City of Portland
Cindy Wheeler P.E. – City engineer
100 South Russell Street
Portland, Tennessee 37148
Telephone 615/323-1437
Email Address: cwheeler@cityofportlandtn.gov

Division of Water Resources
Attn: Biosolids NOI
William R. Snodgrass – 11th Floor
312 Rosa L. Parks Avenue
Nashville, TN 37243
Phone: 615-532-1508

Date: 8/21/2020

Re: BIOSOLIDS LAND APPLY - NOI
PORTLAND ENGINEERING NO: 0201-124

Reviewer,

Included in this transmittal are the following documents for your review and approval:

- Biosolids NOI
- Mapping for Parcels of Land Application (2 maps)
- Property Information
- Testing Plan

I believe this is all the documents required. If additional information is needed, or if you have any questions, please do not hesitate to contact me at (615) 323-1437 or via email at cwheeler@cityofportlandtn.gov

Sincerely,

Cindy Wheeler, P.E.
City Engineer
CAW/00025

cc.
Bryan Price, Utilities Director
Larry Quattlebaum, WWTP Chief Operator

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102
(615) 532-0625

NOTICE OF INTENT (NOI) for Land Application of Non-Exceptional Quality Biosolids

Generator Name: City of Portland, TN	Current NPDES No: TN0021865	**Existing Tracking No:**

Owner or Operator: (the person or legal entity which controls the site's operation)

1	Name of Official Contact Person: (individual responsible for a site) Larry Quattlebaum	Title or Position: Lead Operator		
	Mailing Address: 100 So Russell Street	City: Portland	State: TN	Zip: 37148
	Phone: ( ) 615-323-1437	E-mail: lquattlebaum@cityofportlandtn.gov		
2	Name of Local Contact Person: (if appropriate, write "same as #1") same as #1	Title or Position: WWTP Chief Operator/IPC		
	Site Address: (this may or may not be the same as street address) 124 Morningside Drive	Site City: Portland	State: TN TN	Zip: 37148
	Phone: ( ) 615-323-1437 ex 186	E-mail: lquattlebaum@cityofportlandtn.gov		

Write in the box (to the right) or circle the number (above) to indicate where to send correspondence: 1

All non-EQ biosolids land application sites that have been approved by the division prior to the effective date of this permit will be covered under this permit upon receipt of the signed certification statement, completed NOI and a copy of site approval letter(s).

A. OPERATIONAL INFORMATION:
Estimated annual amount of biosolids generated (dry weight basis) 2000 (tons)
Estimated annual amount of biosolids to be land applied (dry weight basis) 2000 (tons)

B. BIOSOLIDS TREATMENT PROCESS: Please provide a description of the biosolids treatment process used prior to biosolids being land applied (use a separate sheet if necessary):

Treatment by digester, polymer thickener, and Fornier belt press. Currently the biosolids are being transported by truck to a landfill in Kentucky.

C. CHEMICAL ANALYSIS: Indicate which contaminant standard(s) the biosolids meet:
Table 1 Ceiling Contaminant Concentrations: ☐ **Table 3 Contaminant Concentrations:** ☐

- Submit analytical results to demonstrate eligibility for and compliance with the quality criteria specified in the General Permit.
- Submit PCB and TCLP analytical results that are less five years old.

D. PATHOGEN REDUCTION LEVEL ACHIEVED: Indicate alternative used to achieve the pathogen reduction. For Class A, Alternatives 5 and 6; for Class B, Alternatives 2 and 3, list the specific Process to Further Reduce Pathogens (PFRP) or Process to Significantly Reduce Pathogens (PSRP).

Class A: ☐ **Alternative 1** ☐ **Alternative 2** ☐ **Alternative 3**
☐ **Alternative 4** ☐ **Alternative 5** _____ **(List PFRP)** ☐ **Alternative 6** _____ **(List Eq. PFRP)**

Class B: ☐ **Alternative 1** ■ **Alternative 2** _____ **(List PSRP)** ☐ **Alternative 3** _____ **(List Eq. PSRP)**

Provide a detailed description of the pathogen treatment process. Attach laboratory analytical and/or process monitoring results, as appropriate, that demonstrate pathogen reduction is being achieved:

Treatment obtained through aerobic digestion. Laboratory analytics attached were performed by Pace Analytical.

NOTICE OF INTENT (NOI) for Land Application of Non-Exceptional Quality Biosolids

E. VECTOR ATTRACTION REDUCTION LEVEL ACHIEVED: Indicate the option used to achieve the vector attraction reduction.

☐ **Option 1** ☐ **Option 2** ☐ **Option 3** ■ **Option 4**
☐ **Option 5** ☐ **Option 6** ☐ **Option 7** ☐ **Option 8**

If one of the vector attraction reduction Options 1 - 5 is selected, do the biosolids meet Class A pathogen reduction requirements prior to or at the same time as meeting the vector attraction reduction requirements?

☐ **Yes** ☐ **No**

Provide a detailed description of the vector attraction reduction treatment process. Attach laboratory analytical and/or process monitoring results, as appropriate, that demonstrate vector attraction reduction is being achieved:

Sour

F. If one of the vector attraction reduction Options 1 - 8 above was not performed, indicate how the vector attraction reduction will be performed on the field as part of the land application process:

☐ **Option 9 (Subsurface Injection)** ☐ **Option 10 (Incorporation)**

n/a

G. SAMPLING PLAN: Include a detailed copy of the biosolids sampling plan as specified in the instructions. The sampling plan must address sampling protocols for contaminants, pathogen reduction, and vector attraction reduction quality criteria.

H. LAND APPLICATION AREA(s): Include a list of land application area(s) that will be used for disposal of biosolids. Attach a detailed map showing appropriate buffers in accordance with section 3.2.1 (add additional pages if necessary)

Area Number	Area (acres)	Application Rate (tons/acre) per section 3.2.2	Latitude (decimal)	Longitude (decimal)
		See Attached		

I. CERTIFICATION: I certify, under penalty of law, that contaminant concentrations in the biosolids, pathogen reduction, vector attraction reduction, and other quality criteria of the biosolids stated in the regulations have been met or, if appropriate, will be met prior to land application of biosolids. I further certify that other information in this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my own knowledge as well as the inquiry of the person(s) who manage the system, or those directly responsible for gathering the information, the information submitted, to the best of my knowledge and belief, is true, accurate and complete. I further acknowledge that the facility or generator of biosolids described above is eligible for coverage under TDEC's General Permit for the Land Application of Biosolids. I am aware that there are significant penalties for submitting false information, including possibility of fines and imprisonment for knowing violations. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Name: LARRY R. QUATTLEBAUM **Title:** CHIEF OPERATOR

Signature:

Telephone: (615) 325 - 10989 **Date Signed:** 8 / 21 / 20

NOTE: In evaluating NOI forms, TDEC may request additional information to complete its review to determine the eligibility for coverage under TDEC's General Permit.

Submit the original completed and signed form to *Water.Permits@tn.gov* or:
Biosolids NOI Processing - Division of Water Resources
William R. Snodgrass - Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
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(615) 532-0625

NOTICE OF INTENT (NOI) for Land Application of Non-Exceptional Quality Biosolids

CITY OF PORTLAND
CINDY WHEELER P.E. – CITY ENGINEER
100 SOUTH RUSSELL STREET
PORTLAND, TENNESSEE 37148
Telephone 615/323-1437
Email Address: cwheeler@cityofportlandtn.gov

BIOSOLIDS SAMPLING-TESTING PLAN

The City of Portland will follow all standard testing protocols in acquiring testing samples. City of Portland currently produces approximately 45-55 tons/month (40.8-49.9 MT) with 25% solids. As our community is currently in growth, we are permitting for 65 tons/month (approximately 59 MT). PCB and TCLP testing will be conducted quarterly which exceeds the requirement, by amount of biosolids, set forth in section 3.1.4(e) (Table from that section is below).

Amount of Biosolids [1] (metric tons per calendar year)	Frequency
Greater than 0 but less than 290	Once per year
Equal to or greater than 290 but less than 1,500	Once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (6 times per year)
Equal to or greater than 15,000	Once per month (12 times per year)

PCB and TCLP testing shall be performed by an independent lab. The Lab provides all testing containers and kits for said testing. Preservatives for the sample is premeasured and already in the testing containers when received at the WWTP facility. Grab samples are taken from Digester #3, the final stage of treatment prior to dewatering through a Fornier Belt Press.

Vector Attraction Reduction Level is demonstrated through the specific oxygen uptake rate (SOUR) testing. The SOUR test is conducted monthly. Samples are taken from Digester #3. A sample of about 1 L is collected in a clean container and analyzed immediately at the WWTP lab.

By February 19th of each year the “Reporting of Monitoring Results” and other pertinent information shall be sent to:

TDEC Division of Water Resources
Attn: Biosolids Annual Report
William R Snodgrass – 11th Floor
312 Rosa L Parks Avenue
Nashville, TN 37243

CITY OF PORTLAND
CINDY WHEELER P.E. – CITY ENGINEER
100 SOUTH RUSSELL STREET
PORTLAND, TENNESSEE 37148
Telephone 615/323-1437
Email Address: cwheeler@cityofportlandtn.gov

Names	Mailing Address			Farm Location			Acreage	APN
Stephen D & Willie Joe Freeman	330 Piper Road	Portland	TN 37148	225 Old Martin Chapel Road	Portland	TN 37148	16.73	014 006.01
				229 Old Martin Chapel Road	Portland	TN 37148	24.3	014 006.02
				Gregory Lane	Portland	TN 37148	63.6	014 020.10
							104.63	
Joe & Joan Freeman	330 Piper Road	Portland	TN 37148	298 W. Carter Road	Portland	TN 37148	29.44	021 012.00
				W. Carter Road	Portland	TN 37148	49.88	021 009.00
				Hwy 259	Portland	TN 37148	85.19	014 041.00
				155 Freeman Road	Portland	TN 37148	50	021 011.00
							214.51	
Larry Douglas Freeman	330 Piper Road	Portland	TN 37148	Corinth Road	Portland	TN 37148	10	021 013.02
				Old Martin Chapel Road	Portland	TN 37148	17.31	003 029.01
							27.31	
David Rickman Freeman	2908 Steamboat Drive	Nashville	TN 37214	Hwy 259	Portland	TN 37148	18	014 036.02
OB McCoin & Patricia Greenburg TRS	801 Shadowstone Place	Nashville	TN 37220	Corinth Road	Portland	TN 37148	179.4	022 001.00
OB McCoin TR & Joan McCoin Freeman	330 Piper Road	Portland	TN 37148	1812 Hwy 259	Portland	TN 37148	16.34	014 048.00
Larry & Connie Freeman	1924 Hwy 259	Portland	TN 37148	1924 Hwy 259	Portland	TN 37148	35.12	014 043.00
Allen Ray & Kathy Freeman	1312 Hwy 259	Portland	TN 37148	Corinth Road	Portland	TN 37148	47.17	021 016.03
Allen Ray Freeman	1312 Hwy 259	Portland	TN 37148	Freeman Road	Portland	TN 37148	20.09	021 011.01

Total Acreage Permitting: 662.57

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 21, 2020

Portland Wastewater Plant

Sample Delivery Group:	L1207275
Samples Received:	04/09/2020
Project Number:	ANNUAL SLUDGE
Description:	Sludge-503-Class B Fecal

Report To: Larry Quattlebaum
100 South Russell Street
Portland, TN 37148

Entire Report Reviewed By:

Justin Carr
Project Manager

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ANNUAL SLUDGE L1207275-01 Solid

Collected by: Trevor Keefe
Collected date/time: 04/09/20 08:17
Received date/time: 04/09/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 160.4/2540G	WG1458987	1	04/12/20 16:01	04/12/20 16:14	TH	Mt. Juliet, TN
Total Solids by Method 2540 G-2011	WG1458986	1	04/12/20 15:20	04/12/20 15:58	TH	Mt. Juliet, TN
Wet Chemistry by Method 2580 B-2011	WG1461110	1	04/15/20 18:11	04/20/20 15:32	MJA	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1458177	1	04/09/20 13:00	04/13/20 17:18	KPS	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG1460367	1	04/14/20 13:43	04/15/20 11:47	SDL	Mt. Juliet, TN
Wet Chemistry by Method 365.4M	WG1459183	2	04/11/20 09:02	04/11/20 14:28	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500NOrg C-2011	WG1460376	1	04/15/20 12:00	04/16/20 15:01	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1461613	1	04/16/20 11:18	04/16/20 17:01	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1457728	1	04/11/20 10:00	04/11/20 13:15	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1458002	1	04/12/20 22:00	04/13/20 08:23	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1458002	5	04/12/20 22:00	04/13/20 11:46	MCG	Mt. Juliet, TN
Mercury by Method 7471A	WG1459614	1	04/12/20 22:38	04/13/20 12:07	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1459033	.1	04/11/20 05:58	04/11/20 20:49	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1458923	1	04/10/20 02:15	04/11/20 01:32	JAH	Mt. Juliet, TN
Pesticides (GC) by Method 8081	WG1461072	14.9	04/16/20 08:49	04/17/20 08:54	RP	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1461072	14.9	04/16/20 08:49	04/16/20 18:07	RP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1459063	15.5	04/10/20 23:12	04/11/20 14:03	AO	Mt. Juliet, TN

ANNUAL SLUDGE L1207275-02 Solid

Collected by: Trevor Keefe
Collected date/time: 04/09/20 08:17
Received date/time: 04/09/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1458863	1000	04/10/20 08:02	04/10/20 08:02	JTS	Mt. Juliet, TN

ANNUAL SLUDGE L1207275-03 Solid

Collected by: Trevor Keefe
Collected date/time: 04/09/20 08:17
Received date/time: 04/09/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 160.4/2540G	WG1458987	1	04/12/20 16:01	04/12/20 16:14	TH	Mt. Juliet, TN
Total Solids by Method 2540 G-2011	WG1458986	1	04/12/20 15:20	04/12/20 15:58	TH	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Justin Carr
Project Manager

Gravimetric Analysis by Method 160.4/2540G

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	% of TS			date / time	
Volatile Solids	72.4		1	04/12/2020 16:14	WG1458987

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	1.28		1	04/12/2020 15:58	WG1458986

Wet Chemistry by Method 2580 B-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	225	T8	1	04/20/2020 15:32	WG1461110

Wet Chemistry by Method 3060A/7196A

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Chromium,Hexavalent	ND	2.00	ND	156		1	04/13/2020 17:18	WG1458177

Wet Chemistry by Method 350.1

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Ammonia Nitrogen	143	10.0	11200	781		1	04/15/2020 11:47	WG1460367

Wet Chemistry by Method 365.4M

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Phosphorus,Total	271	40.0	21200	3130		2	04/11/2020 14:28	WG1459183

Wet Chemistry by Method 4500NOrg C-2011

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Kjeldahl Nitrogen, TKN	749	20.0	58500	1560	J6	1	04/16/2020 15:01	WG1460376

Wet Chemistry by Method 9012B

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Cyanide	ND	0.250	ND	19.5		1	04/16/2020 17:01	WG1461613

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	5.04	T8	1	04/11/2020 13:15	WG1457728

Sample Narrative:

L1207275-01 WG1457728: 5.04 at 20.6C

Wet Chemistry by Method 9056A

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Nitrate	123	50.0	9630	3910		5	04/13/2020 11:46	WG1458002
Nitrite	ND	10.0	ND	781		1	04/13/2020 08:23	WG1458002

Mercury by Method 7471A

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Mercury	ND	0.0400	ND	3.13		1	04/13/2020 12:07	WG1459614

Metals (ICP) by Method 6010B

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Arsenic	ND	0.200	ND	15.6		.1	04/11/2020 20:49	WG1459033
Cadmium	ND	0.0500	ND	3.91		.1	04/11/2020 20:49	WG1459033
Chromium	0.471	0.100	36.8	7.81		.1	04/11/2020 20:49	WG1459033
Copper	2.35	0.200	184	15.6		.1	04/11/2020 20:49	WG1459033
Lead	0.0798	0.0500	6.24	3.91		.1	04/11/2020 20:49	WG1459033
Molybdenum	0.207	0.0500	16.2	3.91		.1	04/11/2020 20:49	WG1459033
Nickel	1.00	0.200	78.4	15.6		.1	04/11/2020 20:49	WG1459033
Potassium	80.9	5.00	6320	391		.1	04/11/2020 20:49	WG1459033
Selenium	ND	0.200	ND	15.6		.1	04/11/2020 20:49	WG1459033
Zinc	7.53	0.500	588	39.1		.1	04/11/2020 20:49	WG1459033

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Trichloroethene	ND	0.00100	ND	0.0781		1	04/11/2020 01:32	WG1458923
(S) Toluene-d8	*109*			*75.0-131*			*04/11/2020 01:32*	WG1458923
(S) 4-Bromofluorobenzene	*94.6*			*67.0-138*			*04/11/2020 01:32*	WG1458923
(S) 1,2-Dichloroethane-d4	*95.1*			*70.0-130*			*04/11/2020 01:32*	WG1458923

Pesticides (GC) by Method 8081

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Aldrin	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Alpha BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Beta BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Delta BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Gamma BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Chlordane	ND	4.47	ND	349		14.9	04/17/2020 08:54	WG1461072
4,4-DDD	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
4,4-DDE	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
4,4-DDT	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Dieldrin	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endosulfan I	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endosulfan II	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endosulfan sulfate	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endrin	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endrin aldehyde	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Heptachlor	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Heptachlor epoxide	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Methoxychlor	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Toxaphene	ND	5.96	ND	466		14.9	04/17/2020 08:54	WG1461072
(S) Decachlorobiphenyl	*107*			*10.0-135*			*04/17/2020 08:54*	WG1461072
(S) Tetrachloro-m-xylene	*78.6*			*10.0-139*			*04/17/2020 08:54*	WG1461072

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
PCB 1016	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1221	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1232	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1242	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1248	ND	0.253	ND	19.8		14.9	04/16/2020 18:07	WG1461072
PCB 1254	ND	0.253	ND	19.8		14.9	04/16/2020 18:07	WG1461072
PCB 1260	ND	0.253	ND	19.8		14.9	04/16/2020 18:07	WG1461072
(S) Decachlorobiphenyl	*84.5*			*10.0-135*			*04/16/2020 18:07*	WG1461072
(S) Tetrachloro-m-xylene	*83.0*			*10.0-139*			*04/16/2020 18:07*	WG1461072

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Benzo(a)pyrene	ND	0.512	ND	40.0		15.5	04/11/2020 14:03	WG1459063
n-Nitrosodimethylamine	ND	0.512	ND	40.0		15.5	04/11/2020 14:03	WG1459063
Hexachlorobenzene	ND	5.16	ND	403		15.5	04/11/2020 14:03	WG1459063
Hexachloro-1,3-butadiene	ND	5.16	ND	403		15.5	04/11/2020 14:03	WG1459063
(S) Nitrobenzene-d5	*67.6*			*10.0-122*			*04/11/2020 14:03*	WG1459063
(S) p-Terphenyl-d14	*99.0*			*10.0-120*			*04/11/2020 14:03*	WG1459063
(S) 2-Fluorobiphenyl	*76.9*			*15.0-120*			*04/11/2020 14:03*	WG1459063

Sample Narrative:

L1207275-01 WG1459063: Dilution due to matrix impact during extraction procedure

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform -Geom.Mean	< 14470.3		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -1	15338.0		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -2	< 13954.3		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -3	< 14043.8		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -4	15212.5		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -5	15350.1		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -6	< 13809.6		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -7	< 13705.7		1000	04/10/2020 08:02	WG1458863

Gravimetric Analysis by Method 160.4/2540G

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	% of TS			date / time	
Volatile Solids	73.4		1	04/12/2020 16:14	WG1458987

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	1.28		1	04/12/2020 15:58	WG1458986

Method Blank (MB)

(MB) R3518224-1 04/12/20 16:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	% of TS		% of TS	% of TS
Volatile Solids	U		0.333	1.00

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/12/20 16:14 • (DUP) R3518224-2 04/12/20 16:14

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	% of TS			%		%
Volatile Solids	72.4		1	1.59		5

Method Blank (MB)

(MB) R3517995-1 04/12/20 15:58

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1207275-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-03 04/12/20 15:58 • (DUP) R3517995-3 04/12/20 15:58

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	1.28	1.27	1	0.784		10

Laboratory Control Sample (LCS)

(LCS) R3517995-2 04/12/20 15:58

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/20/20 15:32 • (DUP) R3520206-3 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	225	231	1	6.00		10

L1208545-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208545-01 04/20/20 15:32 • (DUP) R3520206-4 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	175	176	1	1.30		10

L1208545-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1208545-05 04/20/20 15:32 • (DUP) R3520206-8 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	192	183	1	8.80		10

L1208545-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1208545-08 04/20/20 15:32 • (DUP) R3520206-11 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	130	129	1	1.00		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3520206-1 04/20/20 15:32 • (LCSD) R3520206-2 04/20/20 15:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	Diff	Diff Limits
	mV	mV	mV	%	%	%			mV	mV
ORP	100	103	99.4	103	99.4	86.0-105			3.80	10

Method Blank (MB)

(MB) R3518234-1 04/13/20 16:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1206917-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206917-01 04/13/20 16:55 • (DUP) R3518234-3 04/13/20 16:56

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	0.000	1	0.000		20

L1207025-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1207025-08 04/13/20 17:18 • (DUP) R3518234-16 04/13/20 17:18

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3518234-2 04/13/20 16:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	23.4	97.5	80.0-120	

L1206932-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1206932-01 04/13/20 17:05 • (MS) R3518234-4 04/13/20 17:05 • (MSD) R3518234-5 04/13/20 17:05

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	21.9	U	14.2	13.7	65.0	62.5	1	75.0-125	J6	J6	3.78	20

L1207025-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207025-04 04/13/20 17:09 • (MS) R3518234-8 04/13/20 17:09 • (MSD) R3518234-9 04/13/20 17:10

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	24.8	U	23.4	22.2	94.3	89.7	1	75.0-125			5.05	20

L1207025-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207025-07 04/13/20 17:16 • (MS) R3518234-12 04/13/20 17:16 • (MSD) R3518234-13 04/13/20 17:16

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	21.1	U	10.9	11.9	51.4	56.5	1	75.0-125	J6	J6	9.37	20

Method Blank (MB)

(MB) R3518844-1 04/15/20 11:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Ammonia Nitrogen	U		7.00	10.0

L1206607-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1206607-04 04/15/20 11:33 • (DUP) R3518844-3 04/15/20 11:34

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	ND	0.000	1	0.000		20

L1208202-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208202-01 04/15/20 12:06 • (DUP) R3518844-6 04/15/20 12:07

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	11.4	9.91	1	13.9	J	20

Laboratory Control Sample (LCS)

(LCS) R3518844-2 04/15/20 11:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	500	480	96.0	90.0-110	

L1206607-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1206607-05 04/15/20 11:35 • (MS) R3518844-4 04/15/20 11:36 • (MSD) R3518844-5 04/15/20 11:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	691	ND	593	602	85.8	87.1	1	80.0-120			1.56	20

L1208202-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1208202-02 04/15/20 12:08 • (MS) R3518844-7 04/15/20 12:09

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ammonia Nitrogen	662	U	399	60.3	1	80.0-120	J6

Method Blank (MB)

(MB) R3517660-1 04/11/20 14:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Phosphorus,Total	U		5.00	20.0

L1206273-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206273-01 04/11/20 14:12 • (DUP) R3517660-3 04/11/20 14:14

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	155	101	1	42.5	J3	25

Laboratory Control Sample (LCS)

(LCS) R3517660-2 04/11/20 14:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phosphorus,Total	78.6	75.6	96.2	82.9-116	

L1206273-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1206273-01 04/11/20 14:12 • (MS) R3517660-4 04/11/20 14:18 • (MSD) R3517660-5 04/11/20 14:19

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	200	155	205	199	25.0	22.0	1	50.0-150	E J6	J6	2.97	25

Method Blank (MB)

(MB) R3519339-1 04/16/20 14:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Kjeldahl Nitrogen, TKN	U		4.48	20.0

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/16/20 15:01 • (DUP) R3519339-3 04/16/20 15:02

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	58500	58600	1	0.131		20

L1208205-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208205-01 04/16/20 16:19 • (DUP) R3519339-7 04/16/20 16:20

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	4720	4560	10	3.44		20

Laboratory Control Sample (LCS)

(LCS) R3519339-2 04/16/20 14:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Kjeldahl Nitrogen, TKN	476	504	106	75.2-121	

L1207275-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1207275-01 04/16/20 15:01 • (MS) R3519339-4 04/16/20 15:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	31300	58500	81100	72.4	1	90.0-110	E J6

L1208205-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208205-01 04/16/20 15:11 • (MS) R3519339-5 04/16/20 15:13 • (MSD) R3519339-6 04/16/20 15:14

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	541	2190	2220	2120	5.10	0.000	1	90.0-110	E V	E V	4.75	20

Method Blank (MB)

(MB) R3519368-1 04/16/20 16:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0733	0.250

L1207631-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207631-01 04/16/20 17:02 • (DUP) R3519368-3 04/16/20 17:03

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

L1208077-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208077-01 04/16/20 17:15 • (DUP) R3519368-6 04/16/20 17:16

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3519368-2 04/16/20 16:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.63	105	85.0-115	

L1207631-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207631-03 04/16/20 17:04 • (MS) R3519368-4 04/16/20 17:07 • (MSD) R3519368-5 04/16/20 17:08

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	1.96	ND	1.16	1.02	59.1	51.8	1	75.0-125	J6	J6	13.2	20

L1208077-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208077-02 04/16/20 17:17 • (MS) R3519368-7 04/16/20 17:20 • (MSD) R3519368-8 04/16/20 17:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	1.97	ND	1.79	1.86	91.2	94.5	1	75.0-125			3.63	20

L1206936-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206936-01 04/11/20 13:15 • (DUP) R3517650-2 04/11/20 13:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	5.00	5.04	1	0.797		1

Sample Narrative:

OS: 5 at 20.4C

DUP: 5.04 at 20.3C

L1207043-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1207043-03 04/11/20 13:15 • (DUP) R3517650-3 04/11/20 13:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	10.8	10.8	1	0.186		1

Sample Narrative:

OS: 10.76 at 21C

DUP: 10.78 at 20.9C

Laboratory Control Sample (LCS)

(LCS) R3517650-1 04/11/20 13:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 19.4C

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3518178-1 04/13/20 00:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Nitrate as (N)	U		0.557	10.0
Nitrite as (N)	U		0.505	10.0

L1206919-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206919-01 04/13/20 05:56 • (DUP) R3518178-3 04/13/20 06:15

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate as (N)	0.724	1.59	1	75.0	J P1	15
Nitrite as (N)	U	0.000	1	0.000		15

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/13/20 08:23 • (DUP) R3518178-6 04/13/20 08:42

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrite as (N)	ND	0.000	1	0.000		15

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/13/20 11:46 • (DUP) R3518178-7 04/13/20 12:04

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate as (N)	9630	9840	5	2.16		15

Laboratory Control Sample (LCS)

(LCS) R3518178-2 04/13/20 00:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate as (N)	20.0	21.1	105	80.0-120	
Nitrite as (N)	20.0	21.7	109	80.0-120	

L1207069-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207069-01 04/13/20 06:51 • (MS) R3518178-4 04/13/20 07:47 • (MSD) R3518178-5 04/13/20 08:05

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate as (N)	3330	ND	3870	3770	115	112	1	80.0-120			2.52	15
Nitrite as (N)	3330	ND	2570	2600	77.1	78.1	1	80.0-120	J6	J6	1.21	15

Method Blank (MB)

(MB) R3518125-1 04/13/20 11:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3518125-2 04/13/20 11:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.457	91.4	80.0-120	

L1207389-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207389-06 04/13/20 11:59 • (MS) R3518125-3 04/13/20 12:02 • (MSD) R3518125-4 04/13/20 12:04

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.606	0.0656	0.695	0.666	104	99.1	1	75.0-125			4.19	20

Method Blank (MB)

(MB) R3517798-1 04/11/20 19:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Molybdenum	U		0.200	0.500
Nickel	U		0.490	2.00
Potassium	U		20.9	50.0
Selenium	U		0.617	2.00
Zinc	1.04	J	0.939	5.00

Laboratory Control Sample (LCS)

(LCS) R3517798-2 04/11/20 19:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.4	94.4	80.0-120	
Cadmium	100	96.1	96.1	80.0-120	
Chromium	100	102	102	80.0-120	
Copper	100	99.7	99.7	80.0-120	
Lead	100	97.1	97.1	80.0-120	
Molybdenum	100	101	101	80.0-120	
Nickel	100	98.2	98.2	80.0-120	
Potassium	1000	941	94.1	80.0-120	
Selenium	100	96.2	96.2	80.0-120	
Zinc	100	96.8	96.8	80.0-120	

L1207242-46 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207242-46 04/11/20 19:48 • (MS) R3517798-5 04/11/20 19:55 • (MSD) R3517798-6 04/11/20 19:58

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	138	39.9	162	163	88.8	89.4	1	75.0-125			0.524	20
Cadmium	138	0.521	125	124	90.7	89.6	1	75.0-125			1.22	20
Chromium	138	31.8	158	159	91.9	92.2	1	75.0-125			0.246	20
Copper	138	11.4	139	137	92.9	91.6	1	75.0-125			1.26	20
Lead	138	11.9	141	139	93.8	92.4	1	75.0-125			1.44	20
Molybdenum	138	U	116	114	84.6	82.9	1	75.0-125			2.06	20

L1207242-46 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207242-46 04/11/20 19:48 • (MS) R3517798-5 04/11/20 19:55 • (MSD) R3517798-6 04/11/20 19:58

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nickel	138	20.5	151	151	95.1	94.5	1	75.0-125			0.491	20
Potassium	1380	2730	4180	4320	105	116	1	75.0-125			3.28	20
Selenium	138	1.64	126	124	90.4	89.3	1	75.0-125			1.19	20
Zinc	138	46.4	159	160	82.1	82.4	1	75.0-125			0.277	20

Method Blank (MB)

(MB) R3518774-2 04/10/20 20:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Trichloroethene	U		0.000584	0.00100
(S) Toluene-d8	*108*			*75.0-131*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*92.1*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3518774-1 04/10/20 19:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Trichloroethene	0.125	0.128	102	76.0-126	
(S) Toluene-d8			*103*	*75.0-131*	
(S) 4-Bromofluorobenzene			*101*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*92.1*	*70.0-130*	

Method Blank (MB)

(MB) R3519580-1 04/17/20 08:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aldrin	U		0.00376	0.0200
Alpha BHC	U		0.00368	0.0200
Beta BHC	U		0.00379	0.0200
Delta BHC	U		0.00346	0.0200
Gamma BHC	U		0.00344	0.0200
4,4-DDD	U		0.00370	0.0200
4,4-DDE	U		0.00366	0.0200
4,4-DDT	U		0.00627	0.0200
Dieldrin	U		0.00344	0.0200
Endosulfan I	U		0.00363	0.0200
Endosulfan II	U		0.00335	0.0200
Endosulfan sulfate	U		0.00364	0.0200
Endrin	U		0.00350	0.0200
Endrin aldehyde	U		0.00339	0.0200
Heptachlor	U		0.00428	0.0200
Heptachlor epoxide	U		0.00339	0.0200
Methoxychlor	U		0.00484	0.0200
Chlordane	U		0.103	0.300
Toxaphene	U		0.124	0.400
(S) Decachlorobiphenyl	*104*			*10.0-135*
(S) Tetrachloro-m-xylene	*76.1*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3519580-2 04/17/20 08:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aldrin	0.0666	0.0559	83.9	34.0-136	
Alpha BHC	0.0666	0.0567	85.1	34.0-139	
Beta BHC	0.0666	0.0572	85.9	34.0-133	
Delta BHC	0.0666	0.0550	82.6	34.0-135	
Gamma BHC	0.0666	0.0592	88.9	34.0-136	
4,4-DDD	0.0666	0.0561	84.2	33.0-141	
4,4-DDE	0.0666	0.0566	85.0	34.0-134	
4,4-DDT	0.0666	0.0662	99.4	30.0-143	
Dieldrin	0.0666	0.0604	90.7	35.0-137	
Endosulfan I	0.0666	0.0634	95.2	34.0-134	
Endosulfan II	0.0666	0.0603	90.5	35.0-132	
Endosulfan sulfate	0.0666	0.0581	87.2	35.0-132	

Laboratory Control Sample (LCS)

(LCS) R3519580-2 04/17/20 08:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Endrin	0.0666	0.0610	91.6	34.0-137	
Endrin aldehyde	0.0666	0.0362	54.4	23.0-121	P
Heptachlor	0.0666	0.0600	90.1	36.0-141	
Heptachlor epoxide	0.0666	0.0613	92.0	36.0-134	
Methoxychlor	0.0666	0.0581	87.2	28.0-150	
(S) Decachlorobiphenyl			*117*	*10.0-135*	
(S) Tetrachloro-m-xylene			*85.4*	*10.0-139*	

L1208033-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208033-03 04/17/20 12:26 • (MS) R3519580-3 04/17/20 12:38 • (MSD) R3519580-4 04/17/20 12:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aldrin	0.0653	ND	0.0472	0.0496	72.3	75.6	1	20.0-135			4.96	37
Alpha BHC	0.0653	ND	0.0518	0.0531	79.3	80.9	1	27.0-140			2.48	35
Beta BHC	0.0653	ND	0.0532	0.0547	81.5	83.4	1	23.0-141			2.78	37
Delta BHC	0.0653	ND	0.0528	0.0533	80.9	81.3	1	21.0-138			0.943	35
Gamma BHC	0.0653	ND	0.0547	0.0560	83.8	85.4	1	27.0-137			2.35	36
4,4-DDD	0.0653	ND	0.0542	0.0582	83.0	88.7	1	15.0-152			7.12	39
4,4-DDE	0.0653	ND	0.0466	0.0523	71.4	79.7	1	10.0-152			11.5	40
4,4-DDT	0.0653	ND	0.0429	0.0511	65.7	77.9	1	10.0-151			17.4	40
Dieldrin	0.0653	ND	0.0510	0.0547	78.1	83.4	1	17.0-145			7.00	37
Endosulfan I	0.0653	ND	0.0531	0.0562	81.3	85.7	1	20.0-137			5.67	36
Endosulfan II	0.0653	ND	0.0513	0.0551	78.6	84.0	1	15.0-141			7.14	37
Endosulfan sulfate	0.0653	ND	0.0463	0.0498	70.9	75.9	1	15.0-143		P	7.28	38
Endrin	0.0653	ND	0.0516	0.0556	79.0	84.8	1	19.0-143			7.46	37
Endrin aldehyde	0.0653	ND	0.0514	0.0576	78.7	87.8	1	10.0-139			11.4	40
Heptachlor	0.0653	ND	0.0538	0.0559	82.4	85.2	1	22.0-138			3.83	37
Heptachlor epoxide	0.0653	ND	0.0513	0.0545	78.6	83.1	1	22.0-138			6.05	36
Methoxychlor	0.0653	ND	0.0393	0.0423	60.2	64.5	1	10.0-159			7.35	40
(S) Decachlorobiphenyl					*87.7*	*93.1*		*10.0-135*				
(S) Tetrachloro-m-xylene					*79.3*	*80.5*		*10.0-139*				

Method Blank (MB)

(MB) R3519365-1 04/16/20 17:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.0118	0.0340
PCB 1221	U		0.0118	0.0340
PCB 1232	U		0.0118	0.0340
PCB 1242	U		0.0118	0.0340
PCB 1248	U		0.00738	0.0170
PCB 1254	U		0.00738	0.0170
PCB 1260	U		0.00738	0.0170
(S) Decachlorobiphenyl	*80.3*			*10.0-135*
(S) Tetrachloro-m-xylene	*79.3*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3519365-2 04/16/20 17:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1260	0.167	0.145	86.8	37.0-145	
PCB 1016	0.167	0.148	88.6	36.0-141	
(S) Decachlorobiphenyl			*86.3*	*10.0-135*	
(S) Tetrachloro-m-xylene			*84.1*	*10.0-139*	

L1208033-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208033-03 04/16/20 22:07 • (MS) R3519365-3 04/16/20 22:21 • (MSD) R3519365-4 04/16/20 22:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.165	ND	0.161	0.149	97.6	90.9	1	10.0-160			7.74	38
PCB 1016	0.165	ND	0.140	0.144	84.8	87.8	1	10.0-160	P		2.82	37
(S) Decachlorobiphenyl					*84.5*	*91.2*		*10.0-135*				
(S) Tetrachloro-m-xylene					*86.0*	*82.3*		*10.0-139*				

Method Blank (MB)

(MB) R3518042-2 04/11/20 10:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzo(a)pyrene	U		0.00548	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
n-Nitrosodimethylamine	U		0.00548	0.0330
(S) Nitrobenzene-d5	*61.9*			*10.0-122*
(S) 2-Fluorobiphenyl	*72.1*			*15.0-120*
(S) p-Terphenyl-d14	*95.5*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3518042-1 04/11/20 10:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzo(a)pyrene	0.666	0.611	91.7	45.0-120	
Hexachlorobenzene	0.666	0.567	85.1	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.400	60.1	15.0-120	
n-Nitrosodimethylamine	0.666	0.371	55.7	10.0-125	
(S) Nitrobenzene-d5			*67.3*	*10.0-122*	
(S) 2-Fluorobiphenyl			*80.2*	*15.0-120*	
(S) p-Terphenyl-d14			*92.5*	*10.0-120*	

L1207121-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207121-09 04/11/20 16:21 • (MS) R3518042-3 04/11/20 16:44 • (MSD) R3518042-4 04/11/20 17:07

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(a)pyrene	0.822	U	0.731	0.787	86.7	93.6	2	24.0-120			7.48	30
Hexachlorobenzene	0.822	U	0.662	0.732	80.5	89.0	2	27.0-120			10.1	28
Hexachloro-1,3-butadiene	0.822	U	0.531	0.590	64.6	71.8	2	10.0-120			10.6	38
n-Nitrosodimethylamine	0.822	U	0.400	0.459	48.6	55.9	2	10.0-127			13.8	40
(S) Nitrobenzene-d5					*72.1*	*79.0*		*10.0-122*				
(S) 2-Fluorobiphenyl					*75.7*	*84.4*		*15.0-120*				
(S) p-Terphenyl-d14					*86.2*	*94.0*		*10.0-120*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

L1207121-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207121-04 04/11/20 17:30 • (MS) R3518042-5 04/11/20 17:53 • (MSD) R3518042-6 04/11/20 18:15

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(a)pyrene	0.751	0.325	1.05	1.08	96.7	101	2	24.0-120			2.75	30
Hexachlorobenzene	0.751	U	0.666	0.673	88.7	89.6	2	27.0-120			1.01	28
Hexachloro-1,3-butadiene	0.751	U	0.474	0.536	63.1	71.3	2	10.0-120			12.3	38
n-Nitrosodimethylamine	0.751	U	0.320	0.406	42.6	54.1	2	10.0-127			23.6	40
(S) Nitrobenzene-d5					*68.8*	*76.0*		*10.0-122*				
(S) 2-Fluorobiphenyl					*77.5*	*85.3*		*15.0-120*				
(S) p-Terphenyl-d14					*94.6*	*98.8*		*10.0-120*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P	RPD between the primary and confirmatory analysis exceeded 40%.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

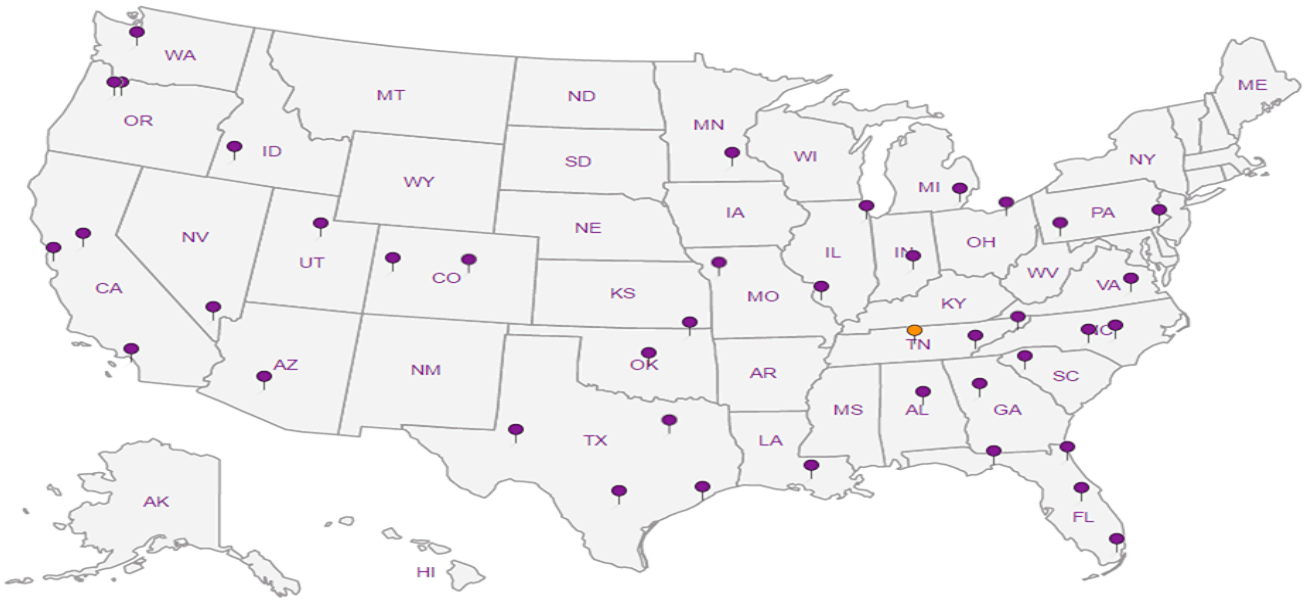
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Portland Wastewater Plant

100 South Russell Street
Portland, TN 37148

Billing Information:
Larry Quattlebaum
100 South Russell Street
Portland, TN 37148

Pres Chk

Report to: Larry Quattlebaum

Email To: lquattlebaum@CityofPortlandTN.gov

Project Description: Sludge-503-Class B Fecal

City/State Collected:

Please Circle: PT MT CT ET

Phone: 615-325-6989

Client Project # ANNUAL SLUDGE

Lab Project # PORT02-SLUDGEHAULING

Collected by (print): Trevor Keefe

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CN,TSSLUDGE 4ozClr-NoPres	FCLS Microbiological	Metals 4ozClr-NoPres	NITRATE,NH3,NITRITE 4ozClr-NoPres	SV8081/8082,SV8270BN 4ozClr-NoPres	TKN,PT 250mlHDPE-NoPres	V8260 4ozClr-NoPres	VS 4ozClr-NoPres	%Solids / MLVSS		Remarks	Sample # (lab only)
ANNUAL SLUDGE		SS		4/9/20	817	7	X		X	X	X	X	X	X				-01
ANNUAL SLUDGE		SS		4/9/20	817	9		X										02
Sludge		SS		4/9/20	817	1									X			03

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

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Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1267275

E166

Acctnum: PORT02
Template: T24295
Prelogin: P767334
PM: 807 - Justin Carr
PB: TB 4-7-20

Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 1663 5763 8563

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:		
Relinquished by : (Signature)	4/9/20	9:38	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	4-9-20	14:25	Received by: (Signature)	Temp: 1.1,2.5,1.1 °C Bottles Received: 17
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/10 Time: 1425 0850 JM

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

CLIENT: Portland ESC L# L1207275-01 -02

DATE ON: 4/10/2020 DATE OFF: 4/11/2020

Data entered into excel spreadsheet by: BE

BWS 4-13-20

Plate	ml filtered
A	0.001
B	0.0001
C	0.00001
D	0.000001

<---Largest Volumn Tested

Enter data into areas that are in **blue font.

sample type: Liquid

From Table 4 Method 1681

Sample No.	Combination of Positives			MPN/mL	Dilution	MPN Result	Log Values
1	1	0	0	0.2	0.001	15337.96	4.18576749
2	0	0	0	< 0.1803	0.001	<13954.26	4.1447069
3	0	0	0	< 0.1803	0.001	<14043.79	4.14748437
4	1	0	0	0.2	0.001	15212.46	4.18219934
5	1	0	0	0.2	0.001	15350.09	4.18611104
6	0	0	0	< 0.1803	0.001	<13809.59	4.14018079
7	0	0	0	< 0.1803	0.001	<13705.73	4.13690207

4.16047886

GEO MEAN **<14470.34**

$$[\text{FCMPN/g}] = \frac{\text{(MPN/1mL) X 100}}{\text{(Largest Vol tested) X (\% total solids)}}$$

$$\% \text{ Total Solids} = \frac{\text{Dry wt - Initial wt}}{\text{Wet wt - Initial wt}} \times 100$$

	Percent Solids			
Sample #	Initial Weight of Boat	Wet Weight	Dry weight	% Total Solids
1	1.25873	6.72211	1.32997	1.30395
2	1.25174	6.61674	1.32106	1.29208
3	1.25113	7.13114	1.32662	1.28384
4	1.25125	7.11337	1.32832	1.31471
5	1.24016	6.96114	1.3147	1.30292
6	1.25466	6.64063	1.32498	1.30561
7	1.25159	6.96497	1.32675	1.31551

Class B Fecal Coliform Analysis by MPN- EPA 1681

[Liquid or Solid]

Client Name: Portland

ESC Sample #: L1207275

Final pH must be between 7.0-7.5 and must not use more than 15mL of (HCl or NaOH) per 300mL

	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x (10mL per tube of 10,000x)	10,000x (10mL per tube of 100,000x)	100,000x (10mL per tube of 1,000,000x)	1,000,000x (10mL per tube of 10,000,000x)			
1	Date/Time: 4/10/20 @ 8:30	Date/Time: 4/10/20 @ 11:10	Date/Time: 4/11/20 @ 10:00	0	0	0	0	Initial pH	6.2	.2 ml of 1N NaOH
	Temp: 35	Temp: 44.5	Temp: 44.5	0	↓	↓	↓	Final pH	7.5	
	Analyst: KRE/KC	Analyst: JSV	Analyst: JSV	0	↓	↓	↓	Method Blank	0/0	
	SAMPLE COLLECTION: 4/9/20 @ 08:00	Combination of Positive:	1-0-0 @ .001	X	↓	↓	↓	Negative Con	0	
		MPN/mL from table:	0.2	0	0	0	0	Positive Con	X	
								MPN Result	15,338.0	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.2	.15 ml of 1N NaOH
2	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.3	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<13,954.3	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.2	.15 ml of 1N NaOH
	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.2	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<14,043.8	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.3	.15 ml of 1N NaOH
	Date/Time:	Date/Time:	Date/Time:	X	0	0	0	Final pH	7.3	
	Temp:	Temp:	Temp:	0	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	0	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	1-0-0 @ .001	0	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	0.2	0	0	0	0	MPN Result	15,212.5	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.2	.15 ml of 1N NaOH
5	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.4	
	Temp:	Temp:	Temp:	0	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	X	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	1-0-0 @ .001	0	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	0.2	0	0	0	0	MPN Result	15,350.1	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.3	.15 ml of 1N NaOH
6	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.4	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<13,809.6	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.3	.15 ml of 1N NaOH
7	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.4	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<13,705.7	

X denotes Positive tube
O denotes Negative tube

(30g +/-.1g)

Total Solids Analysis

Sample	Dish Label	Initial wt (g)	Wet wt (g)	Dry wt (g)	%Tot Solids	Amt used (g)
Sample #1	Port 1	1.25873	6.72211	1.32997	1.30395	NA
Sample #2	Port 2	1.25174	6.61674	1.32106	1.29208	
Sample #3	Port 3	1.25113	7.13114	1.32662	1.28384	
Sample #4	Port 4	1.25125	7.11337	1.32832	1.31471	
Sample #5	Port 5	1.24016	6.96114	1.31470	1.30292	
Sample #6	Port 6	1.25466	6.64163	1.32498	1.30561	
Sample #7	Port 7	1.25159	6.96497	1.32675	1.31551	

Media/Reagents Lot #	Lot:	Exp date
A1 medium Lot #:	43678	2/28/2021
Phosphate Buffer:	43394	8/31/2021
NaOH Lot: 1N	42955	7/7/2021
HCl Lot:	—	—
Positive Control: E. coli	040920	4/10/20
Negative Control: E.aerogenes	031220	6/12/20
^(only need for OPR or MS)		
^TSA Slant Lot #:	NA	NA
^1% LTB Lot #:		

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

May 22, 2020

Portland Wastewater Plant

Sample Delivery Group:	L1217519
Samples Received:	04/09/2020
Project Number:	ANNUAL SLUDGE
Description:	Sludge-503-Class B Fecal

Report To: Larry Quattlebaum
100 South Russell Street
Portland, TN 37148

Entire Report Reviewed By:

Justin Carr
Project Manager

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ANNUAL SLUDGE L1217519-01 Waste

Collected by: Trevor Keefe
Collected date/time: 04/09/20 08:17
Received date/time: 04/09/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG1475958	1	05/14/20 11:58	05/14/20 11:58	IDW	Mt. Juliet, TN
Preparation by Method 1311	WG1476845	1	05/15/20 15:45	05/15/20 15:45	CGD	Mt. Juliet, TN
Mercury by Method 7470A	WG1477673	1	05/17/20 15:43	05/17/20 19:38	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1477497	1	05/18/20 21:17	05/19/20 06:38	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1476510	1	05/17/20 04:15	05/17/20 04:15	JHH	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1477731	1	05/17/20 22:40	05/18/20 17:33	LEL	Mt. Juliet, TN
Pesticides (GC) by Method 8081B	WG1478114	1	05/19/20 23:08	05/20/20 13:49	HMH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1478113	1	05/19/20 08:17	05/19/20 19:30	SHG	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Justin Carr
Project Manager

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		5/15/2020 3:45:17 PM	WG1476845
TCLP ZHE Extraction	-		5/14/2020 11:58:57 AM	WG1475958
Fluid	1		5/15/2020 3:45:17 PM	WG1476845
Initial pH	5.88		5/15/2020 3:45:17 PM	WG1476845
Final pH	4.89		5/15/2020 3:45:17 PM	WG1476845

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Mercury	ND		0.0100	0.20	1	05/17/2020 19:38	WG1477673

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Arsenic	ND		0.100	5	1	05/19/2020 06:38	WG1477497
Barium	0.163		0.100	100	1	05/19/2020 06:38	WG1477497
Cadmium	ND		0.100	1	1	05/19/2020 06:38	WG1477497
Chromium	ND		0.100	5	1	05/19/2020 06:38	WG1477497
Lead	ND		0.100	5	1	05/19/2020 06:38	WG1477497
Selenium	ND		0.100	1	1	05/19/2020 06:38	WG1477497
Silver	ND		0.100	5	1	05/19/2020 06:38	WG1477497

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Benzene	ND		0.0500	0.50	1	05/17/2020 04:15	WG1476510
Carbon tetrachloride	ND		0.0500	0.50	1	05/17/2020 04:15	WG1476510
Chlorobenzene	ND		0.0500	100	1	05/17/2020 04:15	WG1476510
Chloroform	ND		0.250	6	1	05/17/2020 04:15	WG1476510
1,2-Dichloroethane	ND		0.0500	0.50	1	05/17/2020 04:15	WG1476510
1,1-Dichloroethene	ND		0.0500	0.70	1	05/17/2020 04:15	WG1476510
2-Butanone (MEK)	ND		0.500	200	1	05/17/2020 04:15	WG1476510
Tetrachloroethene	ND		0.0500	0.70	1	05/17/2020 04:15	WG1476510
Trichloroethene	0.122		0.0500	0.50	1	05/17/2020 04:15	WG1476510
Vinyl chloride	ND		0.0500	0.20	1	05/17/2020 04:15	WG1476510
(S) Toluene-d8	*109*		*80.0-120*			*05/17/2020 04:15*	WG1476510
(S) 4-Bromofluorobenzene	*106*		*77.0-126*			*05/17/2020 04:15*	WG1476510
(S) 1,2-Dichloroethane-d4	*110*		*70.0-130*			*05/17/2020 04:15*	WG1476510

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
2,4,5-TP (Silvex)	ND		0.00200	1	1	05/18/2020 17:33	WG1477731
2,4-D	ND		0.00200	10	1	05/18/2020 17:33	WG1477731
(S) 2,4-Dichlorophenyl Acetic Acid	*50.8*		*14.0-158*			*05/18/2020 17:33*	WG1477731

Pesticides (GC) by Method 8081B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
	mg/l		mg/l	mg/l			
Chlordane	ND		0.00500	0.03	1	05/20/2020 13:49	WG1478114
Endrin	ND		0.00500	0.02	1	05/20/2020 13:49	WG1478114
Heptachlor	ND		0.00500	0.0080	1	05/20/2020 13:49	WG1478114
Lindane	ND		0.00500	0.40	1	05/20/2020 13:49	WG1478114

Pesticides (GC) by Method 8081B

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Methoxychlor	ND		0.00500	10	1	05/20/2020 13:49	WG1478114
Toxaphene	ND		0.0100	0.50	1	05/20/2020 13:49	WG1478114
(S) Decachlorobiphenyl	*102*		*10.0-128*			*05/20/2020 13:49*	WG1478114
(S) Tetrachloro-m-xylene	*98.2*		*10.0-127*			*05/20/2020 13:49*	WG1478114

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND	T8	0.100	7.50	1	05/19/2020 19:30	WG1478113
2,4-Dinitrotoluene	ND	T8	0.100	0.13	1	05/19/2020 19:30	WG1478113
Hexachlorobenzene	ND	T8	0.100	0.13	1	05/19/2020 19:30	WG1478113
Hexachloro-1,3-butadiene	ND	T8	0.100	0.50	1	05/19/2020 19:30	WG1478113
Hexachloroethane	ND	T8	0.100	3	1	05/19/2020 19:30	WG1478113
Nitrobenzene	ND	T8	0.100	2	1	05/19/2020 19:30	WG1478113
Pyridine	ND	T8	0.100	5	1	05/19/2020 19:30	WG1478113
3&4-Methyl Phenol	ND	T8	0.100	400	1	05/19/2020 19:30	WG1478113
2-Methylphenol	ND	T8	0.100	200	1	05/19/2020 19:30	WG1478113
Pentachlorophenol	ND	T8	0.100	100	1	05/19/2020 19:30	WG1478113
2,4,5-Trichlorophenol	ND	T8	0.100	400	1	05/19/2020 19:30	WG1478113
2,4,6-Trichlorophenol	ND	T8	0.100	2	1	05/19/2020 19:30	WG1478113
(S) 2-Fluorophenol	*35.5*		*10.0-120*			*05/19/2020 19:30*	WG1478113
(S) Phenol-d5	*20.2*		*10.0-120*			*05/19/2020 19:30*	WG1478113
(S) Nitrobenzene-d5	*59.2*		*10.0-127*			*05/19/2020 19:30*	WG1478113
(S) 2-Fluorobiphenyl	*70.7*		*10.0-130*			*05/19/2020 19:30*	WG1478113
(S) 2,4,6-Tribromophenol	*64.5*		*10.0-155*			*05/19/2020 19:30*	WG1478113
(S) p-Terphenyl-d14	*79.0*		*10.0-128*			*05/19/2020 19:30*	WG1478113

Method Blank (MB)

(MB) R3528852-1 05/17/20 19:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.00330	0.0100

Laboratory Control Sample (LCS)

(LCS) R3528852-2 05/17/20 19:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.0300	0.0355	118	80.0-120	

L1217519-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1217519-01 05/17/20 19:38 • (MS) R3528852-3 05/17/20 19:40 • (MSD) R3528852-4 05/17/20 19:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0359	0.0360	120	120	1	75.0-125			0.520	20

Method Blank (MB)

(MB) R3529515-1 05/19/20 06:21

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.0330	0.100
Barium	U		0.0330	0.100
Cadmium	U		0.0330	0.100
Chromium	U		0.0330	0.100
Lead	U		0.0330	0.100
Selenium	U		0.0330	0.100
Silver	U		0.0330	0.100

Laboratory Control Sample (LCS)

(LCS) R3529515-2 05/19/20 06:24

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	10.0	9.96	99.6	80.0-120	
Barium	10.0	10.1	101	80.0-120	
Cadmium	10.0	9.80	98.0	80.0-120	
Chromium	10.0	9.81	98.1	80.0-120	
Lead	10.0	9.89	98.9	80.0-120	
Selenium	10.0	10.4	104	80.0-120	
Silver	2.00	1.85	92.6	80.0-120	

Method Blank (MB)

(MB) R3528738-3 05/17/20 00:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0167	0.0500
Carbon tetrachloride	U		0.0167	0.0500
Chlorobenzene	U		0.0167	0.0500
Chloroform	U		0.0833	0.250
1,2-Dichloroethane	U		0.0167	0.0500
1,1-Dichloroethene	U		0.0167	0.0500
2-Butanone (MEK)	U		0.167	0.500
Tetrachloroethene	U		0.0167	0.0500
Trichloroethene	U		0.0167	0.0500
Vinyl chloride	U		0.0167	0.0500
(S) Toluene-d8	*103*			*80.0-120*
(S) 4-Bromofluorobenzene	*109*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3528738-1 05/16/20 21:58 • (LCSD) R3528738-2 05/16/20 22:18

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.250	0.223	0.228	89.2	91.2	70.0-123			2.22	20
Carbon tetrachloride	0.250	0.226	0.228	90.4	91.2	68.0-126			0.881	20
Chlorobenzene	0.250	0.213	0.215	85.2	86.0	80.0-121			0.935	20
Chloroform	0.250	0.210	0.215	84.0	86.0	73.0-120			2.35	20
1,2-Dichloroethane	0.250	0.228	0.230	91.2	92.0	70.0-128			0.873	20
1,1-Dichloroethene	0.250	0.247	0.251	98.8	100	71.0-124			1.61	20
2-Butanone (MEK)	1.25	1.28	1.24	102	99.2	44.0-160			3.17	20
Tetrachloroethene	0.250	0.200	0.200	80.0	80.0	72.0-132			0.000	20
Trichloroethene	0.250	0.212	0.208	84.8	83.2	78.0-124			1.90	20
Vinyl chloride	0.250	0.225	0.233	90.0	93.2	67.0-131			3.49	20
(S) Toluene-d8				*104*	*106*	*80.0-120*				
(S) 4-Bromofluorobenzene				*105*	*108*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*108*	*111*	*70.0-130*				

Method Blank (MB)

(MB) R3529460-1 05/18/20 14:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4-D	U		0.000667	0.00200
2,4,5-TP (Silvex)	U		0.000667	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	*58.8*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R3529460-2 05/18/20 14:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4-D	0.0500	0.0252	50.4	50.0-120	
2,4,5-TP (Silvex)	0.0500	0.0276	55.2	50.0-125	
(S) 2,4-Dichlorophenyl Acetic Acid			*47.8*	*14.0-158*	

Method Blank (MB)

(MB) R3529905-1 05/20/20 10:55

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Gamma BHC	U		0.00167	0.00500
Endrin	U		0.00167	0.00500
Heptachlor	U		0.00167	0.00500
Methoxychlor	U		0.00167	0.00500
Chlordane	U		0.00167	0.00500
Toxaphene	U		0.00333	0.0100
(S) Decachlorobiphenyl	*90.3*			*10.0-128*
(S) Tetrachloro-m-xylene	*90.9*			*10.0-127*

Laboratory Control Sample (LCS)

(LCS) R3529905-2 05/20/20 11:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gamma BHC	0.0100	0.0111	111	55.0-129	
Endrin	0.0100	0.0109	109	57.0-134	
Heptachlor	0.0100	0.0106	106	27.0-132	
Methoxychlor	0.0100	0.0122	122	54.0-155	
(S) Decachlorobiphenyl			*104*	*10.0-128*	
(S) Tetrachloro-m-xylene			*97.6*	*10.0-127*	

L1218195-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1218195-01 05/20/20 14:14 • (MS) R3529905-3 05/20/20 14:26 • (MSD) R3529905-4 05/20/20 14:39

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gamma BHC	0.0100	ND	0.0118	0.0113	118	113	1	14.0-141			4.33	40
Endrin	0.0100	ND	0.0115	0.0113	115	113	1	10.0-160			1.75	39
Heptachlor	0.0100	ND	0.0124	0.0110	124	110	1	16.0-136			12.0	40
Methoxychlor	0.0100	ND	0.0133	0.0129	133	129	1	10.0-160			3.05	34
(S) Decachlorobiphenyl					*90.1*	*88.7*		*10.0-128*				
(S) Tetrachloro-m-xylene					*101*	*92.7*		*10.0-127*				

Method Blank (MB)

(MB) R3529656-2 05/19/20 14:54

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0333	0.100
2,4-Dinitrotoluene	U		0.0333	0.100
Hexachlorobenzene	U		0.0333	0.100
Hexachloro-1,3-butadiene	U		0.0333	0.100
Hexachloroethane	U		0.0333	0.100
Nitrobenzene	U		0.0333	0.100
Pyridine	U		0.0333	0.100
2-Methylphenol	U		0.0333	0.100
3&4-Methyl Phenol	U		0.0333	0.100
Pentachlorophenol	U		0.0333	0.100
2,4,5-Trichlorophenol	U		0.0333	0.100
2,4,6-Trichlorophenol	U		0.0333	0.100
(S) Nitrobenzene-d5	*60.2*			*10.0-127*
(S) 2-Fluorobiphenyl	*73.0*			*10.0-130*
(S) p-Terphenyl-d14	*77.5*			*10.0-128*
(S) Phenol-d5	*18.6*			*10.0-120*
(S) 2-Fluorophenol	*34.3*			*10.0-120*
(S) 2,4,6-Tribromophenol	*60.0*			*10.0-155*

Laboratory Control Sample (LCS)

(LCS) R3529656-1 05/19/20 14:33

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,4-Dichlorobenzene	0.500	0.349	69.8	18.0-120	
2,4-Dinitrotoluene	0.500	0.395	79.0	49.0-124	
Hexachlorobenzene	0.500	0.368	73.6	44.0-120	
Hexachloro-1,3-butadiene	0.500	0.319	63.8	19.0-120	
Hexachloroethane	0.500	0.349	69.8	15.0-120	
Nitrobenzene	0.500	0.329	65.8	27.0-120	
Pyridine	0.500	0.190	38.0	10.0-120	
2-Methylphenol	0.500	0.277	55.4	28.0-120	
3&4-Methyl Phenol	0.500	0.272	54.4	31.0-120	
Pentachlorophenol	0.500	0.434	86.8	23.0-120	
2,4,5-Trichlorophenol	0.500	0.382	76.4	44.0-120	
2,4,6-Trichlorophenol	0.500	0.372	74.4	42.0-120	
(S) Nitrobenzene-d5			*55.6*	*10.0-127*	
(S) 2-Fluorobiphenyl			*73.7*	*10.0-130*	
(S) p-Terphenyl-d14			*76.5*	*10.0-128*	

Laboratory Control Sample (LCS)

(LCS) R3529656-1 05/19/20 14:33

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) Phenol-d5			*20.4*	*10.0-120*	
(S) 2-Fluorophenol			*35.5*	*10.0-120*	
(S) 2,4,6-Tribromophenol			*71.0*	*10.0-155*	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

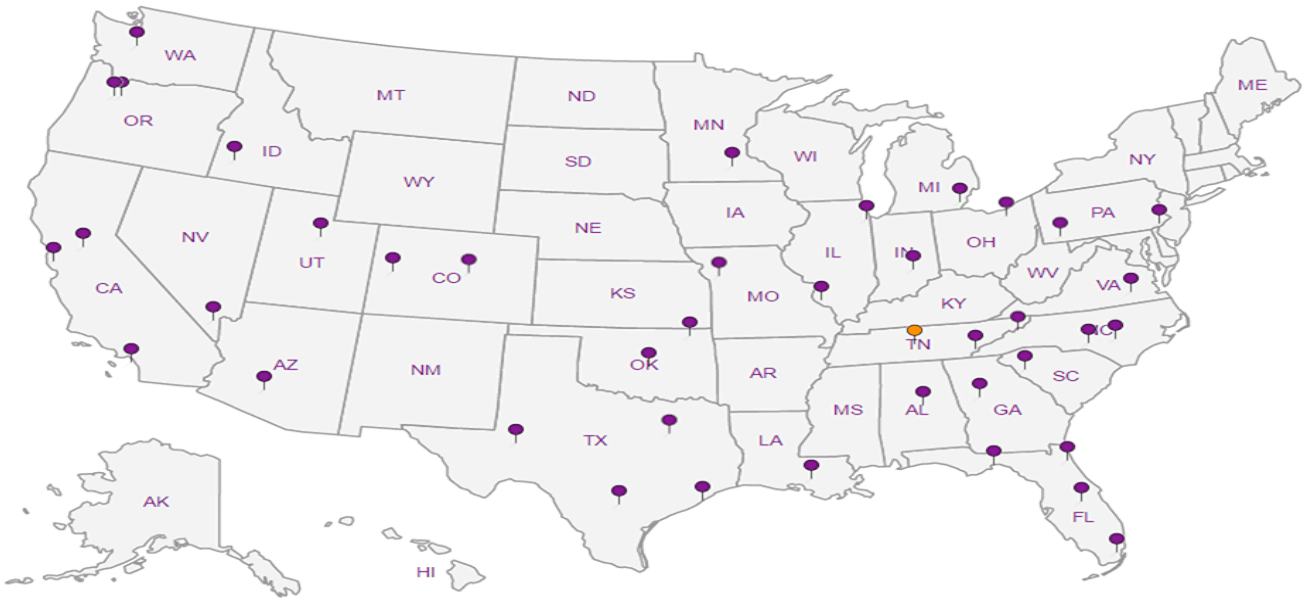
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # ~~L1207214~~ E166 L1217519

Acctnum: PORT02
Template: T24295
Prelogin: P767334
PM: 807 - Justin Carr
PB: TB 4-7-20
Shipped Via: FedEX Ground

AV 5/12/20

Portland Wastewater Plant

100 South Russell Street
Portland, TN 37148

Billing Information:
Larry Quattlebaum
100 South Russell Street
Portland, TN 37148

Pres Chk

Report to: Larry Quattlebaum

Email To: lquattlebaum@CityofPortlandTN.gov

Project Description: Sludge-503-Class B Fecal

City/State Collected:

Please Circle: PT MT CT ET

Phone: 615-325-6989

Client Project # ANNUAL SLUDGE

Lab Project # PORT02-SLUDGEHAULING

Collected by (print): Trevor Keefe

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CN,TSSLUDGE 4ozClr-NoPres	FCLS Microbiological	Metals 4ozClr-NoPres	NITRATE,NH3,NITRITE 4ozClr-NoPres	SV8081/8082,SV8270BN 4ozClr-NoPres	TKN,PT 250mlHDPE-NoPres	V8260 4ozClr-NoPres	VS 4ozClr-NoPres	%Solids / MLVSS	Remarks	Sample # (lab only)
ANNUAL SLUDGE		SS		4/4/20	817	7	X		X	X	X	X	X	X			~~01~~ -01
ANNUAL SLUDGE		SS		4/9/20	817	9		X									~~02~~
Sludge		SS		4/9/20	817	1									X		~~03~~

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ___

Remarks:

pH ___ Temp ___
Flow ___ Other ___

Samples returned via: __ UPS __ FedEx __ Courier ___

Tracking # 1663 5763 8563

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:
Relinquished by: (Signature)	4/9/20	9:38
Relinquished by: (Signature)	4-9-20	14:25
Relinquished by: (Signature)		

Received by: (Signature) Terry Kirkland

Received by: (Signature)

Received for lab by: (Signature)

Trip Blank Received: Yes / No HCL / MeoH TBR

Temp: 1.1, 2.1 °C Bottles Received: 17

Date: 4/9/20 Time: 1425 0850 TN

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Andy Vann

From: Justin G. Carr
Sent: Tuesday, May 12, 2020 1:52 PM
To: Project Service
Subject: L1207275-01 RELOG - **PORT02**

Please relog L1207275-01 for TLCP (full). R5 due 5/20.

Thanks,

Justin Carr
Project Manager
Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road | Mt. Juliet, TN 37122
Office: 615.773.9738
jgcarr@pacenational.com | pacenational.com

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 21, 2020

Portland Wastewater Plant

Sample Delivery Group:	L1207275
Samples Received:	04/09/2020
Project Number:	ANNUAL SLUDGE
Description:	Sludge-503-Class B Fecal

Report To: Larry Quattlebaum
100 South Russell Street
Portland, TN 37148

Entire Report Reviewed By:

Justin Carr
Project Manager

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ANNUAL SLUDGE L1207275-01 Solid

Collected by: Trevor Keefe
Collected date/time: 04/09/20 08:17
Received date/time: 04/09/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 160.4/2540G	WG1458987	1	04/12/20 16:01	04/12/20 16:14	TH	Mt. Juliet, TN
Total Solids by Method 2540 G-2011	WG1458986	1	04/12/20 15:20	04/12/20 15:58	TH	Mt. Juliet, TN
Wet Chemistry by Method 2580 B-2011	WG1461110	1	04/15/20 18:11	04/20/20 15:32	MJA	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1458177	1	04/09/20 13:00	04/13/20 17:18	KPS	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG1460367	1	04/14/20 13:43	04/15/20 11:47	SDL	Mt. Juliet, TN
Wet Chemistry by Method 365.4M	WG1459183	2	04/11/20 09:02	04/11/20 14:28	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500NOrg C-2011	WG1460376	1	04/15/20 12:00	04/16/20 15:01	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1461613	1	04/16/20 11:18	04/16/20 17:01	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1457728	1	04/11/20 10:00	04/11/20 13:15	KEG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1458002	1	04/12/20 22:00	04/13/20 08:23	MCG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1458002	5	04/12/20 22:00	04/13/20 11:46	MCG	Mt. Juliet, TN
Mercury by Method 7471A	WG1459614	1	04/12/20 22:38	04/13/20 12:07	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1459033	.1	04/11/20 05:58	04/11/20 20:49	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1458923	1	04/10/20 02:15	04/11/20 01:32	JAH	Mt. Juliet, TN
Pesticides (GC) by Method 8081	WG1461072	14.9	04/16/20 08:49	04/17/20 08:54	RP	Mt. Juliet, TN
Polychlorinated Biphenyls (GC) by Method 8082	WG1461072	14.9	04/16/20 08:49	04/16/20 18:07	RP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1459063	15.5	04/10/20 23:12	04/11/20 14:03	AO	Mt. Juliet, TN

ANNUAL SLUDGE L1207275-02 Solid

Collected by: Trevor Keefe
Collected date/time: 04/09/20 08:17
Received date/time: 04/09/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1458863	1000	04/10/20 08:02	04/10/20 08:02	JTS	Mt. Juliet, TN

ANNUAL SLUDGE L1207275-03 Solid

Collected by: Trevor Keefe
Collected date/time: 04/09/20 08:17
Received date/time: 04/09/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 160.4/2540G	WG1458987	1	04/12/20 16:01	04/12/20 16:14	TH	Mt. Juliet, TN
Total Solids by Method 2540 G-2011	WG1458986	1	04/12/20 15:20	04/12/20 15:58	TH	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Justin Carr
Project Manager

Gravimetric Analysis by Method 160.4/2540G

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	% of TS			date / time	
Volatile Solids	72.4		1	04/12/2020 16:14	WG1458987

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	1.28		1	04/12/2020 15:58	WG1458986

Wet Chemistry by Method 2580 B-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	mV			date / time	
ORP	225	T8	1	04/20/2020 15:32	WG1461110

Wet Chemistry by Method 3060A/7196A

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Chromium,Hexavalent	ND	2.00	ND	156		1	04/13/2020 17:18	WG1458177

Wet Chemistry by Method 350.1

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Ammonia Nitrogen	143	10.0	11200	781		1	04/15/2020 11:47	WG1460367

Wet Chemistry by Method 365.4M

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Phosphorus,Total	271	40.0	21200	3130		2	04/11/2020 14:28	WG1459183

Wet Chemistry by Method 4500NOrg C-2011

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Kjeldahl Nitrogen, TKN	749	20.0	58500	1560	J6	1	04/16/2020 15:01	WG1460376

Wet Chemistry by Method 9012B

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Cyanide	ND	0.250	ND	19.5		1	04/16/2020 17:01	WG1461613

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	5.04	T8	1	04/11/2020 13:15	WG1457728

Sample Narrative:

L1207275-01 WG1457728: 5.04 at 20.6C

Wet Chemistry by Method 9056A

Analyte	Result (wet)	RDL (Wet)	Result (dry)	RDL (dry)	Qualifier	Dilution	Analysis	Batch
	mg/kg	mg/kg	mg/kg	mg/kg			date / time	
Nitrate	123	50.0	9630	3910		5	04/13/2020 11:46	WG1458002
Nitrite	ND	10.0	ND	781		1	04/13/2020 08:23	WG1458002

Mercury by Method 7471A

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Mercury	ND	0.0400	ND	3.13		1	04/13/2020 12:07	WG1459614

Metals (ICP) by Method 6010B

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Arsenic	ND	0.200	ND	15.6		.1	04/11/2020 20:49	WG1459033
Cadmium	ND	0.0500	ND	3.91		.1	04/11/2020 20:49	WG1459033
Chromium	0.471	0.100	36.8	7.81		.1	04/11/2020 20:49	WG1459033
Copper	2.35	0.200	184	15.6		.1	04/11/2020 20:49	WG1459033
Lead	0.0798	0.0500	6.24	3.91		.1	04/11/2020 20:49	WG1459033
Molybdenum	0.207	0.0500	16.2	3.91		.1	04/11/2020 20:49	WG1459033
Nickel	1.00	0.200	78.4	15.6		.1	04/11/2020 20:49	WG1459033
Potassium	80.9	5.00	6320	391		.1	04/11/2020 20:49	WG1459033
Selenium	ND	0.200	ND	15.6		.1	04/11/2020 20:49	WG1459033
Zinc	7.53	0.500	588	39.1		.1	04/11/2020 20:49	WG1459033

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Trichloroethene	ND	0.00100	ND	0.0781		1	04/11/2020 01:32	WG1458923
(S) Toluene-d8	*109*			*75.0-131*			*04/11/2020 01:32*	WG1458923
(S) 4-Bromofluorobenzene	*94.6*			*67.0-138*			*04/11/2020 01:32*	WG1458923
(S) 1,2-Dichloroethane-d4	*95.1*			*70.0-130*			*04/11/2020 01:32*	WG1458923

Pesticides (GC) by Method 8081

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Aldrin	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Alpha BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Beta BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Delta BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Gamma BHC	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Chlordane	ND	4.47	ND	349		14.9	04/17/2020 08:54	WG1461072
4,4-DDD	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
4,4-DDE	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
4,4-DDT	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Dieldrin	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endosulfan I	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endosulfan II	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endosulfan sulfate	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endrin	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Endrin aldehyde	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Heptachlor	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Heptachlor epoxide	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Methoxychlor	ND	0.298	ND	23.3		14.9	04/17/2020 08:54	WG1461072
Toxaphene	ND	5.96	ND	466		14.9	04/17/2020 08:54	WG1461072
(S) Decachlorobiphenyl	*107*			*10.0-135*			*04/17/2020 08:54*	WG1461072
(S) Tetrachloro-m-xylene	*78.6*			*10.0-139*			*04/17/2020 08:54*	WG1461072

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
PCB 1016	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1221	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1232	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1242	ND	0.507	ND	39.6		14.9	04/16/2020 18:07	WG1461072
PCB 1248	ND	0.253	ND	19.8		14.9	04/16/2020 18:07	WG1461072
PCB 1254	ND	0.253	ND	19.8		14.9	04/16/2020 18:07	WG1461072
PCB 1260	ND	0.253	ND	19.8		14.9	04/16/2020 18:07	WG1461072
(S) Decachlorobiphenyl	*84.5*			*10.0-135*			*04/16/2020 18:07*	WG1461072
(S) Tetrachloro-m-xylene	*83.0*			*10.0-139*			*04/16/2020 18:07*	WG1461072

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (wet) mg/kg	RDL (Wet) mg/kg	Result (dry) mg/kg	RDL (dry) mg/kg	Qualifier	Dilution	Analysis date / time	Batch
Benzo(a)pyrene	ND	0.512	ND	40.0		15.5	04/11/2020 14:03	WG1459063
n-Nitrosodimethylamine	ND	0.512	ND	40.0		15.5	04/11/2020 14:03	WG1459063
Hexachlorobenzene	ND	5.16	ND	403		15.5	04/11/2020 14:03	WG1459063
Hexachloro-1,3-butadiene	ND	5.16	ND	403		15.5	04/11/2020 14:03	WG1459063
(S) Nitrobenzene-d5	*67.6*			*10.0-122*			*04/11/2020 14:03*	WG1459063
(S) p-Terphenyl-d14	*99.0*			*10.0-120*			*04/11/2020 14:03*	WG1459063
(S) 2-Fluorobiphenyl	*76.9*			*15.0-120*			*04/11/2020 14:03*	WG1459063

Sample Narrative:

L1207275-01 WG1459063: Dilution due to matrix impact during extraction procedure

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform -Geom.Mean	< 14470.3		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -1	15338.0		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -2	< 13954.3		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -3	< 14043.8		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -4	15212.5		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -5	15350.1		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -6	< 13809.6		1000	04/10/2020 08:02	WG1458863
Fecal Coliform -7	< 13705.7		1000	04/10/2020 08:02	WG1458863

Gravimetric Analysis by Method 160.4/2540G

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	% of TS			date / time	
Volatile Solids	73.4		1	04/12/2020 16:14	WG1458987

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	1.28		1	04/12/2020 15:58	WG1458986

Method Blank (MB)

(MB) R3518224-1 04/12/20 16:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	% of TS		% of TS	% of TS
Volatile Solids	U		0.333	1.00

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/12/20 16:14 • (DUP) R3518224-2 04/12/20 16:14

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	% of TS			%		%
Volatile Solids	72.4		1	1.59		5

Method Blank (MB)

(MB) R3517995-1 04/12/20 15:58

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1207275-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-03 04/12/20 15:58 • (DUP) R3517995-3 04/12/20 15:58

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	1.28	1.27	1	0.784		10

Laboratory Control Sample (LCS)

(LCS) R3517995-2 04/12/20 15:58

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/20/20 15:32 • (DUP) R3520206-3 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	225	231	1	6.00		10

L1208545-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208545-01 04/20/20 15:32 • (DUP) R3520206-4 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	175	176	1	1.30		10

L1208545-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1208545-05 04/20/20 15:32 • (DUP) R3520206-8 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	192	183	1	8.80		10

L1208545-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1208545-08 04/20/20 15:32 • (DUP) R3520206-11 04/20/20 15:32

Analyte	Original Result	DUP Result	Dilution	DUP Diff	DUP Qualifier	DUP Diff Limits
	mV	mV		mV		mV
ORP	130	129	1	1.00		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3520206-1 04/20/20 15:32 • (LCSD) R3520206-2 04/20/20 15:32

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	Diff	Diff Limits
	mV	mV	mV	%	%	%			mV	mV
ORP	100	103	99.4	103	99.4	86.0-105			3.80	10

Method Blank (MB)

(MB) R3518234-1 04/13/20 16:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1206917-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206917-01 04/13/20 16:55 • (DUP) R3518234-3 04/13/20 16:56

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	0.000	1	0.000		20

L1207025-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1207025-08 04/13/20 17:18 • (DUP) R3518234-16 04/13/20 17:18

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3518234-2 04/13/20 16:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	23.4	97.5	80.0-120	

L1206932-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1206932-01 04/13/20 17:05 • (MS) R3518234-4 04/13/20 17:05 • (MSD) R3518234-5 04/13/20 17:05

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	21.9	U	14.2	13.7	65.0	62.5	1	75.0-125	J6	J6	3.78	20

L1207025-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207025-04 04/13/20 17:09 • (MS) R3518234-8 04/13/20 17:09 • (MSD) R3518234-9 04/13/20 17:10

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	24.8	U	23.4	22.2	94.3	89.7	1	75.0-125			5.05	20

L1207025-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207025-07 04/13/20 17:16 • (MS) R3518234-12 04/13/20 17:16 • (MSD) R3518234-13 04/13/20 17:16

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chromium,Hexavalent	21.1	U	10.9	11.9	51.4	56.5	1	75.0-125	J6	J6	9.37	20

Method Blank (MB)

(MB) R3518844-1 04/15/20 11:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Ammonia Nitrogen	U		7.00	10.0

L1206607-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1206607-04 04/15/20 11:33 • (DUP) R3518844-3 04/15/20 11:34

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	ND	0.000	1	0.000		20

L1208202-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208202-01 04/15/20 12:06 • (DUP) R3518844-6 04/15/20 12:07

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	11.4	9.91	1	13.9	J	20

Laboratory Control Sample (LCS)

(LCS) R3518844-2 04/15/20 11:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	500	480	96.0	90.0-110	

L1206607-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1206607-05 04/15/20 11:35 • (MS) R3518844-4 04/15/20 11:36 • (MSD) R3518844-5 04/15/20 11:37

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	691	ND	593	602	85.8	87.1	1	80.0-120			1.56	20

L1208202-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1208202-02 04/15/20 12:08 • (MS) R3518844-7 04/15/20 12:09

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ammonia Nitrogen	662	U	399	60.3	1	80.0-120	J6

Method Blank (MB)

(MB) R3517660-1 04/11/20 14:02

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Phosphorus,Total	U		5.00	20.0

L1206273-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206273-01 04/11/20 14:12 • (DUP) R3517660-3 04/11/20 14:14

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	155	101	1	42.5	J3	25

Laboratory Control Sample (LCS)

(LCS) R3517660-2 04/11/20 14:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phosphorus,Total	78.6	75.6	96.2	82.9-116	

L1206273-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1206273-01 04/11/20 14:12 • (MS) R3517660-4 04/11/20 14:18 • (MSD) R3517660-5 04/11/20 14:19

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phosphorus,Total	200	155	205	199	25.0	22.0	1	50.0-150	E J6	J6	2.97	25

Method Blank (MB)

(MB) R3519339-1 04/16/20 14:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Kjeldahl Nitrogen, TKN	U		4.48	20.0

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/16/20 15:01 • (DUP) R3519339-3 04/16/20 15:02

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	58500	58600	1	0.131		20

L1208205-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208205-01 04/16/20 16:19 • (DUP) R3519339-7 04/16/20 16:20

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	4720	4560	10	3.44		20

Laboratory Control Sample (LCS)

(LCS) R3519339-2 04/16/20 14:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Kjeldahl Nitrogen, TKN	476	504	106	75.2-121	

L1207275-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1207275-01 04/16/20 15:01 • (MS) R3519339-4 04/16/20 15:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	31300	58500	81100	72.4	1	90.0-110	E J6

L1208205-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208205-01 04/16/20 15:11 • (MS) R3519339-5 04/16/20 15:13 • (MSD) R3519339-6 04/16/20 15:14

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	541	2190	2220	2120	5.10	0.000	1	90.0-110	E V	E V	4.75	20

Method Blank (MB)

(MB) R3519368-1 04/16/20 16:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0733	0.250

L1207631-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207631-01 04/16/20 17:02 • (DUP) R3519368-3 04/16/20 17:03

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

L1208077-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1208077-01 04/16/20 17:15 • (DUP) R3519368-6 04/16/20 17:16

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3519368-2 04/16/20 16:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.63	105	85.0-115	

L1207631-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207631-03 04/16/20 17:04 • (MS) R3519368-4 04/16/20 17:07 • (MSD) R3519368-5 04/16/20 17:08

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	1.96	ND	1.16	1.02	59.1	51.8	1	75.0-125	J6	J6	13.2	20

L1208077-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208077-02 04/16/20 17:17 • (MS) R3519368-7 04/16/20 17:20 • (MSD) R3519368-8 04/16/20 17:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	1.97	ND	1.79	1.86	91.2	94.5	1	75.0-125			3.63	20

L1206936-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206936-01 04/11/20 13:15 • (DUP) R3517650-2 04/11/20 13:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	5.00	5.04	1	0.797		1

Sample Narrative:

OS: 5 at 20.4C

DUP: 5.04 at 20.3C

L1207043-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1207043-03 04/11/20 13:15 • (DUP) R3517650-3 04/11/20 13:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	10.8	10.8	1	0.186		1

Sample Narrative:

OS: 10.76 at 21C

DUP: 10.78 at 20.9C

Laboratory Control Sample (LCS)

(LCS) R3517650-1 04/11/20 13:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.97	99.7	99.0-101	

Sample Narrative:

LCS: 9.97 at 19.4C

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3518178-1 04/13/20 00:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Nitrate as (N)	U		0.557	10.0
Nitrite as (N)	U		0.505	10.0

L1206919-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1206919-01 04/13/20 05:56 • (DUP) R3518178-3 04/13/20 06:15

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate as (N)	0.724	1.59	1	75.0	J P1	15
Nitrite as (N)	U	0.000	1	0.000		15

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/13/20 08:23 • (DUP) R3518178-6 04/13/20 08:42

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrite as (N)	ND	0.000	1	0.000		15

L1207275-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1207275-01 04/13/20 11:46 • (DUP) R3518178-7 04/13/20 12:04

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate as (N)	9630	9840	5	2.16		15

Laboratory Control Sample (LCS)

(LCS) R3518178-2 04/13/20 00:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate as (N)	20.0	21.1	105	80.0-120	
Nitrite as (N)	20.0	21.7	109	80.0-120	

L1207069-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207069-01 04/13/20 06:51 • (MS) R3518178-4 04/13/20 07:47 • (MSD) R3518178-5 04/13/20 08:05

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate as (N)	3330	ND	3870	3770	115	112	1	80.0-120			2.52	15
Nitrite as (N)	3330	ND	2570	2600	77.1	78.1	1	80.0-120	J6	J6	1.21	15

Method Blank (MB)

(MB) R3518125-1 04/13/20 11:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3518125-2 04/13/20 11:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.457	91.4	80.0-120	

L1207389-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207389-06 04/13/20 11:59 • (MS) R3518125-3 04/13/20 12:02 • (MSD) R3518125-4 04/13/20 12:04

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.606	0.0656	0.695	0.666	104	99.1	1	75.0-125			4.19	20

Method Blank (MB)

(MB) R3517798-1 04/11/20 19:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00
Cadmium	U		0.0810	0.500
Chromium	U		0.250	1.00
Copper	U		0.506	2.00
Lead	U		0.208	0.500
Molybdenum	U		0.200	0.500
Nickel	U		0.490	2.00
Potassium	U		20.9	50.0
Selenium	U		0.617	2.00
Zinc	1.04	J	0.939	5.00

Laboratory Control Sample (LCS)

(LCS) R3517798-2 04/11/20 19:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.4	94.4	80.0-120	
Cadmium	100	96.1	96.1	80.0-120	
Chromium	100	102	102	80.0-120	
Copper	100	99.7	99.7	80.0-120	
Lead	100	97.1	97.1	80.0-120	
Molybdenum	100	101	101	80.0-120	
Nickel	100	98.2	98.2	80.0-120	
Potassium	1000	941	94.1	80.0-120	
Selenium	100	96.2	96.2	80.0-120	
Zinc	100	96.8	96.8	80.0-120	

L1207242-46 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207242-46 04/11/20 19:48 • (MS) R3517798-5 04/11/20 19:55 • (MSD) R3517798-6 04/11/20 19:58

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	138	39.9	162	163	88.8	89.4	1	75.0-125			0.524	20
Cadmium	138	0.521	125	124	90.7	89.6	1	75.0-125			1.22	20
Chromium	138	31.8	158	159	91.9	92.2	1	75.0-125			0.246	20
Copper	138	11.4	139	137	92.9	91.6	1	75.0-125			1.26	20
Lead	138	11.9	141	139	93.8	92.4	1	75.0-125			1.44	20
Molybdenum	138	U	116	114	84.6	82.9	1	75.0-125			2.06	20

L1207242-46 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207242-46 04/11/20 19:48 • (MS) R3517798-5 04/11/20 19:55 • (MSD) R3517798-6 04/11/20 19:58

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nickel	138	20.5	151	151	95.1	94.5	1	75.0-125			0.491	20
Potassium	1380	2730	4180	4320	105	116	1	75.0-125			3.28	20
Selenium	138	1.64	126	124	90.4	89.3	1	75.0-125			1.19	20
Zinc	138	46.4	159	160	82.1	82.4	1	75.0-125			0.277	20

Method Blank (MB)

(MB) R3518774-2 04/10/20 20:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Trichloroethene	U		0.000584	0.00100
(S) Toluene-d8	*108*			*75.0-131*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*92.1*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3518774-1 04/10/20 19:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Trichloroethene	0.125	0.128	102	76.0-126	
(S) Toluene-d8			*103*	*75.0-131*	
(S) 4-Bromofluorobenzene			*101*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*92.1*	*70.0-130*	

Method Blank (MB)

(MB) R3519580-1 04/17/20 08:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aldrin	U		0.00376	0.0200
Alpha BHC	U		0.00368	0.0200
Beta BHC	U		0.00379	0.0200
Delta BHC	U		0.00346	0.0200
Gamma BHC	U		0.00344	0.0200
4,4-DDD	U		0.00370	0.0200
4,4-DDE	U		0.00366	0.0200
4,4-DDT	U		0.00627	0.0200
Dieldrin	U		0.00344	0.0200
Endosulfan I	U		0.00363	0.0200
Endosulfan II	U		0.00335	0.0200
Endosulfan sulfate	U		0.00364	0.0200
Endrin	U		0.00350	0.0200
Endrin aldehyde	U		0.00339	0.0200
Heptachlor	U		0.00428	0.0200
Heptachlor epoxide	U		0.00339	0.0200
Methoxychlor	U		0.00484	0.0200
Chlordane	U		0.103	0.300
Toxaphene	U		0.124	0.400
(S) Decachlorobiphenyl	*104*			*10.0-135*
(S) Tetrachloro-m-xylene	*76.1*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3519580-2 04/17/20 08:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aldrin	0.0666	0.0559	83.9	34.0-136	
Alpha BHC	0.0666	0.0567	85.1	34.0-139	
Beta BHC	0.0666	0.0572	85.9	34.0-133	
Delta BHC	0.0666	0.0550	82.6	34.0-135	
Gamma BHC	0.0666	0.0592	88.9	34.0-136	
4,4-DDD	0.0666	0.0561	84.2	33.0-141	
4,4-DDE	0.0666	0.0566	85.0	34.0-134	
4,4-DDT	0.0666	0.0662	99.4	30.0-143	
Dieldrin	0.0666	0.0604	90.7	35.0-137	
Endosulfan I	0.0666	0.0634	95.2	34.0-134	
Endosulfan II	0.0666	0.0603	90.5	35.0-132	
Endosulfan sulfate	0.0666	0.0581	87.2	35.0-132	

Laboratory Control Sample (LCS)

(LCS) R3519580-2 04/17/20 08:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Endrin	0.0666	0.0610	91.6	34.0-137	
Endrin aldehyde	0.0666	0.0362	54.4	23.0-121	P
Heptachlor	0.0666	0.0600	90.1	36.0-141	
Heptachlor epoxide	0.0666	0.0613	92.0	36.0-134	
Methoxychlor	0.0666	0.0581	87.2	28.0-150	
(S) Decachlorobiphenyl			*117*	*10.0-135*	
(S) Tetrachloro-m-xylene			*85.4*	*10.0-139*	

L1208033-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208033-03 04/17/20 12:26 • (MS) R3519580-3 04/17/20 12:38 • (MSD) R3519580-4 04/17/20 12:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aldrin	0.0653	ND	0.0472	0.0496	72.3	75.6	1	20.0-135			4.96	37
Alpha BHC	0.0653	ND	0.0518	0.0531	79.3	80.9	1	27.0-140			2.48	35
Beta BHC	0.0653	ND	0.0532	0.0547	81.5	83.4	1	23.0-141			2.78	37
Delta BHC	0.0653	ND	0.0528	0.0533	80.9	81.3	1	21.0-138			0.943	35
Gamma BHC	0.0653	ND	0.0547	0.0560	83.8	85.4	1	27.0-137			2.35	36
4,4-DDD	0.0653	ND	0.0542	0.0582	83.0	88.7	1	15.0-152			7.12	39
4,4-DDE	0.0653	ND	0.0466	0.0523	71.4	79.7	1	10.0-152			11.5	40
4,4-DDT	0.0653	ND	0.0429	0.0511	65.7	77.9	1	10.0-151			17.4	40
Dieldrin	0.0653	ND	0.0510	0.0547	78.1	83.4	1	17.0-145			7.00	37
Endosulfan I	0.0653	ND	0.0531	0.0562	81.3	85.7	1	20.0-137			5.67	36
Endosulfan II	0.0653	ND	0.0513	0.0551	78.6	84.0	1	15.0-141			7.14	37
Endosulfan sulfate	0.0653	ND	0.0463	0.0498	70.9	75.9	1	15.0-143		P	7.28	38
Endrin	0.0653	ND	0.0516	0.0556	79.0	84.8	1	19.0-143			7.46	37
Endrin aldehyde	0.0653	ND	0.0514	0.0576	78.7	87.8	1	10.0-139			11.4	40
Heptachlor	0.0653	ND	0.0538	0.0559	82.4	85.2	1	22.0-138			3.83	37
Heptachlor epoxide	0.0653	ND	0.0513	0.0545	78.6	83.1	1	22.0-138			6.05	36
Methoxychlor	0.0653	ND	0.0393	0.0423	60.2	64.5	1	10.0-159			7.35	40
(S) Decachlorobiphenyl					*87.7*	*93.1*		*10.0-135*				
(S) Tetrachloro-m-xylene					*79.3*	*80.5*		*10.0-139*				

Method Blank (MB)

(MB) R3519365-1 04/16/20 17:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.0118	0.0340
PCB 1221	U		0.0118	0.0340
PCB 1232	U		0.0118	0.0340
PCB 1242	U		0.0118	0.0340
PCB 1248	U		0.00738	0.0170
PCB 1254	U		0.00738	0.0170
PCB 1260	U		0.00738	0.0170
(S) Decachlorobiphenyl	*80.3*			*10.0-135*
(S) Tetrachloro-m-xylene	*79.3*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3519365-2 04/16/20 17:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
PCB 1260	0.167	0.145	86.8	37.0-145	
PCB 1016	0.167	0.148	88.6	36.0-141	
(S) Decachlorobiphenyl			*86.3*	*10.0-135*	
(S) Tetrachloro-m-xylene			*84.1*	*10.0-139*	

L1208033-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1208033-03 04/16/20 22:07 • (MS) R3519365-3 04/16/20 22:21 • (MSD) R3519365-4 04/16/20 22:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.165	ND	0.161	0.149	97.6	90.9	1	10.0-160			7.74	38
PCB 1016	0.165	ND	0.140	0.144	84.8	87.8	1	10.0-160	P		2.82	37
(S) Decachlorobiphenyl					*84.5*	*91.2*		*10.0-135*				
(S) Tetrachloro-m-xylene					*86.0*	*82.3*		*10.0-139*				

Method Blank (MB)

(MB) R3518042-2 04/11/20 10:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzo(a)pyrene	U		0.00548	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
n-Nitrosodimethylamine	U		0.00548	0.0330
(S) Nitrobenzene-d5	*61.9*			*10.0-122*
(S) 2-Fluorobiphenyl	*72.1*			*15.0-120*
(S) p-Terphenyl-d14	*95.5*			*10.0-120*

Laboratory Control Sample (LCS)

(LCS) R3518042-1 04/11/20 10:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzo(a)pyrene	0.666	0.611	91.7	45.0-120	
Hexachlorobenzene	0.666	0.567	85.1	39.0-120	
Hexachloro-1,3-butadiene	0.666	0.400	60.1	15.0-120	
n-Nitrosodimethylamine	0.666	0.371	55.7	10.0-125	
(S) Nitrobenzene-d5			*67.3*	*10.0-122*	
(S) 2-Fluorobiphenyl			*80.2*	*15.0-120*	
(S) p-Terphenyl-d14			*92.5*	*10.0-120*	

L1207121-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207121-09 04/11/20 16:21 • (MS) R3518042-3 04/11/20 16:44 • (MSD) R3518042-4 04/11/20 17:07

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(a)pyrene	0.822	U	0.731	0.787	86.7	93.6	2	24.0-120			7.48	30
Hexachlorobenzene	0.822	U	0.662	0.732	80.5	89.0	2	27.0-120			10.1	28
Hexachloro-1,3-butadiene	0.822	U	0.531	0.590	64.6	71.8	2	10.0-120			10.6	38
n-Nitrosodimethylamine	0.822	U	0.400	0.459	48.6	55.9	2	10.0-127			13.8	40
(S) Nitrobenzene-d5					*72.1*	*79.0*		*10.0-122*				
(S) 2-Fluorobiphenyl					*75.7*	*84.4*		*15.0-120*				
(S) p-Terphenyl-d14					*86.2*	*94.0*		*10.0-120*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

L1207121-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1207121-04 04/11/20 17:30 • (MS) R3518042-5 04/11/20 17:53 • (MSD) R3518042-6 04/11/20 18:15

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzo(a)pyrene	0.751	0.325	1.05	1.08	96.7	101	2	24.0-120			2.75	30
Hexachlorobenzene	0.751	U	0.666	0.673	88.7	89.6	2	27.0-120			1.01	28
Hexachloro-1,3-butadiene	0.751	U	0.474	0.536	63.1	71.3	2	10.0-120			12.3	38
n-Nitrosodimethylamine	0.751	U	0.320	0.406	42.6	54.1	2	10.0-127			23.6	40
(S) Nitrobenzene-d5					*68.8*	*76.0*		*10.0-122*				
(S) 2-Fluorobiphenyl					*77.5*	*85.3*		*15.0-120*				
(S) p-Terphenyl-d14					*94.6*	*98.8*		*10.0-120*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P	RPD between the primary and confirmatory analysis exceeded 40%.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

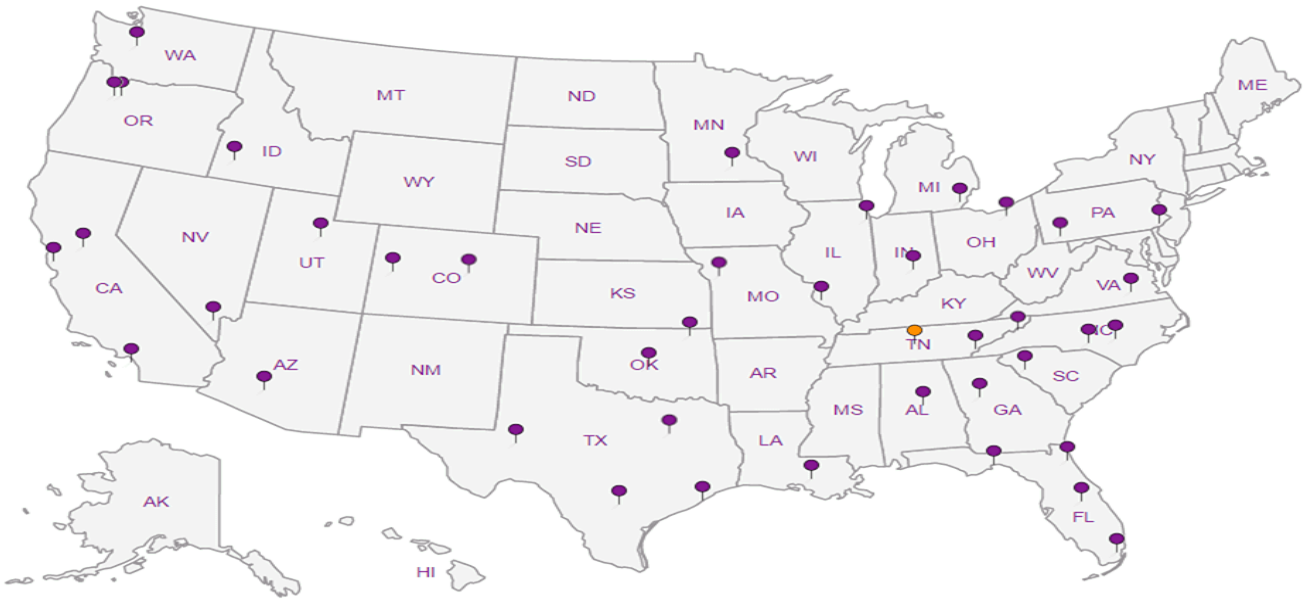
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Portland Wastewater Plant

100 South Russell Street
Portland, TN 37148

Billing Information:
Larry Quattlebaum
100 South Russell Street
Portland, TN 37148

Pres Chk

Report to: Larry Quattlebaum

Email To: lquattlebaum@CityofPortlandTN.gov

Project Description: Sludge-503-Class B Fecal

City/State Collected:

Please Circle: PT MT CT ET

Phone: 615-325-6989

Client Project # ANNUAL SLUDGE

Lab Project # PORT02-SLUDGEHAULING

Collected by (print): Trevor Keefe

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CN,TSSLUDGE 4ozClr-NoPres	FCLS Microbiological	Metals 4ozClr-NoPres	NITRATE,NH3,NITRITE 4ozClr-NoPres	SV8081/8082,SV8270BN 4ozClr-NoPres	TKN,PT 250mlHDPE-NoPres	V8260 4ozClr-NoPres	VS 4ozClr-NoPres	%Solids / MLVSS		Remarks	Sample # (lab only)
ANNUAL SLUDGE		SS		4/9/20	817	7	X		X	X	X	X	X	X				-01
ANNUAL SLUDGE		SS		4/9/20	817	9		X										02
Sludge		SS		4/9/20	817	1									X			03

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1267275

E166

Acctnum: PORT02
Template: T24295
Prelogin: P767334
PM: 807 - Justin Carr
PB: TB 4-7-20

Shipped Via: FedEX Ground

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 1663 5763 8563

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:		
Relinquished by : (Signature)	4/9/20	9:38	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	4-9-20	14:25	Received by: (Signature)	Temp: 1.1,2.5,1.1 °C Bottles Received: 17
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/10 Time: 1425 0850 JM

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

CLIENT: Portland ESC L# L1207275-01 -02

DATE ON: 4/10/2020 DATE OFF: 4/11/2020

Data entered into excel spreadsheet by: BE

BWS 4-13-20

Plate	ml filtered
A	0.001
B	0.0001
C	0.00001
D	0.000001

<---Largest Volumn Tested

Enter data into areas that are in **blue font.

sample type: Liquid

From Table 4 Method 1681

Sample No.	Combination of Positives			MPN/mL	Dilution	MPN Result	Log Values
1	1	0	0	0.2	0.001	15337.96	4.18576749
2	0	0	0	< 0.1803	0.001	<13954.26	4.1447069
3	0	0	0	< 0.1803	0.001	<14043.79	4.14748437
4	1	0	0	0.2	0.001	15212.46	4.18219934
5	1	0	0	0.2	0.001	15350.09	4.18611104
6	0	0	0	< 0.1803	0.001	<13809.59	4.14018079
7	0	0	0	< 0.1803	0.001	<13705.73	4.13690207

4.16047886

GEO MEAN **<14470.34**

$$[\text{FCMPN/g}] = \frac{\text{(MPN/1mL) X 100}}{\text{(Largest Vol tested) X (\% total solids)}}$$

$$\% \text{ Total Solids} = \frac{\text{Dry wt - Initial wt}}{\text{Wet wt - Initial wt}} \times 100$$

	Percent Solids			
Sample #	Initial Weight of Boat	Wet Weight	Dry weight	% Total Solids
1	1.25873	6.72211	1.32997	1.30395
2	1.25174	6.61674	1.32106	1.29208
3	1.25113	7.13114	1.32662	1.28384
4	1.25125	7.11337	1.32832	1.31471
5	1.24016	6.96114	1.3147	1.30292
6	1.25466	6.64063	1.32498	1.30561
7	1.25159	6.96497	1.32675	1.31551

Class B Fecal Coliform Analysis by MPN- EPA 1681

[Liquid or Solid]

Client Name: Portland

ESC Sample #: L1207275

Final pH must be between 7.0-7.5 and must not use more than 15mL of (HCl or NaOH) per 300mL

	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x (10mL per tube of 10,000x)	10,000x (10mL per tube of 100,000x)	100,000x (10mL per tube of 1,000,000x)	1,000,000x (10mL per tube of 10,000,000x)			
1	Date/Time: 4/10/20 @ 8:30	Date/Time: 4/10/20 @ 11:10	Date/Time: 4/11/20 @ 10:00	0	0	0	0	Initial pH	6.2	.2 ml of 1N NaOH
	Temp: 35	Temp: 44.5	Temp: 44.5	0	↓	↓	↓	Final pH	7.5	
	Analyst: KRE/KC	Analyst: JSV	Analyst: JSV	0	↓	↓	↓	Method Blank	0/0	
	SAMPLE COLLECTION: 4/9/20 @ 08:00	Combination of Positive:	1-0-0 @ .001	X	↓	↓	↓	Negative Con	0	
		MPN/mL from table:	0.2	0	0	0	0	Positive Con	X	
								MPN Result	15,338.0	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.2	.15 ml of 1N NaOH
2	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.3	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<13,954.3	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.2	.15 ml of 1N NaOH
	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.2	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<14,043.8	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.3	.15 ml of 1N NaOH
	Date/Time:	Date/Time:	Date/Time:	X	0	0	0	Final pH	7.3	
	Temp:	Temp:	Temp:	0	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	0	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	1-0-0 @ .001	0	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	0.2	0	0	0	0	MPN Result	15,212.5	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.2	.15 ml of 1N NaOH
5	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.4	
	Temp:	Temp:	Temp:	0	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	X	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	1-0-0 @ .001	0	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	0.2	0	0	0	0	MPN Result	15,350.1	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.3	.15 ml of 1N NaOH
6	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.4	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<13,809.6	
	Set up 35 deg	Move to 44.5 deg	Test end info	1,000x	10,000x	100,000x	1,000,000x	Initial pH	6.3	.15 ml of 1N NaOH
7	Date/Time:	Date/Time:	Date/Time:	0	0	0	0	Final pH	7.4	
	Temp:	Temp:	Temp:	↓	↓	↓	↓	Method Blank	0/0	
	Analyst:	Analyst:	Analyst:	↓	↓	↓	↓	Negative Con	0	
	SAMPLE COLLECTION:	Combination of Positive:	0-0-0 @ .001	↓	↓	↓	↓	Positive Con	X	
		MPN/mL from table:	<0.1803	0	0	0	0	MPN Result	<13,705.7	

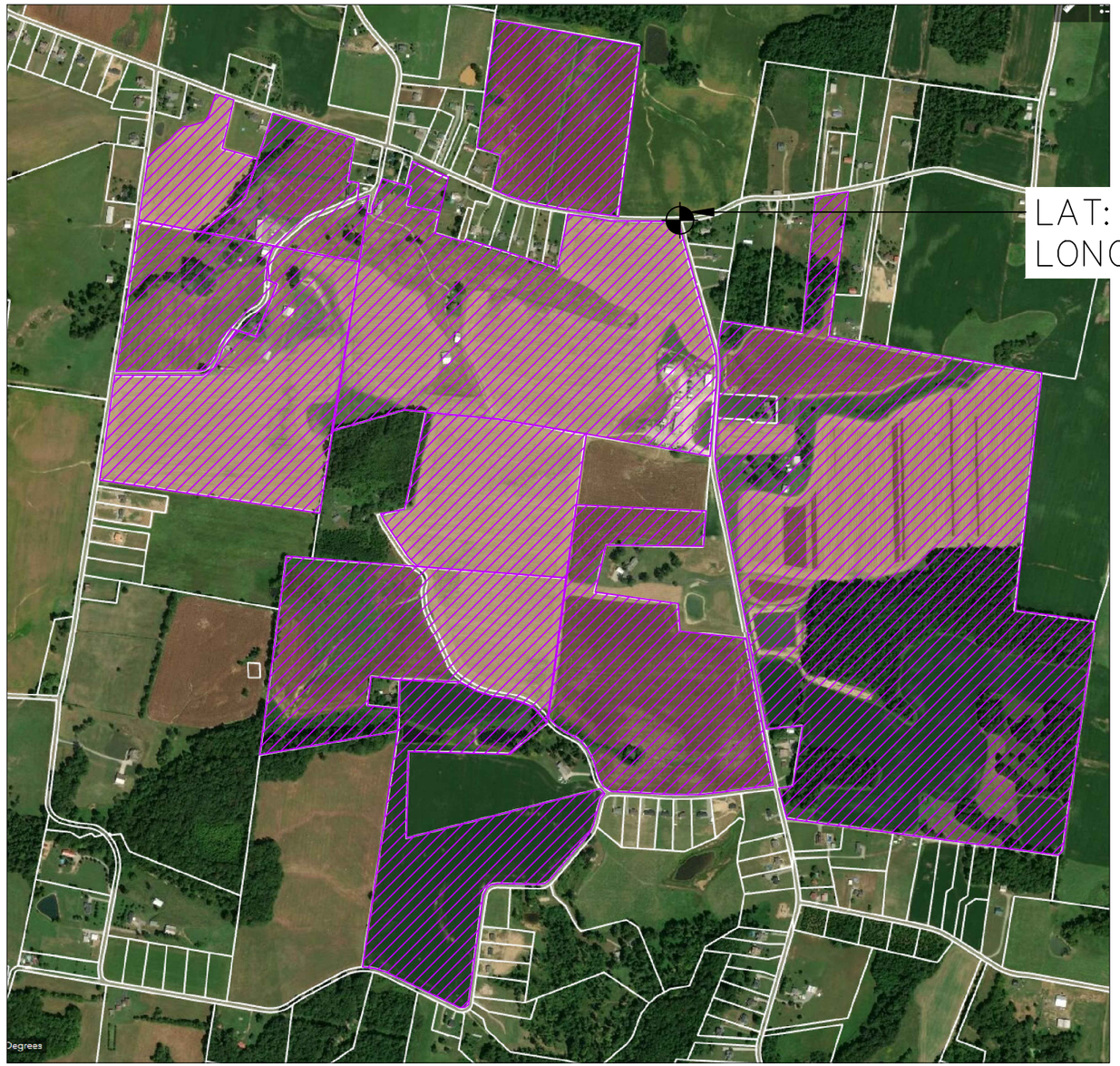
X denotes Positive tube
O denotes Negative tube

(30g +/-.1g)

Total Solids Analysis

Sample	Dish Label	Initial wt (g)	Wet wt (g)	Dry wt (g)	%Tot Solids	Amt used (g)
Sample #1	Port 1	1.25873	6.72211	1.32997	1.30395	NA
Sample #2	Port 2	1.25174	6.61674	1.32106	1.29208	
Sample #3	Port 3	1.25113	7.13114	1.32662	1.28384	
Sample #4	Port 4	1.25125	7.11337	1.32832	1.31471	
Sample #5	Port 5	1.24016	6.96114	1.31470	1.30292	
Sample #6	Port 6	1.25466	6.64163	1.32498	1.30561	
Sample #7	Port 7	1.25159	6.96497	1.32675	1.31551	

Media/Reagents Lot #	Lot:	Exp date
A1 medium Lot #:	43678	2/28/2021
Phosphate Buffer:	43394	8/31/2021
NaOH Lot: 1N	42955	7/7/2021
HCl Lot:	—	—
Positive Control: E. coli	040920	4/10/20
Negative Control: E.aerogenes	031220	6/12/20
^(only need for OPR or MS)		
^TSA Slant Lot #:	NA	NA
^1% LTB Lot #:		



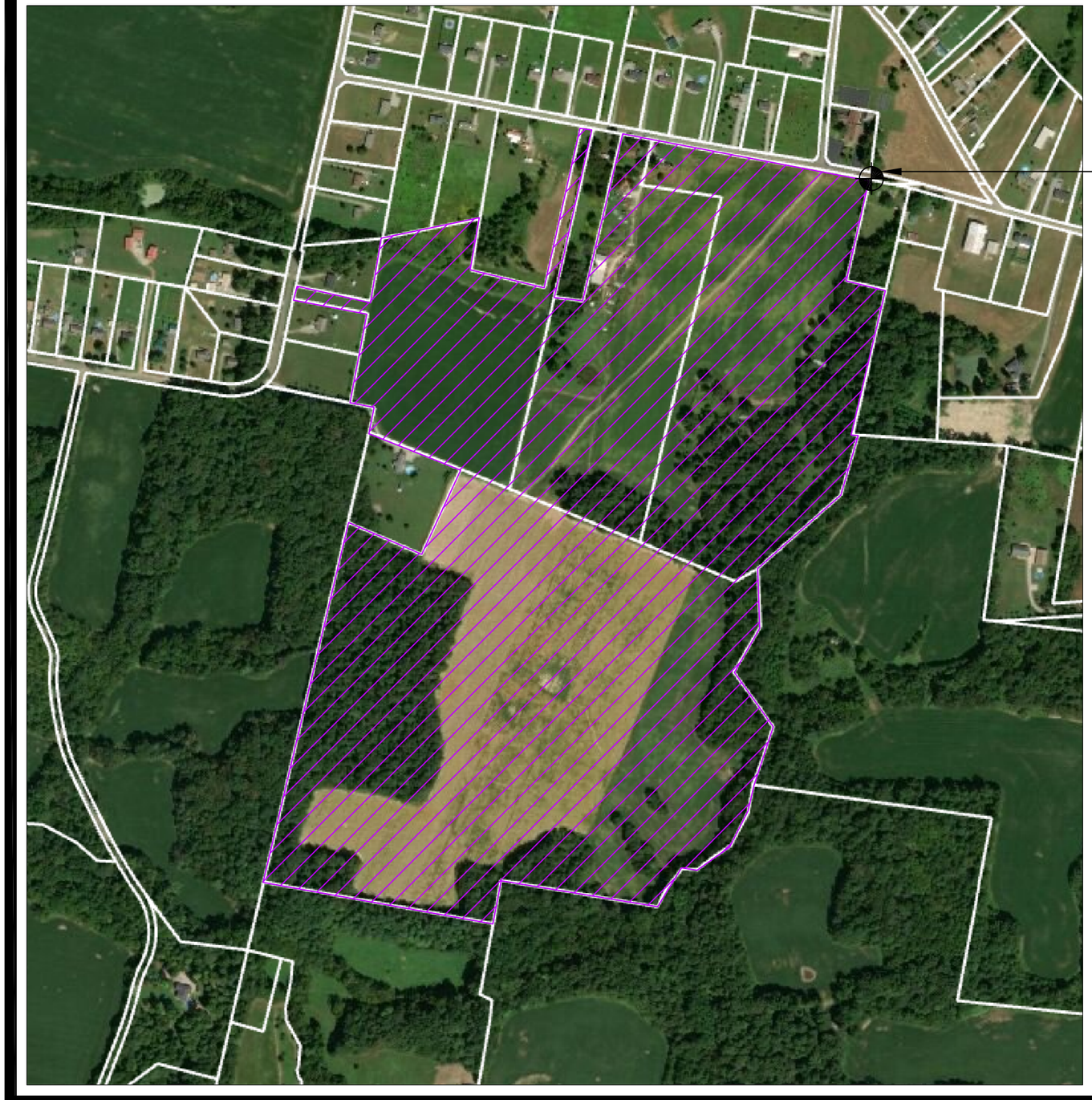
ADDRESS	APN:	ACREAGE
298 W. CARTER RD	021 012.00	29.44
W. CARTER RD	021 009.00	49.88
HWY 259	014 041.00	85.19
155 FREEMAN RD	021 011.00	50.00
CORINITH RD	021 013.02	10.00
HWY 259	014 036.02	18.00
CORINTH RD	022 001.00	179.40
1812 HWY 259	014 048.00	16.34
1924 HWY 259	014 043.00	35.12
CORINITH RD	021 016.03	47.17
FREEMAN RD	021 011.01	20.09
	TOTAL ACREAGE	540.63

City of Portland, Tennessee
100 South Russell Street
Portland, Tennessee 37148
ph. 615-323-1437
http://cityofportlandtn.gov

CITY OF PORTLAND
BIOSOLIDS APPLICATION
APPLICATION SITES

NO.	DATE	BY	REVISION DESCRIPTION
A	6/23/20	CAW	INITIAL SUBMITTAL

SHEET
C-101



ADDRESS	APN:	ACREAGE
225 OLD MARTIN CHAPEL RD	014006.01	16.73
229 OLD MARTIN CHAPEL RD	014 006.02	24.30
GREGORY LANE	014 020.10	63.60
OLD MARTIN CHAPEL RD	003 029.01	17.31
	TOTAL ACREAGE	121.94

City of Portland, Tennessee
100 South Russell Street
Portland, Tennessee 37148
ph. 615-323-1437
http://cityofportlandtn.gov

CITY OF PORTLAND
BIOSOLIDS LAND APPLICATION
APPLICATION SITES

NO.	DATE	BY	REVISION DESCRIPTION
A	6/23/20	CAW	INITIAL SUBMITTAL

SHEET
C-100