

Chemical Analysis Report

CEN-DIST-2018-01-25-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Lorraine / Silver (Lake Co) / Lady Lk**
Request ID: **RQ-2018-01-08-29**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 14-FEB-2018 14:31



NON-CONFORMANCE REPORT INCLUDED

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

**Sample Location: LADY LAKE @ CENTER OF NORTH LOBE
(1342A)**

Collection Date/Time: 01/24/2018 10:35

Field ID: G1CE0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1961993	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P338807	
	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P338912	
		Sulfate	7.3	Y	mg SO4/L	P338914	
	SM 2120 B	Color (true)	16		PCU	P338809	
	SM 2320 B-97	Total Alkalinity	0.98	IY	mg CaCO3/L	P339015	
	SM 2540 C-97	TDS	34	Y	mg/L	P339124	
	SM 2540 D-97	TSS	2	UY	mg/L	P339063	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P339020	
1961995	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P339120	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P338829	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P338965	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P338955	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P339209	
1961997	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338838	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

**Sample Location: LAKE LORRAINE @ NE CORNER OF LAKE
(2829A)**

Collection Date/Time: 01/24/2018 11:30

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1961994	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P338807	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P338912	
		Sulfate	1.7	Y	mg SO4/L	P338914	
	SM 2120 B	Color (true)	82	A	PCU	P338769	
	SM 2320 B-97	Total Alkalinity	49	Y	mg CaCO3/L	P339015	
	SM 2540 C-97	TDS	126	Y	mg/L	P339124	
	SM 2540 D-97	TSS	2	UY	mg/L	P339063	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P339020	
1961996	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P339121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P338829	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P338965	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P338955	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P339209	
1961998	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338838	

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment:							
EPA 300.0 Rev. 2.1: Sulfate: Sample was left out at room temperature overnight, should be stored below 6 degC.							
SM 2320 B-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.							
SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.							
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.							

Sample Location: LAKE LORRAINE @ NE CORNER OF LAKE (2829A)

Collection Date/Time: 01/24/2018 11:30

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962011	EPA 8321B	Sucralose**	0.096		ug/L	P338739	
	USGS O-2060-01	2,4-D	0.0086		ug/L	P338701	
		Diuron	0.0020	U	ug/L	P338701	
		Fenuron	0.0080	U	ug/L	P338701	
		Imidacloprid	0.0020	U	ug/L	P338701	MS
		Bentazon	8.0E-04	U	ug/L	P338701	
		Linuron	0.0040	U	ug/L	P338701	
		Acetaminophen**	0.0080	U	ug/L	P338701	
		MCP	0.0020	U	ug/L	P338701	
		Carbamazepine**	4.0E-04	U	ug/L	P338701	
		Triclopyr**	0.0040	U	ug/L	P338701	
		Primidone**	0.0040	U	ug/L	P338701	
		Fluridone**	0.12		ug/L	P338701	

Sample Location: SILVER LAKE @ CENTER (2825A)

Collection Date/Time: 01/24/2018 12:22

Field ID: G1CE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1962012	EPA 8321B	Sucralose**	0.24		ug/L	P338739	
	USGS O-2060-01	2,4-D	0.028		ug/L	P338701	
		Diuron	0.0020	U	ug/L	P338701	
		Fenuron	0.0080	U	ug/L	P338701	
		Imidacloprid	0.0020	U	ug/L	P338701	MS
		Bentazon	0.0014	I	ug/L	P338701	
		Linuron	0.0040	U	ug/L	P338701	
		Acetaminophen**	0.0080	U	ug/L	P338701	
		MCP	0.0020	U	ug/L	P338701	
		Carbamazepine**	4.0E-04	U	ug/L	P338701	
		Triclopyr**	0.0040	U	ug/L	P338701	
		Primidone**	0.0040	U	ug/L	P338701	
		Fluridone**	4.0E-04	U	ug/L	P338701	

Non-Conformance Report

Non-Conformance Report

NCR ID: 6886

Event(s)

CEN-DIST-2018-01-25-01
 CEN-DIST-2018-01-25-01

Job(s)

TLH-2018-01-25-26
 TLH-2018-01-25-26

Sample(s)

1961993
 1961994

Test(s)

NCR Type: CUSTODY

NCR Category: General

Observation: Samples stored at room temperature overnight on 1/25/2018 because of an oversight. Samples require refrigeration for proper preservation.

Resolution: Samples were returned to refrigerator in the afternoon on 1/26/2018. All analysis done after 1/25/2018 will be Y qualified.

Authorized by/Date: Bettina S. Steinbock 2/9/2018

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test. Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P338807

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P338912

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P338914

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P339120

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P339121

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P338829

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338965

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338955

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338838

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P338739

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P338769

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P338809

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339015

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P339124

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339063

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P339020

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P339209

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: USGS O-2060-01
Batch ID: P338701

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338912

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338914

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339120

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	102		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P338739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	111		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P339015

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P339209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P338701

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	76.3		P	40 - 150
Acetaminophen	102		P	30 - 150
Bentazon	79.7		P	30 - 150
Carbamazepine	106		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P338701

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	92.8		P	40 - 150
Fenuron	120		P	40 - 150
Fluridone	112		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	103		P	40 - 150
MCP	77.2		P	40 - 150
Primidone	118		P	40 - 150
Triclopyr	76.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961961	Chloride	97.7		P	90 - 110
1961993	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961961	Sulfate	97.1		P	90 - 110
1961993	Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961781	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961996	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961995	Kjeldahl Nitrogen	94.4	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961995	NO2NO3-N	108	107	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P338955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961852	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P338838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961947	O-Phosphate-P	95.7	96.5	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P338739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961510	Sucralose	100	119	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P339020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961779	Fluoride	97.1	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P339209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961962	Organic Carbon	103		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P338701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961605	2,4-D	123	118	P/P	40 - 150
1961605	Acetaminophen	138	137	P/P	30 - 150
1961605	Bentazon	67.7	66.5	P/P	30 - 150
1961605	Carbamazepine	118	122	P/P	40 - 150
1961605	Diuron	102	103	P/P	40 - 150
1961605	Fenuron	105	108	P/P	40 - 150
1961605	Fluridone	104	110	P/P	40 - 150
1961605	Imidacloprid	196	189	F/F	40 - 160
1961605	Linuron	105	108	P/P	40 - 150
1961605	MCP	95.4	91.8	P/P	40 - 150
1961605	Primidone	123	125	P/P	40 - 150
1961605	Triclopyr	105	99.8	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P338807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961849	Turbidity	2.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961961	Chloride	0.0654	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961961	Sulfate	0.0906	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961781	Ammonia-N	0.231	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961996	Ammonia-N	0.598	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961995	Kjeldahl Nitrogen	1.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961995	NO2NO3-N	0.909	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961852	Total-P	0.803	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961947	O-Phosphate-P	0.457	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P338739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961510	Sucralose	14.1	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P338769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961994	Color (true)	1.01	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P338809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962022	Color (true)	8.08	Sample	P	0 - 20

Reference Method: SM 2540 C-97
Batch ID: P339124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962034	TDS	0.839	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P339020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961779	Fluoride	0.938	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P339209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961962	Organic Carbon	0.304	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P338701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961605	2,4-D	4.40	Spike	P	0 - 30
1961605	Acetaminophen	1.09	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P338701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961605	Bentazon	1.79	Spike	P	0 - 30
1961605	Carbamazepine	2.50	Spike	P	0 - 30
1961605	Diuron	1.36	Spike	P	0 - 30
1961605	Fenuron	3.20	Spike	P	0 - 30
1961605	Fluridone	5.77	Spike	P	0 - 30
1961605	Imidacloprid	3.48	Spike	P	0 - 30
1961605	Linuron	2.35	Spike	P	0 - 30
1961605	MCP	3.85	Spike	P	0 - 30
1961605	Primidone	1.29	Spike	P	0 - 30
1961605	Triclopyr	5.25	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1962011
Field Sample ID: G1CE0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	122	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.8	P	30 - 160
EPA 8321B	Diuron-d6	81.4	P	30 - 160
EPA 8321B	Primidone-d5	72.6	P	30 - 160
EPA 8321B	Sucralose-d6	115	P	40 - 160
USGS O-2060-01	2,4-D-d3	69.3	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	122	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	92.8	P	30 - 160
USGS O-2060-01	Diuron-d6	81.4	P	30 - 160
USGS O-2060-01	Primidone-d5	72.6	P	30 - 160
USGS O-2060-01	Sucralose-d6	115	P	40 - 160

Lab Sample ID: 1962012
Field Sample ID: G1CE0007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	85.6	P	30 - 160
EPA 8321B	Diuron-d6	76.4	P	30 - 160
EPA 8321B	Primidone-d5	90.0	P	30 - 160
EPA 8321B	Sucralose-d6	119	P	40 - 160
USGS O-2060-01	2,4-D-d3	52.6	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	107	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	85.6	P	30 - 160
USGS O-2060-01	Diuron-d6	76.4	P	30 - 160
USGS O-2060-01	Primidone-d5	90.0	P	30 - 160
USGS O-2060-01	Sucralose-d6	119	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81616

Included Lab Sample IDs: 1961993, 1961994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	101	P/P	90 - 110
Chloride	97.6	103	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110
Sulfate	98.0	102	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A81639

Included Lab Sample IDs: 1961994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	104	P/P	85 - 115

Reference Method: SM 2120 B

Run ID: A81652

Included Lab Sample IDs: 1961993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A81653

Included Lab Sample IDs: 1961993, 1961994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A81660

Included Lab Sample IDs: 1961997, 1961998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.0	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A81671

Included Lab Sample IDs: 1962011, 1962012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.0	102	P/P	50 - 150
Acetaminophen	103	109	P/P	60 - 150
Bentazon	104	101	P/P	50 - 150
Carbamazepine	107	110	P/P	60 - 150
Diuron	109	114	P/P	60 - 150
Fenuron	111	110	P/P	60 - 150
Fluridone	121	121	P/P	60 - 160
Imidacloprid	109	98.2	P/P	60 - 150
Linuron	114	113	P/P	60 - 150
MCPP	88.5	95.5	P/P	50 - 150
Primidone	116	104	P/P	60 - 150
Triclopyr	90.7	99.6	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81701

Included Lab Sample IDs: 1961995, 1961996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81718

Included Lab Sample IDs: 1961995, 1961996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A81727

Included Lab Sample IDs: 1962011, 1962012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	114	103	P/P	60 - 150

Reference Method: SM 2320 B-97

Run ID: A81736

Included Lab Sample IDs: 1961993, 1961994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A81736

Included Lab Sample IDs: 1961993, 1961994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81742

Included Lab Sample IDs: 1961995, 1961996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81777

Included Lab Sample IDs: 1961995, 1961996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81810

Included Lab Sample IDs: 1961995, 1961996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	94.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	
						SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.55	
EPA 300.0 Rev. 2.1	Chloride	97.5	97.7	98.4		0.0654	
	Sulfate	96.4	97.1	97.5		0.0906	
EPA 350.1 Rev. 2.0	Ammonia-N	103	103	103			0.231
	Ammonia-N	102	101	102			0.598
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	94.4	96.8			1.69
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	106	108	107			0.909
EPA 365.1 Rev. 2.0	Total-P	106	106	106			0.803
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	95.7	96.5			0.457
EPA 8321B	Sucralose	111	100	119			14.1
SM 2120 B	Color (true)					1.01	
	Color (true)					8.08	
SM 2320 B-97	Total Alkalinity	101					
SM 2540 C-97	TDS					0.839	
SM 4500 F-C-97	Fluoride	96.1	97.1	98.0			0.938
SM 5310 B-00	Organic Carbon	93.2	103				0.304
USGS O-2060-01	2,4-D	76.3	118	123			4.40
	Acetaminophen	102	138	137			1.09
	Bentazon	79.7	66.5	67.7			1.79
	Carbamazepine	106	118	122			2.50
	Diuron	92.8	102	103			1.36
	Fenuron	120	105	108			3.20
	Fluridone	112	104	110			5.77
	Imidacloprid	115	196	189			3.48
	Linuron	103	105	108			2.35
	MCP	77.2	91.8	95.4			3.85
	Primidone	118	123	125			1.29
	Triclopyr	76.1	99.8	105			5.25

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1961993, 1961994
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1961993, 1961994
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1961993, 1961994
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1961995, 1961996
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1961995, 1961996
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1961995, 1961996
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1961995, 1961996

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1961997, 1961998
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1962011, 1962012
SM 2120 B / E31780	True Color measured at 450 nm	1961993, 1961994
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1961993, 1961994
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1961993, 1961994
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1961993, 1961994
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1961993, 1961994
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1961995, 1961996
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1962011, 1962012
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1962011, 1962012

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	01/25/2018			01/25/2018 16:15	DeAsia Armster	1961993, 1961994
EPA 300.0 Rev. 2.1	01/25/2018			01/26/2018	Julia Storbeck	1961993, 1961994
EPA 350.1 Rev. 2.0	01/25/2018			01/31/2018	Ping Hua	1961995, 1961996
EPA 351.2 Rev. 2.0	01/25/2018	01/26/2018	Adrian Shelby	01/29/2018	Joseph Suarez	1961995, 1961996
EPA 353.2 Rev. 2.0	01/25/2018			01/29/2018	Beverly Y. Sanders	1961995, 1961996
EPA 365.1 Rev. 2.0	01/25/2018	01/29/2018	Sima Feizi	01/30/2018	Beverly Y. Sanders	1961995, 1961996
EPA 365.1 Rev. 2.0 dissolved	01/25/2018			01/25/2018 16:16	Megan Treadwell	1961997
	01/25/2018			01/25/2018 16:17	Megan Treadwell	1961998
EPA 8321B	01/25/2018	01/26/2018	Juyoung Kim	01/26/2018	Juyoung Kim	1962011
	01/25/2018	01/26/2018	Juyoung Kim	01/27/2018	Juyoung Kim	1962012
SM 2120 B	01/25/2018			01/25/2018 12:17	Tanya Welborn	1961994
	01/25/2018			01/25/2018 15:26	Tanya Welborn	1961993
SM 2320 B-97	01/25/2018			01/30/2018	Lauren Bottorf	1961993, 1961994
SM 2540 C-97	01/25/2018			01/26/2018	DeAsia Armster	1961993, 1961994
SM 2540 D-97	01/25/2018			01/26/2018	DeAsia Armster	1961993, 1961994
SM 4500 F-C-97	01/25/2018			01/30/2018	Lauren Bottorf	1961993, 1961994
SM 5310 B-00	01/25/2018			02/01/2018	Megan Treadwell	1961995, 1961996
USGS O-2060-01	01/25/2018	01/25/2018	Hoor Shaik	01/26/2018	Julie Michelle Frank	1962011, 1962012
	01/25/2018	01/25/2018	Hoor Shaik	01/27/2018	Julie Michelle Frank	1962011, 1962012