0.200 1,2-Dichlorobenzene ND 0.200 1,2,4-Trichlorobenzene ND 0.200	Parameter Results RL MDL Results Styrene ND 0.200 ND 1,1,2,2-Tetrachloroethane ND 0.200 ND o-Xylene 0.636 0.200 2.76 4-Ethyltoluene ND 0.200 ND 1,3,5-Trimethylbenzene ND 0.200 ND 1,2,4-Trimethylbenzene 0.556 0.200 ND 1,3-Dichloride ND 0.200 ND 1,4-Dichlorobenzene ND 0.200 ND 1,2-Dichlorobenzene ND 0.200 ND 1,2,4-Trichlorobenzene ND 0.200 ND	Parameter Results RL MDL Results RL Styrene ND 0.200 ND 0.852 1,1,2,2-Tetrachloroethane ND 0.200 ND 1.37 o-Xylene 0.636 0.200 ND 0.869 4-Ethyltoluene ND 0.200 ND 0.983 1,3,5-Trimethylbenzene ND 0.200 ND 0.983 1,2,4-Trimethylbenzene 0.556 0.200 ND 1.04 1,3-Dichlorobenzene ND 0.200 ND 1.20 1,4-Dichlorobenzene ND 0.200 ND 1.20 1,2-Dichlorobenzene ND 0.200 ND 1.20 1,2,4-Trichlorobenzene ND 0.200 ND 1.48	Parameter Results RL MDL Results RL MDL Styrene ND 0.200 ND 0.852 1,1,2,2-Tetrachloroethane ND 0.200 ND 1.37 o-Xylene 0.636 0.200 ND 0.869 4-Ethyltoluene ND 0.200 ND 0.983 1,3,5-Trimethylbenzene ND 0.200 ND 0.983 1,2,4-Trimethylbenzene 0.556 0.200 ND 0.983 Benzyl chloride ND 0.200 ND 1.04 1,3-Dichlorobenzene ND 0.200 ND 1.20 1,2-Dichlorobenzene ND 0.200 ND 1.20 1,2-Dichlorobenzene ND 0.200 ND 1.48 1,2,4-Trichlorobenzene ND </td <td>Parameter Results RL MDL Results RL MDL Qualifier Styrene ND 0.200 ND 0.852 U 1,1,2,2-Tetrachloroethane ND 0.200 ND 1.37 U o-Xylene 0.636 0.200 2.76 0.869 U 4-Ethyltoluene ND 0.200 ND 0.983 U 1,3,5-Trimethylbenzene ND 0.200 ND 0.983 U 1,2,4-Trimethylbenzene 0.556 0.200 ND 1.04 U Benzyl chloride ND 0.200 ND 1.04 U 1,3-Dichlorobenzene ND 0.200 ND 1.20 U 1,2-Dichlorobenzene ND 0.200 ND 1.20 U 1,2,4-Trichlorobenzene</td>	Parameter Results RL MDL Results RL MDL Qualifier Styrene ND 0.200 ND 0.852 U 1,1,2,2-Tetrachloroethane ND 0.200 ND 1.37 U o-Xylene 0.636 0.200 2.76 0.869 U 4-Ethyltoluene ND 0.200 ND 0.983 U 1,3,5-Trimethylbenzene ND 0.200 ND 0.983 U 1,2,4-Trimethylbenzene 0.556 0.200 ND 1.04 U Benzyl chloride ND 0.200 ND 1.04 U 1,3-Dichlorobenzene ND 0.200 ND 1.20 U 1,2-Dichlorobenzene ND 0.200 ND 1.20 U 1,2,4-Trichlorobenzene



November 4, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Alpha Analytical Laboratories – Soil Vapor Samples</u>

Dear Mr. Yanowitz:

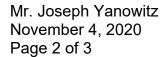
The evaluation of analytical data for mercury analysis by Alpha Analytical Laboratories for 17 soil vapor samples and one field blank from the 250 Water Street site, which were reported in a single data package under Job No. L2029076, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

AA02_070920	SV12_070920	SV14_070920
SV17_070920	SV19_070920	SV21_070920
SV23_070920	SV24_070920	SV28_070920
SV29_070920	SV30_070920	SV32_070920
SV37_070920	V1_070920	V3_070920
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Analyses were performed in accordance with NIOSH Method 6009 - Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes





Data Usability Summary Report	
7. Have any quality control (QC) exceedances been specifically noted the DUSR and have the corresponding QC summary sheet from the day package been attached to the DUSR?	

Based on the data review effort, the results are usable, with the following qualifications:

• The results for mercury in all samples were qualified as estimated (UJ) due to low recovery in the laboratory control sample duplicate (LCSD).

Region II qualifier definitions are provided in the Attachment A. Copies of the chain of custody records are provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - Internal standards
 - Field Duplicates
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Mr. Joseph Yanowitz November 4, 2020 Page 3 of 3



Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

- Improper editing was observed on the COCs. When edits must be made, there should be a single line drawn through the incorrect information, the correct information added, and the date and initials of the editor included.
- The laboratory reported a result in ug/cart and did not report a ug/m3 result for FB01 070920.

Holding Times, Preservation, Sample Integrity:

Copies of the applicable chain of custody (COC) records were included in the data package, documenting a collection date of July 9, 2020. The samples were received by the laboratory on the same day as sample collection. All samples were analyzed within the method-specified holding time.

A. Mercury

1. Laboratory Control Sample (LCS) / LCS Duplicate (LCSD)

The results for mercury in all samples were qualified as estimated (UJ) due to low recovery in the LCSD (89%R; limits 90-110%R).

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Jeri Rossi, CEAC

Sr. Environmental Chemist

gui Resse.

(908) 370-3431

jrossi@ddmsinc.com



ATTACHMENT A

EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORDS Laboratory Job No. L2029076

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ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE - QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. L2029076

Form 7 Laboratory Control Sample

Client : Langan Engineering & Environmental Lab Number : L2029076 **Project Name** : 250 WATER STREET **Project Number** : 170381201 Client Sample ID : NA Matrix : AIR MEDIA : WG1391511-2 Lab Sample ID LCS Analysis Date : 07/15/20 20:16 Dup Sample ID LCSD Analysis Date: 07/15/20 20:18 : WG1391511-3

	Laboratory Co	ontrol Sample		Laboratory C					
Parameter	True (ug/cart)	Found (ug/cart)	%R	True Found (ug/cart) (ug/cart)		%R RPD		Recovery Limits	RPD Limit
Mercury, Total	0.125	0.134	107.	0.125	0.111	89. Q	19	90-110	20





November 4, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Alpha Analytical Laboratories – Soil Vapor Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for organic analysis by Alpha Analytical Laboratories for two soil vapor samples from the 250 Water Street site, which were reported in a single data package under Job No. L2031269, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SV38_080320 SV39_080320

Analyses were performed in accordance with EPA Method TO-15. ddms' review was performed, to the extent possible, in accordance with the analytical method and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report		
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes	
2.	Have all holding times been met?	Yes	
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – Following Sections	See
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes	
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes	
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes	
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes	

Based on the data review effort, the results are usable, with the following qualifications:

Mr. Joseph Yanowitz November 4, 2020 Page 2 of 3



• The results for tert-butyl alcohol in SV38_080320 and SV39_080320 were qualified as estimated (UJ) due to high relative standard deviation (RSD) over the calibration.

Region II qualifier definitions are provided in the Attachment A. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - o Surrogate rec
 - o overies
 - o LCS/LCSD recoveries
 - MS/MSD recoveries
 - o Internal standards
 - Field Duplicates
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. No issues were observed during the review.

Holding Times, Preservation, Sample Integrity:

A copy of the applicable chain of custody (COC) record was included in the data package, documenting a collection date of August 3, 2020. The samples were received by the laboratory

Mr. Joseph Yanowitz November 4, 2020 Page 3 of 3



on the same day as sample collection. All samples were analyzed within the method-specified holding time.

A. Volatile Organics

1. Calibration

One initial calibration (IC) was reported in support of sample analyses. All relative response factors (RRFs) and RSDs were acceptable with the exception of tert-butyl alcohol (RSD=34.9). The results for tert-butyl alcohol in SV38_080320 and SV39_080320 were qualified as estimated (UJ) due to high relative standard deviation (RSD) over the calibration.

One second source initial calibration verification (ICV) standard and one continuing calibration (CC) standard were analyzed and all percent differences (%D) were acceptable (<30%D for compounds ≥5 times the reporting limits).

No other sample results were qualified as a result of the validation effort. However, it should be noted that the laboratory performed a laboratory control sample (LCS) only and did not perform an LCS duplicate or laboratory sample duplicate analysis; therefore, laboratory precision could not be assessed.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Jeri Rossi, CEAC

Sr. Environmental Chemist

gui Resse.

(908) 370-3431

jrossi@ddmsinc.com



ATTACHMENT A

EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. L2031269

Client Informati	Mansfield, MA 02048 00 FAX: 508-822-3288	Project Information Project Name: 250 Water Street Project Location: NY, NY Project #: 170381202						ADEx Criteria Checker:						ALPHA Job #: 1_2031269 Billing Information X Same as Client info PO #:			
Phone: 212-1 Fax: 212 Email: AMCM These samples ha Other Project S	NY 10001 179-5400 -479-5444 AHONELANGAW (ove been previously analyzed by Alpha Specific Requirements/Com	ALPHA (Turn-A X Standa Date Du ments:	Manager: Quote #: Around T	aul	МсМо		Repo	Other For MAIL (standditional Death of the control	mats: dard pdf eliverable	report) es:			St	ate/Fed	1	Requirements Program YSIS	s/Report Limi Res / Comm
ALPHA Lab ID (Lab Use Only) B1269-01 C2	Sample ID SV38_0803 20 SV39_0803 20	End Date	Start Time	End Time	4.4	Final Vacuum	Sample Matrix* SV SV	Sampler's Initials AH	-	1 D Can	SOE	X	40,458IM	Fixed Gases	CONTRACTOR OF THE PROPERTY OF	Sample Com	nments (i.e. PID)
*SAMPLE TIM No: 101-02 Rev: (25-Se Page 15 of 33-	AP-15)	= Ambient = Soil Vapo er = Please S Relinquish	r/Landfill G pecify	Outdoor) as/SVE	Date/ 8/3/201 83-20	Time (6) (6) (7)	Me	Co	ntainer i	Гуре	30814	5.3	ate/Tim	164	i0	Please print clear completely. Samy logged in and turn clock will not start guitles are resolve submitted are sub Terms and Conditi See reverse side.	ples can not be naround time t until any ambi- ed. All samples plect to Alpha's



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. L2031269

Response Factor Report

Method Path : 0:\Forensics\Data\Airpiano4\2020\07\200719T_I\

Method File : TFS4_200719.M

Title : TO-14A/TO-15 SIM/Full Scan Analysis

Last Update : Mon Aug 03 08:54:53 2020

Response Via: Initial Calibration

Calibration Files

0.2 =r410621.D 0.5 =r410622.D 1.0 =r410623.D 5.0 =r410624.D 10 =r410625.D 20 =r410626.D

50 =r410627.D 100 =r410628.D

	Compound	0.2	0.5	1.0	5.0	10	20	50	100	Avg	%RSD
1) I	bromochloromethane										
2)	chlorodifluoromethane	1.001								0.8942	13.66
3)	propylene									0.5263	15.13
4)	propane									0.7118	14.02
5)	dichlorodifluoromethane									0.8648	20.20
6) C	chloromethane									0.5030	15.75
7)	Freon-114	1.304	1.332							1.1477	20.61
8) C	methanol			0.390	0.225	0.221	0.178	0.210	0.211	0.2392	31.73#
9) C	vinyl chloride									0.5481	14.25
10) C	1,3-butadiene									0.5044	12.64
11)	butane	1.019	0.997	0.974	0.926	0.898	0.652	0.721	0.697	0.8606	17.10
12) C	acetaldehyde		0.369	0.358	0.317	0.303	0.213	0.234	0.219	0.2876	22.78
13) C	bromomethane	0.472	0.482	0.481	0.473	0.461	0.331	0.366	0.351	0.4273	15.31
14) C	chloroethane	0.341	0.334	0.331	0.324	0.321	0.232	0.265	0.258	0.3007	14.03
15)	ethanol			0.531	0.453	0.441	0.347	0.390	0.374	0.4228	15.70
16)	dichlorofluoromethane	1.002	1.004	1.004	0.953	0.934	0.685	0.749	0.696	0.8786	16.26
17) C	vinyl bromide	0.507	0.508	0.597	0.580	0.558	0.401	0.430	0.382	0.4954	16.68
18) C	acrolein		0.299	0.306	0.285	0.283	0.218	0.261	0.256	0.2727	11.06
19)	acetone	1.125	1.010	0.954	0.853	0.824	0.593	0.641	0.569	0.8211	24.96
20) C	acetonitrile	0.662	0.638	0.610	0.542	0.535	0.405	0.466	0.441	0.5374	17.62
21)	trichlorofluoromethane	0.769	0.799	0.810	0.806	0.781	0.559	0.621	0.542	0.7109	16.36
22)	isopropyl alcohol	1.630	1.444	1.414	1.119	1.092	0.804	0.909	0.810	1.1526	27.11
23) C	acrylonitrile	0.559	0.555	0.560	0.528	0.526	0.404	0.486	0.459	0.5096	10.99
24)	pentane	1.206	1.173	1.155	1.071	1.056	0.794	0.929	0.846	1.0286	15.12
25)	ethyl ether	0.919	0.909	0.926	0.898	0.887	0.667	0.797	0.769	0.8465	10.96
26) C	1,1-dichloroethene	0.772	0.775	0.778	0.768	0.758	0.548	0.645	0.580	0.7031	13.77
27)	tertiary butyl alcohol		1.855	1.869	1.160	1.147	0.823	0.984	0.903	1.2487	34.92#
28) C	methylene chloride		0.763	0.748	0.711	0.695	0.510	0.603	0.543	0.6534	15.47
29) C	3-chloropropene	0.857	0.824	0.837	0.817	0.808	0.594	0.718	0.653	0.7634	12.66
30) C	carbon disulfide	1.967	1.959	1.959	1.904	1.873	1.362	1.589	1.365	1.7471	15.27
31)	Freon 113	0.980	0.984	1.006	0.986	0.961	0.689	0.797	0.673	0.8846	16.02

TFS4_200719.M Wed Aug 05 16:18:38 2020



November 4, 2020

Mr. Joseph Yanowitz Senior Staff Engineer Langan 21 Penn Plaza, 8th Floor 360 West 31st Street New York, NY 10001-2727

Re: <u>Data Usability Summary Report – Alpha Analytical Laboratories – Soil Vapor Samples</u>

Dear Mr. Yanowitz:

The evaluation of analytical data for mercury analysis by Alpha Analytical Laboratories for two soil vapor samples and one field blank from the 250 Water Street site, which were reported in a single data package under Job No. L2031271, has been completed. The data package was received by ddms, inc. (ddms) for review, and the following samples were reported:

SV38_080320 SV39_080320 SVFB02_080320

Analyses were performed in accordance with NIOSH Method 6009 - Modified. ddms' review was performed, to the extent possible, in accordance with the analytical method and "DER-10/Technical Guidance for Site Investigation and Remediation". Professional judgment was applied as necessary and appropriate. Qualifiers consistent with those defined by EPA Region 2 were applied as necessary and appropriate.

Below is the Data Usability Summary Report (DUSR) associated with these samples.

	Data Usability Summary Report	
1.	Is the data package complete as defined under the requirements for the most current DEC ASP Category B or USEPA CLP data deliverables?	Yes
2.	Have all holding times been met?	Yes
3.	Do all the QC data; blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?	No – See Following Sections
4.	Have all of the data been generated using established and agreed upon analytical protocols?	Yes
5.	Does an evaluation of the raw data confirm the results provided in the data summary sheet and the quality control verification forms?	Yes
6.	Have the correct data qualifiers been used and are they consistent with the most current DEC ASP?	Yes
7.	Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheet from the data package been attached to the DUSR?	Yes

Based on the data review effort, the results are usable, with the following qualifications:

Mr. Joseph Yanowitz November 4, 2020 Page 2 of 3



• The results for mercury in SV38_080320 and SV39_080320 were qualified as estimated (J+) due to high recovery in the laboratory control sample duplicate (LCSD).

All qualifiers are reflected on the Validation Qualifier Summary Table included as Attachment A to this report. Only the pages documenting qualification of data have been included in this report. Region II qualifier definitions are also provided in the attachment. A copy of the chain of custody record is provided in Attachment B. Pages from the data package illustrating the exceedances and issues described in this validation report are included as Attachment C.

The following components were reviewed, where applicable:

- Chain of custody
- Receiving conditions
- Holding times
- Preservation
- Analyte lists
- Reporting limits
- Requested methods
- Units
- Sample related quality control data:
 - Method blanks
 - Field blanks
 - o Trip Blanks
 - Surrogate recoveries
 - LCS/LCSD recoveries
 - MS/MSD recoveries
 - o Internal standards
 - Field Duplicates
- Instrument related quality control data:
 - Instrument tunes
 - Calibration summaries

In the remaining sections of this report, only those quality excursions resulting in qualified data are discussed below. Quality control excursions having no impact to sample results are not discussed.

When a sample result is qualified estimated 'J' in addition to estimated 'J+' or 'J-', the 'J' qualifier takes precedence and the bias is indeterminate. When a sample result is rejected (R), the 'R' qualifier takes precedence over any previous qualification.

Documentation: A completeness review of the data package was performed, and the data package was determined to be a complete Category B data package. Issues observed during the review are detailed below:

• The laboratory reported a result in ug/cart and did not report a ug/m3 result for SVFB02_080320.

Mr. Joseph Yanowitz October 15, 2020 Page 3 of 3



Holding Times, Preservation, Sample Integrity:

A copy of the applicable chain of custody (COC) record was included in the data package, documenting a collection date of August 3, 2020. The samples were received by the laboratory on the same day as sample collection. All samples were analyzed within the method-specified holding time.

A. Mercury

1. Laboratory Control Sample (LCS) / LCS Duplicate (LCSD)

The results for mercury in SV38_080320 and SV39_080320 were qualified as estimated (J+) due to high recovery in the LCSD (112%R; limits 90-110%R).

No other sample results were qualified as a result of the validation effort.

Please feel free to contact us if you have any questions regarding this data package review report or need further information.

Sincerely,

de maximis Data Management Solutions, Inc.

Jeri Rossi, CEAC

Sr. Environmental Chemist

gui Resse.

(908) 370-3431

irossi@ddmsinc.com



ATTACHMENT A

EPA Qualifier Definitions

- U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- NJ The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.



ATTACHMENT B

CHAIN OF CUSTODY RECORD Laboratory Job No. L2031271

	IR ANALYSIS - SOR HAIN OF CUSTODY					age \			b8/4			AL	PHA	Job i	# L	- 2	031	271	
Project Information						FAX ADEX					Same as Client Info								
Client: LANGAN, DPC (Use Project name as Project #) Address: 30 W. 315+ 84,844 Place Project Manager: Poul McMa NY, NY 10001 ALPHA Quote #: Phone: 212-479-5400 Turn-Around Time Fax: 212-479-5444 Standard Due Date:						non	Criteria Checker: Other Formats: EMAIL Add'I Deliverables Report to: (if different than Manager)					Regulatory Requirements/Re State/Fed Program							
These samples have Other Project Speci	e been previously and ific Requirements / Cheek	omments/	Alpha:		Time:	Con Hon	Selection geners	is REQUIR		20000000	alysis		9 Mod.				s; ir	IOTE: For metals, please pecify elements of iterest and media type. PM-10 Filter TSP Filter	
	Sample ID SV38_080320 SV39_080320	Date 8 3 2000	Start Time	End Time	Flow Rate (L/min)	ction Total Volume(L)	Sample Matrix*	Initials	Media ID#	TO-13A	PCBs (High Vol)	PCBs (Low Vol)	Hg via NIOSH 6009	Metals	PM-10 Filter	TSP Filter		→ MCE mple Comments (i.e. PID)	
0.3	SVF 802_080324	8 3 200	¥625	1604 1628	NA	26.0904 N/A	AA-	AH	7				×						
*SAMPLE MATRIX CO	DDES	SV = Soil Vapor	Air (Indoor/Outde /Landfill Gas/SVE		(1) Required to PM- 10 and TSF	r PUF cartridges,		Media	Туре	P	P	р	т	F	F	F	Ple	ase print clearly, legibly	
Media Code F = Filter P = PUF Cartridge T = Sorbent Tube D = Other Other = Please Specify Relinquist Advisor Pub		k	(4	Date/ 5/3/2011 3-3-78	19.10		Received By			8		Date/		383	and not turn not are THI REA BOOL	d completely. Samples can be logged in and naround time clock will start until any ambiguities resolved. BY EXECUTING S COC, THE CUENT HAS ID AND AGREES TO BE JND BY ALPHA'S TERMS & NOTTIONS.			



ATTACHMENT C

SELECTED PAGES FROM DATA PACKAGE -QC EXCEEDANCES AND VALIDATION ISSUES Laboratory Job No. L2031271

Form 7 Laboratory Control Sample

Client : Langan Engineering & Environmental Lab Number : L2031271 : 250 WATER STREET **Project Name Project Number** : 170381202 Client Sample ID : NA Matrix : AIR MEDIA : WG1397280-2 Lab Sample ID LCS Analysis Date : 08/11/20 20:10 Dup Sample ID LCSD Analysis Date: 08/11/20 20:12 : WG1397280-3

	Laboratory Co	ontrol Sample		Laboratory C	ontrol Duplica				
Parameter	True (ug/cart)	Found (ug/cart)	%R	True Found (ug/cart)		%R RPD		Recovery Limits	RPD Limit
Mercury, Total	0.125	0.136	109.	0.125	0.140	112. Q	3	90-110	20

