Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

May 31, 2019

Cardno - Newark, DE

Sample Delivery Group:	L1100359
Samples Received:	05/18/2019
Project Number:	
Description:	Deer Park Fire
Report To:	Art Saunders 121 Continental Drive Suite 308 Newark, DE 19713

Entire Report Reviewed By:

Craig Cothron
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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WW-20190515-002-DAY 14 L1100359-01 WW

Collected by: Stephanie Healey | Collected date/time: 05/17/19 11:30 | Received date/time: 05/18/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1284145	1	05/23/19 10:21	05/23/19 10:21	BRJ	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 C-2011	WG1283770	1	05/21/19 08:45	05/21/19 10:17	MCG	Mt. Juliet, TN
Gravimetric Analysis by Method 2540 D-2011	WG1284204	1	05/21/19 16:45	05/21/19 23:30	MMF	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1283275	10	05/18/19 15:11	05/18/19 15:11	ST	Mt. Juliet, TN
Wet Chemistry by Method 350.1	WG1284145	1	05/23/19 10:21	05/23/19 10:21	BRJ	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1284510	1	05/20/19 11:34	05/22/19 13:01	SDL	Mt. Juliet, TN
Wet Chemistry by Method 365.4	WG1283806	1	05/20/19 11:34	05/21/19 16:10	SDL	Mt. Juliet, TN
Wet Chemistry by Method 410.4	WG1284594	1	05/22/19 07:35	05/22/19 13:07	RDW	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1283322	1	05/18/19 13:55	05/18/19 13:55	MJA	Mt. Juliet, TN
Wet Chemistry by Method 5310 B-2011	WG1283712	1	05/20/19 17:03	05/20/19 17:03	EEM	Mt. Juliet, TN
Metals (ICPMS) by Method 200.8	WG1283252	1	05/20/19 18:24	05/22/19 12:12	LAT	Mt. Juliet, TN
Metals (ICPMS) by Method 200.8	WG1285721	1	05/23/19 15:48	05/24/19 18:07	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 624.1	WG1284375	1	05/21/19 21:44	05/21/19 21:44	DWR	Mt. Juliet, TN
EDB / DBCP by Method 504.1	WG1282811	1	05/20/19 08:52	05/21/19 09:13	KLM	Mt. Juliet, TN
SVOC-GC-GLYCOLS by Method 8015M	WG1283631	1	05/19/19 20:05	05/21/19 21:13	MTJ	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG1283676	1.08	05/20/19 09:44	05/21/19 03:59	LEL	Mt. Juliet, TN
OP Pesticides by Method 1657M	WG1283595	1	05/20/19 07:12	05/22/19 03:33	ADF	Mt. Juliet, TN

WW-20190515-002-DAY 14 L1100359-02 WW

Collected by: Stephanie Healey | Collected date/time: 05/17/19 11:30 | Received date/time: 05/18/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 1664A	WG1285807	1	05/23/19 17:44	05/23/19 20:10	DAD	Mt. Juliet, TN

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

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.

Craig Cothron
Project Manager

Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Craig Cothron
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 05/31/2019 11:41
Project Name: Deer Park Fire	Laboratory Job Number: L1100359-01 and 02
Reviewer Name: Craig Cothron	Prep Batch Number(s): WG1283322, WG1283275, WG1283676, WG1283631, WG1283712, WG1282811, WG1283806, WG1284375, WG1284594, WG1284510, WG1284204, WG1283595, WG1283770, WG1283252, WG1284145, WG1285807 and WG1285721

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		X			2
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			3
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?		X			4
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 05/31/2019 11:41
Project Name: Deer Park Fire	Laboratory Job Number: L1100359-01 and 02
Reviewer Name: Craig Cothron	Prep Batch Number(s): WG1283322, WG1283275, WG1283676, WG1283631, WG1283712, WG1282811, WG1283806, WG1284375, WG1284594, WG1284510, WG1284204, WG1283595, WG1283770, WG1283252, WG1284145, WG1285807 and WG1285721

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?	X				
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?	X				
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

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Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 05/31/2019 11:41
Project Name: Deer Park Fire	Laboratory Job Number: L1100359-01 and 02
Reviewer Name: Craig Cothron	Prep Batch Number(s): WG1283322, WG1283275, WG1283676, WG1283631, WG1283712, WG1282811, WG1283806, WG1284375, WG1284594, WG1284510, WG1284204, WG1283595, WG1283770, WG1283252, WG1284145, WG1285807 and WG1285721

ER #[1]	Description
1	WG1283806 R3413365-3 and 4: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL). WG1284510 R3413683-3 and 4: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
2	624.1 WG1284375 Bromochloromethane: Percent Recovery is outside of established control limits.
3	350.1 WG1283322 Sulfide: Percent Recovery is outside of established control limits. 351.2 WG1283806 Phosphorus,Total: Percent Recovery is outside of established control limits. 351.2 WG1284510 Kjeldahl Nitrogen, TKN: Percent Recovery is outside of established control limits. 351.2 WG1284594 COD: Percent Recovery is outside of established control limits.
4	351.2 WG1284510 Kjeldahl Nitrogen, TKN: Relative Percent Difference is outside of established control limits. 351.2 WG1284594 COD: Relative Percent Difference is outside of established control limits. 2540 C-2011 WG1284204 Suspended Solids: Relative Percent Difference is outside of established control limits.

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3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if “NR” or “No” is checked).

Calculated Results

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Organic Nitrogen	0.470		0.0317	0.100	0.100	1	05/23/2019 10:21	WG1284145

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Dissolved Solids	2200		14.1	50.0	50.0	1	05/21/2019 10:17	WG1283770

Gravimetric Analysis by Method 2540 D-2011

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Suspended Solids	U		0.357	2.55	2.55	1	05/21/2019 23:30	WG1284204

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Chloride	396		0.519	1.00	10.0	10	05/18/2019 15:11	WG1283275

Wet Chemistry by Method 350.1

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	U		0.0317	0.100	0.100	1	05/23/2019 10:21	WG1284145

Wet Chemistry by Method 351.2

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Kjeldahl Nitrogen, TKN	0.470	J5	0.0350	0.250	0.250	1	05/22/2019 13:01	WG1284510

Wet Chemistry by Method 365.4

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Phosphorus,Total	0.127	J5	0.0350	0.100	0.100	1	05/21/2019 16:10	WG1283806

Wet Chemistry by Method 410.4

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
COD	18.4		3.00	10.0	10.0	1	05/22/2019 13:07	WG1284594

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Sulfide	U		0.00650	0.0500	0.0500	1	05/18/2019 13:55	WG1283322

Wet Chemistry by Method 5310 B-2011

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	3.00		0.102	1.00	1.00	1	05/20/2019 17:03	WG1283712

Metals (ICPMS) by Method 200.8

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Antimony	0.000845	J	0.000754	0.00200	0.00200	1	05/24/2019 18:07	WG1285721
Arsenic	0.00116		0.000170	0.00100	0.00100	1	05/22/2019 12:12	WG1283252
Cadmium	U		0.000220	0.00100	0.00100	1	05/22/2019 12:12	WG1283252
Chromium	U		0.000320	0.00100	0.00100	1	05/22/2019 12:12	WG1283252
Cobalt	0.00120	J	0.000270	0.00200	0.00200	1	05/22/2019 12:12	WG1283252
Copper	0.00706		0.000270	0.00100	0.00100	1	05/22/2019 12:12	WG1283252
Lead	U		0.000260	0.00100	0.00100	1	05/24/2019 18:07	WG1285721
Nickel	0.00255		0.000320	0.00100	0.00100	1	05/22/2019 12:12	WG1283252
Selenium	0.000967	J	0.000320	0.00200	0.00200	1	05/22/2019 12:12	WG1283252
Silver	U		0.000180	0.00100	0.00100	1	05/22/2019 12:12	WG1283252
Thallium	U		0.000280	0.00100	0.00100	1	05/24/2019 18:07	WG1285721
Tin	0.000329	J	0.000240	0.00100	0.00100	1	05/22/2019 12:12	WG1283252
Zinc	0.0193		0.00191	0.0100	0.0100	1	05/22/2019 12:12	WG1283252

Volatile Organic Compounds (GC/MS) by Method 624.1

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Acetone	U		0.0100	0.0500	0.0500	1	05/21/2019 21:44	WG1284375
Acrylonitrile	U		0.00187	0.0100	0.0100	1	05/21/2019 21:44	WG1284375
Benzene	0.00392		0.000331	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Bromobenzene	U		0.000352	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Bromochloromethane	U	J4	0.000520	0.00500	0.00500	1	05/21/2019 21:44	WG1284375
Bromodichloromethane	U		0.000380	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Bromoform	U		0.000469	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Bromomethane	U		0.000866	0.00500	0.00500	1	05/21/2019 21:44	WG1284375
n-Butylbenzene	U		0.000361	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
sec-Butylbenzene	U		0.000365	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
tert-Butylbenzene	U		0.000399	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Carbon disulfide	U		0.000275	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Carbon tetrachloride	U		0.000379	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Chlorobenzene	U		0.000348	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Chlorodibromomethane	U		0.000327	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Chloroethane	U		0.000453	0.00500	0.00500	1	05/21/2019 21:44	WG1284375
Chloroform	U		0.000324	0.00500	0.00500	1	05/21/2019 21:44	WG1284375
Chloromethane	U		0.000276	0.00250	0.00250	1	05/21/2019 21:44	WG1284375
2-Chlorotoluene	U		0.000375	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
4-Chlorotoluene	U		0.000351	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Cyclohexane	U		0.000390	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Dibromomethane	U		0.000346	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,2-Dichlorobenzene	U		0.000349	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,3-Dichlorobenzene	U		0.000220	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,4-Dichlorobenzene	U		0.000274	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Dichlorodifluoromethane	U		0.000551	0.00500	0.00500	1	05/21/2019 21:44	WG1284375
1,1-Dichloroethane	U		0.000259	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,2-Dichloroethane	U		0.000361	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,1-Dichloroethene	U		0.000398	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
cis-1,2-Dichloroethene	U		0.000260	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
trans-1,2-Dichloroethene	U		0.000396	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,2-Dichloropropane	U		0.000306	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
2,2-Dichloropropane	U		0.000321	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,1-Dichloropropene	U		0.000352	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,3-Dichloropropene	U		0.000320	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
cis-1,3-Dichloropropene	U		0.000418	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
trans-1,3-Dichloropropene	U		0.000419	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Ethylbenzene	0.00373		0.000384	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
2-Hexanone	U		0.00382	0.0100	0.0100	1	05/21/2019 21:44	WG1284375

Volatile Organic Compounds (GC/MS) by Method 624.1

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	U		0.000326	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
p-Isopropyltoluene	U		0.000350	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
2-Butanone (MEK)	U		0.00393	0.0100	0.0100	1	05/21/2019 21:44	WG1284375
Methyl Acetate	U		0.00430	0.0200	0.0200	1	05/21/2019 21:44	WG1284375
Methyl Cyclohexane	U		0.000380	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Methylene Chloride	U		0.00100	0.00500	0.00500	1	05/21/2019 21:44	WG1284375
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	0.0100	1	05/21/2019 21:44	WG1284375
Methyl tert-butyl ether	U		0.000367	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
n-Propylbenzene	U		0.000349	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Styrene	U		0.000307	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Tetrachloroethene	U		0.000372	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Toluene	0.00357		0.000412	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,2,3-Trichlorobenzene	U		0.000230	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,2,4-Trichlorobenzene	U		0.000355	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,2,4-Trimethylbenzene	0.00235		0.000373	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,3,5-Trimethylbenzene	U		0.000387	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,1,1-Trichloroethane	U		0.000319	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,1,2-Trichloroethane	U		0.000383	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Trichloroethene	U		0.000398	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
Trichlorofluoromethane	U		0.00120	0.00500	0.00500	1	05/21/2019 21:44	WG1284375
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
1,2,3-Trichloropropane	U		0.000807	0.00250	0.00250	1	05/21/2019 21:44	WG1284375
Vinyl chloride	U		0.000259	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
o-Xylene	0.00287		0.000341	0.00100	0.00100	1	05/21/2019 21:44	WG1284375
m&p-Xylene	0.00650		0.000719	0.00200	0.00200	1	05/21/2019 21:44	WG1284375
Xylenes, Total	0.00937		0.00106	0.00300	0.00300	1	05/21/2019 21:44	WG1284375
(S) Toluene-d8	*96.9*				*80.0-120*		*05/21/2019 21:44*	WG1284375
(S) 1,2-Dichloroethane-d4	*100*				*70.0-130*		*05/21/2019 21:44*	WG1284375
(S) 4-Bromofluorobenzene	*94.5*				*80.0-120*		*05/21/2019 21:44*	WG1284375

EDB / DBCP by Method 504.1

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Ethylene Dibromide	U		0.00000240	0.0000100	0.0000100	1	05/21/2019 09:13	WG1282811
1,2-Dibromo-3-Chloropropane	U		0.00000430	0.0000200	0.0000200	1	05/21/2019 09:13	WG1282811

SVOC-GC-GLYCOLS by Method 8015M

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Ethylene glycol	U		0.492	5.00	5.00	1	05/21/2019 21:13	WG1283631
(S) 1,3-Propanediol	*69.6*				*28.0-145*		*05/21/2019 21:13*	WG1283631

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	U		0.000913	0.00200	0.00216	1.08	05/21/2019 03:59	WG1283676
(S) 2,4-Dichlorophenyl Acetic Acid	*96.9*				*14.0-158*		*05/21/2019 03:59*	WG1283676

OP Pesticides by Method 1657M

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Azinphos-Methyl	U		0.000140	0.00100	0.00100	1	05/22/2019 03:33	WG1283595
Chlorpyrifos	U		0.000133	0.00100	0.00100	1	05/22/2019 03:33	WG1283595
Diazinon	U		0.000377	0.00100	0.00100	1	05/22/2019 03:33	WG1283595
Demeton,-O and -S	U		0.0000680	0.00200	0.00200	1	05/22/2019 03:33	WG1283595
Malathion	U		0.000116	0.00100	0.00100	1	05/22/2019 03:33	WG1283595
(S) Triphenyl Phosphate	*90.4*				*42.0-129*		*05/22/2019 03:33*	WG1283595

Wet Chemistry by Method 1664A

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Oil & Grease (Hexane Extr)	U		1.29	5.56	5.56	1	05/23/2019 20:10	WG1285807

Method Blank (MB)

(MB) R3413848-1 05/21/19 10:17

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U		2.82	10.0

L1100630-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1100630-02 05/21/19 10:17 • (DUP) R3413848-3 05/21/19 10:17

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2140	2150	1	0.233		5

Laboratory Control Sample (LCS)

(LCS) R3413848-2 05/21/19 10:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8790	99.9	85.0-115	

Method Blank (MB)

(MB) R3413702-1 05/21/19 23:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Suspended Solids	U		0.350	2.50

L1099878-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1099878-01 05/21/19 23:30 • (DUP) R3413702-3 05/21/19 23:30

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Suspended Solids	51.0	54.5	1	6.64	P1	5

Laboratory Control Sample (LCS)

(LCS) R3413702-2 05/21/19 23:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Suspended Solids	773	808	105	85.0-115	

Method Blank (MB)

(MB) R3414408-1 05/23/19 20:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Oil & Grease (Hexane Extr)	U		1.16	5.00

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

(LCS) R3414408-2 05/23/19 20:10 • (LCSD) R3414408-3 05/23/19 20:10

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 %
Oil & Grease (Hexane Extr)	40.0	36.2	38.2	90.5	95.5	78.0-114			5.38	20

Method Blank (MB)

(MB) R3412656-1 05/18/19 10:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.0519	1.00

L1100378-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1100378-03 05/18/19 16:11 • (DUP) R3412656-5 05/18/19 16:26

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	15.4	15.4	1	0.0637		20

Laboratory Control Sample (LCS)

(LCS) R3412656-2 05/18/19 10:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	40.2	100	90.0-110	

L1100344-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100344-01 05/18/19 13:38 • (MS) R3412656-3 05/18/19 14:07 • (MSD) R3412656-4 05/18/19 14:27

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 %
Chloride	50.0	41.7	89.8	89.9	96.3	96.5	1	80.0-120			0.153	20

Method Blank (MB)

(MB) R3414121-1 05/23/19 09:35

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ammonia Nitrogen	U		0.0317	0.100

L1099388-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1099388-01 05/23/19 09:41 • (DUP) R3414121-3 05/23/19 09:43

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	ND	0.0820	1	0.000		10

L1099785-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1099785-01 05/23/19 10:18 • (DUP) R3414121-5 05/23/19 10:20

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ammonia Nitrogen	ND	0.000	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3414121-2 05/23/19 09:37

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	7.50	7.30	97.3	90.0-110	

L1099396-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1099396-01 05/23/19 09:45 • (MS) R3414121-4 05/23/19 09:46

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ammonia Nitrogen	5.00	0.0580	4.99	98.7	1	90.0-110	

L1100359-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100359-01 05/23/19 10:21 • (MS) R3414121-6 05/23/19 10:23 • (MSD) R3414121-7 05/23/19 10:24

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 %
Ammonia Nitrogen	5.00	U	4.88	4.69	97.7	93.9	1	90.0-110			3.97	10

Method Blank (MB)

(MB) R3413683-1 05/22/19 12:36

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Kjeldahl Nitrogen, TKN	U		0.0350	0.250

L1099902-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1099902-02 05/22/19 12:46 • (DUP) R3413683-5 05/22/19 12:47

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	2.31	3.25	1	33.8	J3	20

Laboratory Control Sample (LCS)

(LCS) R3413683-2 05/22/19 12:37

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Kjeldahl Nitrogen, TKN	10.0	10.3	103	90.0-110	

L1099902-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099902-01 05/22/19 12:42 • (MS) R3413683-3 05/22/19 12:43 • (MSD) R3413683-4 05/22/19 12:45

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 %
Kjeldahl Nitrogen, TKN	5.00	19.1	21.7	22.8	52.0	74.0	1	90.0-110	E J6	E J6	4.94	20

L1100359-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1100359-01 05/22/19 13:01 • (MS) R3413683-6 05/22/19 13:02

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	5.00	0.470	7.69	144	1	90.0-110	J5

Method Blank (MB)

(MB) R3413365-1 05/21/19 15:43

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Phosphorus,Total	U		0.0350	0.100

L1099902-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1099902-02 05/21/19 16:02 • (DUP) R3413365-5 05/21/19 16:04

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	0.867	0.911	1	4.95		20

L1100630-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1100630-02 05/21/19 16:15 • (DUP) R3413365-7 05/21/19 16:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Phosphorus,Total	0.0842	0.0781	1	7.52	J	20

Laboratory Control Sample (LCS)

(LCS) R3413365-2 05/21/19 15:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phosphorus,Total	2.00	2.02	101	90.0-110	

L1099902-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099902-01 05/21/19 15:58 • (MS) R3413365-3 05/21/19 16:00 • (MSD) R3413365-4 05/21/19 16:01

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 %
Phosphorus,Total	2.50	3.93	6.19	6.55	90.4	105	1	90.0-110	E	E	5.65	20

L1100359-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1100359-01 05/21/19 16:10 • (MS) R3413365-6 05/21/19 16:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Phosphorus,Total	2.50	0.127	2.96	113	1	90.0-110	J5

Method Blank (MB)

(MB) R3413665-1 05/22/19 13:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U		3.00	10.0

L1099223-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1099223-07 05/22/19 13:01 • (DUP) R3413665-5 05/22/19 13:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	350	354	1	1.31		20

L1100960-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1100960-01 05/22/19 13:08 • (DUP) R3413665-6 05/22/19 13:08

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	22.6	12.0	1	61.4	P1	20

Laboratory Control Sample (LCS)

(LCS) R3413665-2 05/22/19 13:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
COD	222	220	99.1	90.0-110	

L1099223-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099223-06 05/22/19 13:01 • (MS) R3413665-3 05/22/19 13:01 • (MSD) R3413665-4 05/22/19 13:01

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 %
COD	400	11.9	907	941	224	232	1	80.0-120	J5	J5	3.60	20

Method Blank (MB)

(MB) R3412566-1 05/18/19 13:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfide	U		0.00650	0.0500

L1099869-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1099869-01 05/18/19 13:48 • (DUP) R3412566-5 05/18/19 13:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	0.000	1	0.000		20

L1100260-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1100260-01 05/18/19 13:53 • (DUP) R3412566-6 05/18/19 13:53

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3412566-2 05/18/19 13:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfide	0.500	0.507	101	85.0-115	

L1099840-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099840-01 05/18/19 13:47 • (MS) R3412566-3 05/18/19 13:48 • (MSD) R3412566-4 05/18/19 13:48

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 %
Sulfide	1.00	U	0.695	0.695	69.5	69.5	1	80.0-120	J6	J6	0.000	20

Method Blank (MB)

(MB) R3413276-1 05/20/19 16:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	0.297	J	0.102	1.00

L1099446-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1099446-03 05/20/19 17:32 • (DUP) R3413276-3 05/20/19 17:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)	822	832	10	1.29		20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3413276-6 05/20/19 23:35

Analyte	Original Result	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
TOC (Total Organic Carbon)		229	20	2.33		20

Laboratory Control Sample (LCS)

(LCS) R3413276-2 05/20/19 16:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	75.0	78.8	105	85.0-115	

L1099890-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099890-02 05/20/19 20:04 • (MS) R3413276-4 05/20/19 20:21 • (MSD) R3413276-5 05/20/19 20:38

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 %
TOC (Total Organic Carbon)	50.0	2.51	55.2	55.3	105	106	1	80.0-120			0.217	20

L1099970-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099970-08 05/21/19 00:17 • (MS) R3413276-7 05/21/19 00:34 • (MSD) R3413276-8 05/21/19 00:52

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 %
TOC (Total Organic Carbon)	50.0	0.757	52.6	53.2	104	105	1	80.0-120			1.06	20

Method Blank (MB)

(MB) R3414108-1 05/22/19 09:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.000170	0.00100
Cadmium	U		0.000220	0.00100
Chromium	U		0.000320	0.00100
Cobalt	U		0.000270	0.00200
Copper	0.000549	J	0.000270	0.00100
Nickel	U		0.000320	0.00100
Selenium	U		0.000320	0.00200
Silver	U		0.000180	0.00100
Tin	U		0.000240	0.00100
Zinc	U		0.00191	0.0100

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

(LCS) R3414108-2 05/22/19 09:23 • (LCSD) R3414108-3 05/22/19 09:29

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 %
Arsenic	0.0500	0.0514	0.0510	103	102	85.0-115			0.821	20
Cadmium	0.0500	0.0516	0.0514	103	103	85.0-115			0.533	20
Chromium	0.0500	0.0521	0.0512	104	102	85.0-115			1.81	20
Cobalt	0.0500	0.0522	0.0512	104	102	85.0-115			2.06	20
Copper	0.0500	0.0508	0.0510	102	102	85.0-115			0.331	20
Nickel	0.0500	0.0522	0.0516	104	103	85.0-115			1.18	20
Selenium	0.0500	0.0508	0.0516	102	103	85.0-115			1.53	20
Silver	0.0500	0.0526	0.0516	105	103	85.0-115			1.98	20
Tin	0.0500	0.0491	0.0483	98.2	96.5	85.0-115			1.68	20
Zinc	0.0500	0.0522	0.0512	104	102	85.0-115			1.92	20

L1099404-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099404-01 05/22/19 09:34 • (MS) R3414108-5 05/22/19 09:44 • (MSD) R3414108-6 05/22/19 09:49

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 %
Arsenic	0.0500	0.0638	0.112	0.114	96.9	101	1	70.0-130			1.96	20
Cadmium	0.0500	0.00110	0.0509	0.0515	99.6	101	1	70.0-130			1.20	20
Chromium	0.0500	ND	0.0487	0.0501	96.6	99.4	1	70.0-130			2.82	20
Cobalt	0.0500	ND	0.0482	0.0494	95.5	97.9	1	70.0-130			2.44	20
Copper	0.0500	0.00218	0.0580	0.0637	112	123	1	70.0-130			9.27	20
Nickel	0.0500	0.00355	0.0511	0.0525	95.1	98.0	1	70.0-130			2.72	20
Selenium	0.0500	0.00648	0.0566	0.0581	100	103	1	70.0-130			2.59	20

L1099404-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099404-01 05/22/19 09:34 • (MS) R3414108-5 05/22/19 09:44 • (MSD) R3414108-6 05/22/19 09:49

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 %
Silver	0.0500	ND	0.0514	0.0518	102	103	1	70.0-130			0.748	20
Tin	0.0500	ND	0.0484	0.0490	96.1	97.4	1	70.0-130			1.32	20
Zinc	0.0500	0.151	0.201	0.211	100	121	1	70.0-130			5.14	20

L1099409-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099409-01 05/22/19 10:24 • (MS) R3414108-7 05/22/19 10:29 • (MSD) R3414108-8 05/22/19 10:34

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 %
Arsenic	0.0500	ND	0.0487	0.0474	96.3	93.8	1	70.0-130			2.63	20
Cadmium	0.0500	ND	0.0493	0.0479	98.7	95.9	1	70.0-130			2.87	20
Chromium	0.0500	0.00329	0.0514	0.0496	96.3	92.7	1	70.0-130			3.57	20
Cobalt	0.0500	ND	0.0476	0.0466	95.3	93.1	1	70.0-130			2.26	20
Copper	0.0500	ND	0.0466	0.0457	91.3	89.6	1	70.0-130			1.90	20
Nickel	0.0500	0.00114	0.0494	0.0481	96.5	93.9	1	70.0-130			2.59	20
Selenium	0.0500	ND	0.0493	0.0461	96.8	90.3	1	70.0-130			6.80	20
Silver	0.0500	ND	0.0509	0.0488	102	97.5	1	70.0-130			4.25	20
Tin	0.0500	ND	0.0492	0.0467	98.4	93.4	1	70.0-130			5.17	20
Zinc	0.0500	ND	0.0557	0.0541	95.4	92.2	1	70.0-130			2.94	20

Method Blank (MB)

(MB) R3415099-7 05/24/19 17:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Antimony	U		0.000754	0.00200
Lead	U		0.000260	0.00100
Thallium	U		0.000280	0.00100

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

(LCS) R3415099-8 05/24/19 17:44 • (LCSD) R3415099-9 05/24/19 17:48

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 %
Antimony	0.0500	0.0494	0.0481	98.8	96.2	85.0-115			2.68	20
Lead	0.0500	0.0485	0.0493	97.0	98.6	85.0-115			1.64	20
Thallium	0.0500	0.0473	0.0492	94.7	98.5	85.0-115			3.91	20

L1099423-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1099423-01 05/24/19 17:53 • (MS) R3415099-10 05/24/19 17:58 • (MSD) R3415099-11 05/24/19 18:02

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 %
Antimony	0.0500	0.00628	0.0548	0.0563	97.1	100	1	70.0-130			2.57	20
Lead	0.0500	ND	0.0493	0.0476	98.7	95.3	1	70.0-130			3.54	20
Thallium	0.0500	ND	0.0475	0.0475	95.0	94.9	1	70.0-130			0.0987	20

Method Blank (MB)

(MB) R3413483-4 05/21/19 11:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromobenzene	U		0.000352	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromochloromethane	U		0.000520	0.00500
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
Carbon disulfide	U		0.000275	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Cyclohexane	U		0.000390	0.00100
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
Ethylbenzene	U		0.000384	0.00100
2-Hexanone	U		0.00382	0.0100
Methyl Acetate	U		0.00430	0.0200
Isopropylbenzene	U		0.000326	0.00100

Method Blank (MB)

(MB) R3413483-4 05/21/19 11:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Methyl Cyclohexane	U		0.000380	0.00100
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Methyl tert-butyl ether	U		0.000367	0.00100
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100
1,2,3-Trichlorobenzene	U		0.000230	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
o-Xylene	U		0.000341	0.00100
m&p-Xylenes	U		0.000719	0.00200
1,3-Dichloropropene	U		0.000320	0.00100
(S) Toluene-d8	*100*			*80.0-120*
(S) 4-Bromofluorobenzene	*97.7*			*80.0-120*
(S) 1,2-Dichloroethane-d4	*103*			*70.0-130*

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

(LCS) R3413483-1 05/21/19 10:12 • (LCSD) R3413483-2 05/21/19 10:31

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 %
Acetone	0.125	0.140	0.139	112	111	10.0-160			1.01	23
Carbon disulfide	0.0250	0.0291	0.0277	116	111	55.0-127			4.77	20
Acrylonitrile	0.125	0.150	0.145	120	116	60.0-140			3.18	20

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

(LCS) R3413483-1 05/21/19 10:12 • (LCSD) R3413483-2 05/21/19 10:31

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	0.0250	0.0269	0.0257	108	103	65.0-135			4.49	20
Bromobenzene	0.0250	0.0270	0.0249	108	99.8	79.0-120			7.81	20
Bromodichloromethane	0.0250	0.0279	0.0276	112	111	70.0-135			0.934	20
Bromochloromethane	0.0250	0.0312	0.0302	125	121	76.0-122	J4		3.27	20
Bromoform	0.0250	0.0294	0.0259	118	104	70.0-130			12.7	20
Bromomethane	0.0250	0.0285	0.0243	114	97.1	15.0-185			16.0	20
n-Butylbenzene	0.0250	0.0251	0.0233	100	93.1	72.0-126			7.39	20
sec-Butylbenzene	0.0250	0.0241	0.0220	96.5	87.8	74.0-121			9.41	20
tert-Butylbenzene	0.0250	0.0257	0.0245	103	97.8	75.0-122			5.00	20
Carbon tetrachloride	0.0250	0.0298	0.0291	119	116	70.0-130			2.54	20
Chlorobenzene	0.0250	0.0274	0.0243	110	97.2	65.0-135			12.0	20
Chlorodibromomethane	0.0250	0.0286	0.0255	114	102	70.0-135			11.2	20
Chloroethane	0.0250	0.0224	0.0216	89.8	86.5	40.0-160			3.70	20
Chloroform	0.0250	0.0275	0.0271	110	108	70.0-135			1.62	20
Chloromethane	0.0250	0.0262	0.0254	105	101	0.100-205			3.16	20
2-Chlorotoluene	0.0250	0.0258	0.0237	103	95.0	74.0-122			8.41	20
4-Chlorotoluene	0.0250	0.0259	0.0239	104	95.5	79.0-120			8.33	20
Dibromomethane	0.0250	0.0280	0.0273	112	109	78.0-120			2.56	20
1,2-Dichlorobenzene	0.0250	0.0260	0.0239	104	95.5	65.0-135			8.44	20
1,3-Dichlorobenzene	0.0250	0.0268	0.0244	107	97.5	70.0-130			9.36	20
1,4-Dichlorobenzene	0.0250	0.0246	0.0216	98.4	86.4	65.0-135			13.0	20
Dichlorodifluoromethane	0.0250	0.0342	0.0329	137	132	49.0-155			4.02	20
1,1-Dichloroethane	0.0250	0.0275	0.0266	110	106	70.0-130			3.30	20
1,2-Dichloroethane	0.0250	0.0280	0.0266	112	107	70.0-130			5.03	20
1,1-Dichloroethene	0.0250	0.0287	0.0279	115	112	50.0-150			2.89	20
cis-1,2-Dichloroethene	0.0250	0.0281	0.0263	112	105	73.0-120			6.64	20
2-Hexanone	0.125	0.134	0.120	107	96.2	58.0-147			10.5	20
trans-1,2-Dichloroethene	0.0250	0.0279	0.0269	111	107	70.0-130			3.62	20
1,2-Dichloropropane	0.0250	0.0297	0.0278	119	111	35.0-165			6.81	20
1,1-Dichloropropene	0.0250	0.0285	0.0265	114	106	71.0-129			7.04	20
cis-1,3-Dichloropropene	0.0250	0.0278	0.0268	111	107	25.0-175			3.54	20
trans-1,3-Dichloropropene	0.0250	0.0280	0.0249	112	99.5	50.0-150			12.0	20
2,2-Dichloropropane	0.0250	0.0265	0.0248	106	99.4	60.0-125			6.63	20
Ethylbenzene	0.0250	0.0263	0.0238	105	95.1	60.0-140			10.2	20
Isopropylbenzene	0.0250	0.0274	0.0246	110	98.4	75.0-120			10.7	20
p-Isopropyltoluene	0.0250	0.0249	0.0228	99.7	91.1	74.0-126			9.03	20
2-Butanone (MEK)	0.125	0.140	0.136	112	109	37.0-158			3.03	20
Methylene Chloride	0.0250	0.0279	0.0273	112	109	60.0-140			2.19	20
4-Methyl-2-pentanone (MIBK)	0.125	0.141	0.124	113	99.3	59.0-143			12.7	20
Methyl tert-butyl ether	0.0250	0.0268	0.0261	107	105	64.0-123			2.44	20

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

(LCS) R3413483-1 05/21/19 10:12 • (LCSD) R3413483-2 05/21/19 10:31

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 %
n-Propylbenzene	0.0250	0.0285	0.0261	114	104	79.0-120			8.99	20
Styrene	0.0250	0.0275	0.0250	110	100	78.0-124			9.74	20
1,3-Dichloropropene	0.0500	0.0558	0.0517	112	103	25.0-175			7.63	20
1,1,1,2-Tetrachloroethane	0.0250	0.0267	0.0237	107	94.9	75.0-122			12.0	20
1,1,2,2-Tetrachloroethane	0.0250	0.0274	0.0250	110	100	60.0-140			9.00	20
Tetrachloroethene	0.0250	0.0282	0.0254	113	101	70.0-130			10.5	20
Toluene	0.0250	0.0254	0.0225	101	90.1	70.0-130			11.8	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0308	0.0299	123	120	61.0-136			2.83	20
1,2,3-Trichlorobenzene	0.0250	0.0252	0.0235	101	94.2	61.0-133			6.71	20
1,2,4-Trichlorobenzene	0.0250	0.0234	0.0221	93.7	88.4	69.0-129			5.85	20
1,1,1-Trichloroethane	0.0250	0.0285	0.0269	114	108	70.0-130			5.90	20
1,1,2-Trichloroethane	0.0250	0.0274	0.0244	110	97.6	70.0-130			11.7	20
Trichloroethene	0.0250	0.0281	0.0270	112	108	65.0-135			3.88	20
Trichlorofluoromethane	0.0250	0.0370	0.0347	148	139	50.0-150			6.43	20
1,2,3-Trichloropropane	0.0250	0.0269	0.0242	108	96.6	72.0-124			10.8	20
1,2,4-Trimethylbenzene	0.0250	0.0251	0.0238	100	95.1	75.0-120			5.30	20
1,3,5-Trimethylbenzene	0.0250	0.0259	0.0237	104	95.0	75.0-120			8.82	20
Vinyl chloride	0.0250	0.0297	0.0285	119	114	5.00-195			4.22	20
Xylenes, Total	0.0750	0.0778	0.0701	104	93.5	77.0-120			10.4	20
o-Xylene	0.0250	0.0261	0.0236	104	94.5	78.0-120			10.1	20
m&p-Xylenes	0.0500	0.0517	0.0465	103	92.9	77.0-120			10.7	20
(S) Toluene-d8				*93.1*	*85.0*	*80.0-120*				
(S) 4-Bromofluorobenzene				*98.0*	*89.5*	*80.0-120*				
(S) 1,2-Dichloroethane-d4				*110*	*114*	*70.0-130*				

Method Blank (MB)

(MB) R3413293-1 05/21/19 04:35

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethylene Dibromide	U		0.00000240	0.0000100
1,2-Dibromo-3-Chloropropane	U		0.00000430	0.0000200

L1100011-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1100011-02 05/21/19 05:23 • (DUP) R3413293-3 05/21/19 05:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethylene Dibromide	ND	0.000	1	0.000		20
1,2-Dibromo-3-Chloropropane	ND	0.000	1	0.000		20

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

(LCS) R3413293-4 05/21/19 07:24 • (LCSD) R3413293-5 05/21/19 09:50

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 %
Ethylene Dibromide	0.000250	0.000270	0.000281	108	112	70.0-130			3.99	20
1,2-Dibromo-3-Chloropropane	0.000250	0.000281	0.000287	112	115	70.0-130			2.11	20

L1100011-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1100011-03 05/21/19 04:59 • (MS) R3413293-2 05/21/19 04:47

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ethylene Dibromide	0.000100	ND	0.000127	127	1	70.0-130	
1,2-Dibromo-3-Chloropropane	0.000100	ND	0.000124	124	1	70.0-130	

Method Blank (MB)

(MB) R3413206-1 05/20/19 11:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethylene glycol	U		0.492	5.00
(S) 1,3-Propanediol	*71.1*			*28.0-145*

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

(LCS) R3413206-2 05/20/19 11:24 • (LCSD) R3413206-3 05/20/19 11:42

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 %
Ethylene glycol	90.0	95.4	95.5	106	106	80.0-120			0.105	20
(S) 1,3-Propanediol				*73.3*	*71.2*	*28.0-145*				

L1100514-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100514-01 05/20/19 12:54 • (MS) R3413206-4 05/20/19 16:35 • (MSD) R3413206-5 05/20/19 16:52

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 %
Ethylene glycol	90.0	U	94.5	98.2	105	109	1	62.0-136			3.84	20
(S) 1,3-Propanediol					*70.4*	*82.4*		*28.0-145*				

Method Blank (MB)

(MB) R3413169-1 05/21/19 01:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4,5-TP (Silvex)	U		0.000845	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	*114*			*14.0-158*

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

(LCS) R3413169-2 05/21/19 01:43 • (LCSD) R3413169-3 05/21/19 01:56

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 %
2,4,5-TP (Silvex)	0.00500	0.00451	0.00525	90.2	105	50.0-125			15.2	20
(S) 2,4-Dichlorophenyl Acetic Acid				*95.4*	*112*	*14.0-158*				

Method Blank (MB)

(MB) R3413718-1 05/21/19 21:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Azinphos-Methyl	U		0.000140	0.00100
Chlorpyrifos	U		0.000133	0.00100
Demeton,-O and -S	U		0.0000680	0.00200
Diazinon	U		0.000377	0.00100
Malathion	U		0.000116	0.00100
(S) Triphenyl Phosphate	*98.4*			*42.0-129*

Laboratory Control Sample (LCS)

(LCS) R3413718-2 05/21/19 23:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Azinphos-Methyl	0.00500	0.00474	94.8	43.0-142	
Chlorpyrifos	0.00500	0.00475	95.0	50.0-126	
Demeton,-O and -S	0.00250	0.00174	69.6	22.0-150	
Diazinon	0.00500	0.00511	102	54.0-130	
Malathion	0.00500	0.00452	90.4	47.0-121	
(S) Triphenyl Phosphate			*98.6*	*42.0-129*	

L1100493-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1100493-02 05/25/19 01:59 • (MS) R3415288-1 05/25/19 02:30 • (MSD) R3415288-2 05/25/19 03:02

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 %
Azinphos-Methyl	0.00500	U	0.00456	0.00453	91.2	90.6	1	29.0-157			0.660	20
Chlorpyrifos	0.00500	U	0.00444	0.00430	88.8	86.0	1	42.0-131			3.20	20
Demeton,-O and -S	0.00250	U	0.00213	0.00190	85.2	76.0	1	30.0-152			11.4	20
Diazinon	0.00500	U	0.00506	0.00474	101	94.8	1	47.0-134			6.53	20
Malathion	0.00500	U	0.00423	0.00418	84.6	83.6	1	39.0-126			1.19	20
(S) Triphenyl Phosphate					*90.8*	*88.0*		*42.0-129*				

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

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.

Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
(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 Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
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.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

ACCREDITATIONS & LOCATIONS

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

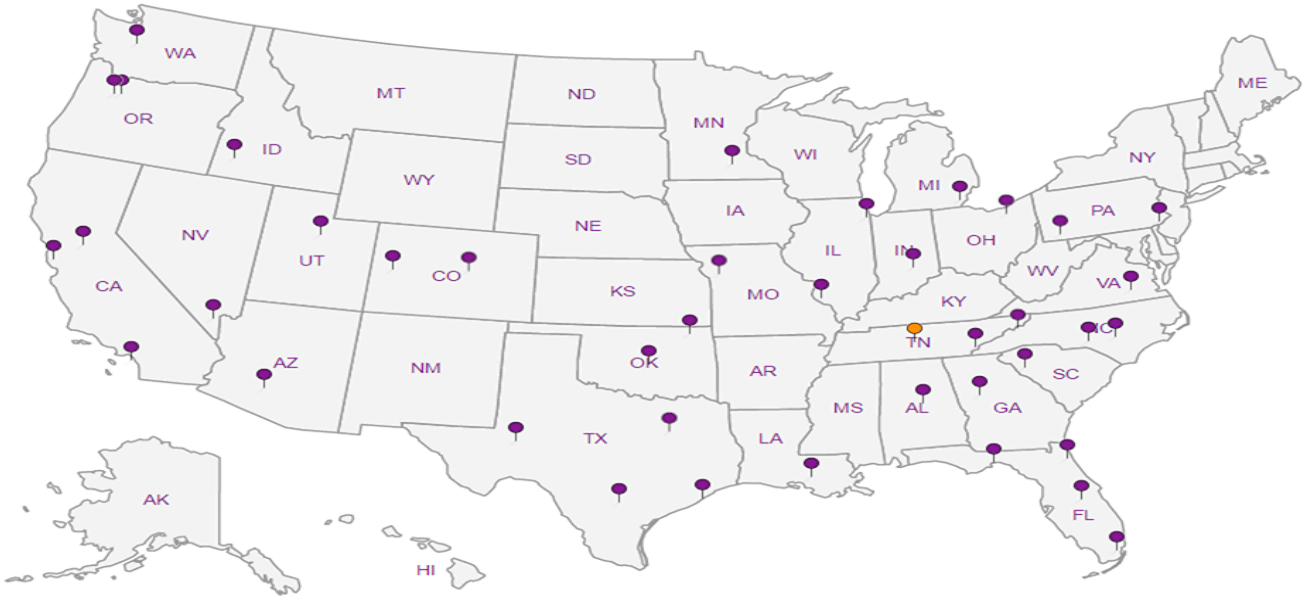
Third Party Federal Accreditations

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.



Cardno – Newark, DE

121 Continental Drive Suite 308
Newark, DE 19713

Billing Information:
Accounts Payable
121 Continental Drive Suite 308
Newark, DE 19713

Report to: Art Saunders

Email To: Art.Saunders@cardno.com

Project Description:

City/State Collected:

Phone: 610-220-3957
Fax:

Client Project #

Lab Project # CARDNONDE-ITC

Collected by (print):

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

Pres Chk

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

L # 1100359

Table # 1100360

Acctnum: CARDNONDE

Template: T150425

Prelogin: P709319

TSR: 034 - Craig Cothron

PB:

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	1613/DIOXIN/FURANS 1L-Amb-NoPres	[illegible]	[illegible]	CHLORIDE 250mlHDPE-NoPres	COD,NH3,PT,TKN,NORG 250mlHDPE-H2SO4	ETHGLY 40mlAmb-NoPres-WT	HG 245.7 Other	Metals 250mlHDPE-HNO3	OGHEX 1L-Clr-Add HCl	PFOS 250mlHDPE-NoPres	Remarks	Sample # (lab only)
		DW				27		X	X	X	X	X		X				
		WW				2									X			
		GW				4	X									X		
		GW				1							X					
WW-20190516-002-Day14	Grab	WW	0	5/16/19	1130	1									X			-02
WW-20190516-002-Day14	Comp	WW	0	5/16/19	1130		X	X	X	X	X	X	X	X		X		01

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

Remarks: *NOTE - composite 4 vials for V624.1AP9, SV504EDB/DBCP, and ETHGLY before running* *other* container for HG 245.7 is 500ml glass w/HCL

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
[signature]	5/17/19	1610	[signature]	2	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 0.7-0.1=0.8	Bottles Received: 3
[signature]	5/17/19	1930			
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:
			B Maxwell	5/18/19	0800

If preservation required by Login: Date/Time

Hold:

Condition: NCF ✓ OK

Cardno - Newark, DE

121 Continental Drive Suite 308
Newark, DE 19713

Billing Information:
Accounts Payable
121 Continental Drive Suite 308
Newark, DE 19713

Report to: Art Saunders

Email To: Art.Saunders@cardno.com

Project Description:

City/State Collected:

Phone: 610-220-3957
Fax:

Client Project #: Deer Park Fire

Lab Project #: CARDNONDE-ITC

Collected by (print): Stephanie Healey

Site/Facility ID #: 002

P.O. #

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y X

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

Date Results Needed

Quote #

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	SULFIDE 125mlAmb-S-NaOH+ZnAc	SV1657 1L-Amb-No Pres	SV504 40mlAmb-NoPres-WT	SV8151 1L-Amb-No Pres	TDS 250mlHDPE-NoPres	TOC 250mlAmb-HCl	TSS 1L-HDPE-NoPres	~~Total Cyanide 250mlHDPEAmb-NaOH~~	V624.1AP9 40mlAmb-HCl		Remarks	Sample # (lab only)
		~~DW~~				~~27~~	X	X	X	X	X	X	X		X			
		~~WW~~				~~2~~								X				
		~~GW~~				~~1~~												
		~~GW~~				~~1~~												
WW-20190516-002-Day14	Comp	WW	0	5/16/19	1130		X	X	X	X	X	X	X		X		[illegible]	01

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

Remarks: *NOTE - composite 4 vials for V624.1AP9, SV504EDB/DBCP, and ETHGLY before running* *other* container for HG 245.7 is 500ml glass w/HCL

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier X

Tracking #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
[signature]	5/17/19	1610	[signature]	2	
Relinquished by : (Signature) [signature]	Date: 5/17/19	Time: 1930	Received by: (Signature)	Temp: 0.7+0.1=0.8°C	Bottles Received: 31
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) B Maxwell	Date: 5/18/19	Time: 0800

Hold:

If preservation required by Login: Date/Time

Condition: NCF / OK

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

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

L# 1100359

E072

Acctnum: CARDNONDE
Template: T150425
Prelogin: P709319
TSR: 034 - Craig Cothron
PB:
Shipped Via: FedEX Ground