

Chemical Analysis Report

CEN-DIST-2017-10-18-01

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

Event Description: **Lk Lorraine + LVI + D&B**
Request ID: **RQ-2017-10-16-36**
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: Liang Lin, Environmental Administrator

Date Certified: 07-NOV-2017 13:00

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: Lake Lorraine @ 50m SW of Center

Collection Date/Time: 10/17/2017 12:01

Field ID: G1CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937779	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P333628	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P333835	
		Sulfate	2.6		mg SO4/L	P333839	
	SM 2120 B	Color (true)	140		PCU	P333635	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P333853	
	SM 2540 C-97	TDS	138	A	mg/L	P334032	
	SM 2540 D-97	TSS	4	IA	mg/L	P334328	
1937780	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P333857	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P333967	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P333876	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P334003	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P333884	
1937781	SM 5310 B-00	Organic Carbon	26		mg C/L	P334243	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P333655	
1937807	EPA 8321B	Sucralose**	0.071		ug/L	P333672	
	USGS O-2060-01	2,4-D	0.56		ug/L	P333573	
		Diuron	8.0E-04	U	ug/L	P333573	
		Fenuron	0.0080	U	ug/L	P333573	
		Imidacloprid	0.0057		ug/L	P333573	MS
		Bentazon	8.0E-04	UJ	ug/L	P333573	LCS, MS
		Linuron	0.0040	U	ug/L	P333573	
		Acetaminophen**	0.0080	U	ug/L	P333573	
		MCP	0.0020	U	ug/L	P333573	
		Carbamazepine**	4.0E-04	U	ug/L	P333573	
		Triclopyr**	0.0040	U	ug/L	P333573	
		Primidone**	0.0040	U	ug/L	P333573	
		Fluridone**	0.10		ug/L	P333573	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

USGS O-2060-01: Results confirmed in re-analysis.

Sample Location: Lake Lorraine @ 50m SW of Center_DUP

Collection Date/Time: 10/17/2017 12:05

Field ID: G1CE0060_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937809	EPA 8321B	Sucralose**	0.069		ug/L	P333672	
	USGS O-2060-01	2,4-D	0.56		ug/L	P333573	
		Diuron	8.0E-04	U	ug/L	P333573	
		Fenuron	0.0080	U	ug/L	P333573	
		Imidacloprid	0.0054		ug/L	P333573	MS
		Bentazon	8.0E-04	UJ	ug/L	P333573	LCS, MS
		Linuron	0.0040	U	ug/L	P333573	
		Acetaminophen**	0.0080	U	ug/L	P333573	
		MCP	0.0020	U	ug/L	P333573	

Field ID: G1CE0060_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937809	USGS O-2060-01	Carbamazepine**	4.0E-04	U	ug/L	P333573	
		Triclopyr**	0.0040	U	ug/L	P333573	
		Primidone**	0.0040	U	ug/L	P333573	
		Fluridone**	0.13		ug/L	P333573	

Ref. Method and Comment:
 USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.
 USGS O-2060-01: Results confirmed in re-analysis.

Sample Location: Lake Lorraine @ NE Corner of Lake

Collection Date/Time: 10/17/2017 12:12

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937808	EPA 8321B	Sucralose**	0.064		ug/L	P333672	
	USGS O-2060-01	2,4-D	0.90		ug/L	P333573	
		Diuron	8.0E-04	U	ug/L	P333573	
		Fenuron	0.0080	U	ug/L	P333573	
		Imidacloprid	0.0043		ug/L	P333573	MS
		Bentazon	8.0E-04	UJ	ug/L	P333573	LCS, MS
		Linuron	0.0040	U	ug/L	P333573	
		Acetaminophen**	0.0080	U	ug/L	P333573	
		MCP	0.0020	U	ug/L	P333573	
		Carbamazepine**	4.0E-04	U	ug/L	P333573	
		Triclopyr**	0.0040	U	ug/L	P333573	
		Primidone**	0.0040	U	ug/L	P333573	
		Fluridone**	0.089		ug/L	P333573	

Ref. Method and Comment:
 USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P333628

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P333835

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P333839

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333967

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333876

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334003

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333884

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333655

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

Reference Method: EPA 8321B
Batch ID: P333672

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P333635

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333853

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

Reference Method: SM 2540 C-97
Batch ID: P334032

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P334328

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P333857

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P334243

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

Reference Method: USGS O-2060-01
 Batch ID: P333573

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	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCP	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: P333835

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333876

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334003

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.1		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P333672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	81.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P333853

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

Reference Method: SM 4500 F-C-97
Batch ID: P333857

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P334243

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P333573

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	72.0		P	40 - 150
Acetaminophen	121		P	30 - 150
Bentazon	24.3		F	30 - 150
Carbamazepine	123		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P333573

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	113		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	106		P	40 - 150
Imidacloprid	101		P	40 - 160
Linuron	109		P	40 - 150
MCP	66.1		P	40 - 150
Primidone	102		P	40 - 150
Triclopyr	67.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937693	Chloride	98.6		P	90 - 110
1937785	Chloride	94.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937693	Sulfate	98.0		P	90 - 110
1937785	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937765	Ammonia-N	95.1	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P333876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937694	Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P334003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937780	NO ₂ NO ₃ -N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P333884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937780	Total-P	102	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P333655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937838	O-Phosphate-P	93.9	98.5	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P333672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937810	Sucralose	54.8	53.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P333857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938061	Fluoride	96.6	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P334243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937788	Organic Carbon	94.4	98.1	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P333573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938002	2,4-D	57.3	57.6	P/P	40 - 150
1938002	Acetaminophen	104	103	P/P	30 - 150
1938002	Bentazon	16.1	14.4	F/F	30 - 150
1938002	Carbamazepine	135	138	P/P	40 - 150
1938002	Diuron	102	108	P/P	40 - 150
1938002	Fenuron	101	110	P/P	40 - 150
1938002	Fluridone	105	107	P/P	40 - 150
1938002	Imidacloprid	162	164	F/F	40 - 160
1938002	Linuron	105	106	P/P	40 - 150
1938002	MCP	47.1	49.3	P/P	40 - 150
1938002	Primidone	120	109	P/P	40 - 150
1938002	Triclopyr	48.3	45.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P333628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937462	Turbidity	0.445	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937785	Chloride	1.69	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937785	Sulfate	1.62	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937765	Ammonia-N	0.0705	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937694	Kjeldahl Nitrogen	0.697	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937780	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937780	Total-P	3.70	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937838	O-Phosphate-P	3.89	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P333672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937810	Sucralose	2.12	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P333635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937693	Color (true)	1.57	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P333853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938061	Total Alkalinity	0.354	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P334032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937779	TDS	3.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P333857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938061	Fluoride	0.940	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P334243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937788	Organic Carbon	2.52	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P333573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938002	2,4-D	0.627	Spike	P	0 - 30
1938002	Acetaminophen	0.988	Spike	P	0 - 30
1938002	Bentazon	11.0	Spike	P	0 - 30
1938002	Carbamazepine	1.93	Spike	P	0 - 30
1938002	Diuron	5.10	Spike	P	0 - 30
1938002	Fenuron	8.58	Spike	P	0 - 30
1938002	Fluridone	2.53	Spike	P	0 - 30
1938002	Imidacloprid	1.12	Spike	P	0 - 30
1938002	Linuron	0.284	Spike	P	0 - 30
1938002	MCCP	4.48	Spike	P	0 - 30
1938002	Primidone	9.77	Spike	P	0 - 30
1938002	Triclopyr	6.20	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: 1937807
Field Sample ID: G1CE0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	83.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.6	P	30 - 160
EPA 8321B	Diuron-d6	61.1	P	30 - 160
EPA 8321B	Primidone-d5	76.6	P	30 - 160
EPA 8321B	Sucralose-d6	49.2	P	40 - 160
USGS O-2060-01	2,4-D-d3	74.0	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	83.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	92.6	P	30 - 160
USGS O-2060-01	Diuron-d6	61.1	P	30 - 160
USGS O-2060-01	Primidone-d5	76.6	P	30 - 160
USGS O-2060-01	Sucralose-d6	49.2	P	40 - 160

Lab Sample ID: 1937808
Field Sample ID: G1CE0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	85.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	93.1	P	30 - 160
EPA 8321B	Diuron-d6	66.0	P	30 - 160
EPA 8321B	Primidone-d5	75.3	P	30 - 160
EPA 8321B	Sucralose-d6	50.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	80.0	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	85.5	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	93.1	P	30 - 160
USGS O-2060-01	Diuron-d6	66.0	P	30 - 160
USGS O-2060-01	Primidone-d5	75.3	P	30 - 160
USGS O-2060-01	Sucralose-d6	50.4	P	40 - 160

Lab Sample ID: 1937809
Field Sample ID: G1CE0060_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	91.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	93.4	P	30 - 160
EPA 8321B	Diuron-d6	61.0	P	30 - 160
EPA 8321B	Primidone-d5	77.3	P	30 - 160
EPA 8321B	Sucralose-d6	47.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	77.4	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	91.2	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	93.4	P	30 - 160
USGS O-2060-01	Diuron-d6	61.0	P	30 - 160
USGS O-2060-01	Primidone-d5	77.3	P	30 - 160
USGS O-2060-01	Sucralose-d6	47.5	P	40 - 160

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A79644

Included Lab Sample IDs: 1937779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A79646

Included Lab Sample IDs: 1937779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	99.2	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A79656

Included Lab Sample IDs: 1937781

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	96.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79726

Included Lab Sample IDs: 1937779

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

Reference Method: SM 2320 B-97

Run ID: A79730

Included Lab Sample IDs: 1937779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79730

Included Lab Sample IDs: 1937779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79772

Included Lab Sample IDs: 1937780

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79778

Included Lab Sample IDs: 1937780

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79783

Included Lab Sample IDs: 1937780

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A79847

Included Lab Sample IDs: 1937807, 1937808, 1937809

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	89.2	95.4	P/P	50 - 150
2,4-D	98.0	89.2	P/P	50 - 150
Acetaminophen	110	109	P/P	60 - 150
Bentazon	93.8	92.6	P/P	50 - 150
Carbamazepine	110	111	P/P	60 - 150
Diuron	106	113	P/P	60 - 150
Fenuron	106	104	P/P	60 - 150
Fluridone	109	110	P/P	60 - 160
Imidacloprid	107	98.7	P/P	60 - 150
Linuron	113	110	P/P	60 - 150
MCPP	92.6	97.9	P/P	50 - 150
Primidone	103	94.4	P/P	60 - 150
Triclopyr	94.0	101	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79858

Included Lab Sample IDs: 1937780

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

Reference Method: SM 5310 B-00

Run ID: A79871

Included Lab Sample IDs: 1937780

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A79918

Included Lab Sample IDs: 1937807, 1937808, 1937809

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	82.9	89.3	P/P	60 - 150
Sucralose	89.3	91.4	P/P	60 - 150

* 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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.445	
EPA 300.0 Rev. 2.1	Chloride	100	94.1	98.6	1.69	
	Sulfate	98.7	96.2	98.0	1.62	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	95.1	95.0		0.0705
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	106	105		0.697
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	100	100		0.499
EPA 365.1 Rev. 2.0	Total-P	99.4	102	106		3.70
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	93.9	98.5		3.89
EPA 8321B	Sucralose	81.5	54.8	53.2		2.12
SM 2120 B	Color (true)				1.57	
SM 2320 B-97	Total Alkalinity	101			0.354	
SM 2540 C-97	TDS				3.64	
SM 4500 F-C-97	Fluoride	95.9	96.6	97.8		0.940
SM 5310 B-00	Organic Carbon	97.5	94.4	98.1		2.52
USGS O-2060-01	2,4-D	72.0	57.3	57.6		0.627
	Acetaminophen	121	104	103		0.988
	Bentazon	24.3	16.1	14.4		11.0
	Carbamazepine	123	135	138		1.93
	Diuron	113	102	108		5.10
	Fenuron	112	101	110		8.58
	Fluridone	106	105	107		2.53
	Imidacloprid	101	162	164		1.12
	Linuron	109	105	106		0.284
	MCPP	66.1	47.1	49.3		4.48
	Primidone	102	120	109		9.77
	Triclopyr	67.8	48.3	45.4		6.20

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1937779
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1937779
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1937779
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1937780
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1937780
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1937780
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1937780
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1937781
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1937807, 1937808, 1937809
SM 2120 B / E31780	True Color measured at 450 nm	1937779
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1937779
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1937779
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1937779
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1937779
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1937780
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1937807, 1937808, 1937809
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1937807, 1937808, 1937809

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	10/18/2017			10/18/2017 16:16	DeAsia Armster	1937779
EPA 300.0 Rev. 2.1	10/18/2017			10/19/2017	Julia Storbeck	1937779
EPA 350.1 Rev. 2.0	10/18/2017			10/24/2017	Sofia Elnemr	1937780
EPA 351.2 Rev. 2.0	10/18/2017	10/25/2017	Adrian Shelby	10/26/2017	Joseph Suarez	1937780
EPA 353.2 Rev. 2.0	10/18/2017			10/25/2017	Beverly Y. Sanders	1937780
EPA 365.1 Rev. 2.0	10/18/2017	10/23/2017	Sima Feizi	10/24/2017	Lipi Saha	1937780
EPA 365.1 Rev. 2.0 dissolved	10/18/2017			10/18/2017 16:28	Megan Treadwell	1937781
EPA 8321B	10/18/2017	10/25/2017	Juyoung Kim	10/26/2017	Juyoung Kim	1937807, 1937808, 1937809
SM 2120 B	10/18/2017			10/18/2017 16:20	Tanya Welborn	1937779
SM 2320 B-97	10/18/2017			10/21/2017	Dale L. Simmons	1937779
SM 2540 C-97	10/18/2017			10/20/2017	Yijie Li	1937779
SM 2540 D-97	10/18/2017			10/20/2017	Yijie Li	1937779
SM 4500 F-C-97	10/18/2017			10/21/2017	Dale L. Simmons	1937779
SM 5310 B-00	10/18/2017			10/27/2017	Ping Hua	1937780
USGS O-2060-01	10/18/2017	10/19/2017	Hoor Shaik	10/25/2017	Julie Michelle Frank	1937807, 1937808, 1937809