

Chemical Analysis Report

CEN-DIST-2018-02-16-02

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

Event Description: **Lorraine / Silver + D&B / Lady**
Request ID: **RQ-2018-02-12-60**
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
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 08-MAR-2018 15:56

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: Lady Lake @ Center of North Lobe

Collection Date/Time: 02/15/2018 10:46

Field ID: G4CE0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968604	EPA 180.1 Rev. 2.0	Turbidity	1.5	A	NTU	P340112	
	EPA 300.0 Rev. 2.1	Chloride	9.3		mg Cl/L	P340401	
		Sulfate	7.3		mg SO4/L	P340402	
	SM 2120 B	Color (true)	19		PCU	P340109	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P340616	
	SM 2540 C-97	TDS	46		mg/L	P340777	
	SM 2540 D-97	TSS	2	U	mg/L	P340761	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P340618	
1968605	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P340679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P340404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P340496	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P340417	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P340534	
1968606	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P340155	

Ref. Method and Comment:

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

Sample Location: Lake Lorraine @ NE Corner of Lake

Collection Date/Time: 02/15/2018 11:28

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968601	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P340112	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P340401	
		Sulfate	1.7		mg SO4/L	P340402	
	SM 2120 B	Color (true)	100	A	PCU	P340109	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P340616	
	SM 2540 C-97	TDS	137		mg/L	P340777	
	SM 2540 D-97	TSS	2	U	mg/L	P340761	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P340618	
1968602	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P340679	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P340404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P340496	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P340417	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P340534	
1968603	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P340155	
1968614	EPA 8321B	2,4-D	0.0024	I	ug/L	P340165	
		Sucralose**	0.12		ug/L	P340095	
		Bentazon	8.0E-04	U	ug/L	P340165	
		MCP	0.0020	U	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	
		Imidacloprid	0.0020	U	ug/L	P340165	
		Diuron	0.0020	U	ug/L	P340165	
		Primidone**	0.0040	U	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968614	EPA 8321B	Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Imazapyr**	0.053		ug/L	P340165	MS
		Carbamazepine**	4.0E-04	U	ug/L	P340165	
		Fluridone**	0.15		ug/L	P340165	

Ref. Method and Comment:

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

Sample Location: Silver Lake @ Center

Collection Date/Time: 02/15/2018 12:19

Field ID: G1CE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968615	EPA 8321B	2,4-D	0.0087		ug/L	P340165	
		Sucralose**	0.21		ug/L	P340095	
		Bentazon	8.4E-04	I	ug/L	P340165	
		MCP	0.0020	U	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	
		Imidacloprid	0.0020	U	ug/L	P340165	
		Diuron	0.0020	U	ug/L	P340165	
		Primidone**	0.0040	U	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	
		Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Imazapyr**	0.0040	U	ug/L	P340165	MS
		Carbamazepine**	4.0E-04	U	ug/L	P340165	
		Fluridone**	8.0E-04	U	ug/L	P340165	

Sample Location: Silver Lake @ Center

Collection Date/Time: 02/15/2018 12:22

Field ID: G1CE0007DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968616	EPA 8321B	2,4-D	0.0087		ug/L	P340165	
		Sucralose**	0.21		ug/L	P340095	
		Bentazon	6.8E-04	T	ug/L	P340165	
		MCP	0.0020	U	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	
		Imidacloprid	0.0020	U	ug/L	P340165	
		Diuron	0.0020	U	ug/L	P340165	
		Primidone**	0.0040	U	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	
		Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Imazapyr**	0.0040	U	ug/L	P340165	MS
		Carbamazepine**	4.0E-04	U	ug/L	P340165	
		Fluridone**	8.0E-04	U	ug/L	P340165	

Sample Location: Field Blank

Collection Date/Time: 02/15/2018 12:40

Field ID: BLANK_02152018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968617	EPA 8321B	2,4-D	0.0020	U	ug/L	P340165	
		Sucralose**	0.010	U	ug/L	P340095	
		Bentazon	8.0E-04	U	ug/L	P340165	
		MCPD	0.0020	U	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	
		Imidacloprid	0.0020	U	ug/L	P340165	
		Diuron	0.0020	U	ug/L	P340165	
		Primidone**	0.0040	U	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	
		Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Imazapyr**	0.0040	U	ug/L	P340165	MS
		Carbamazepine**	4.0E-04	U	ug/L	P340165	
		Fluridone**	8.0E-04	U	ug/L	P340165	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P340112

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P340401

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P340402

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340679

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P340404

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P340496

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

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

Reference Method: EPA 8321B
Batch ID: P340095

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P340165

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	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	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

Reference Method: SM 2120 B
Batch ID: P340109

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340616

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P340777

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P340761

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340618

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340534

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340679

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340404

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

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

Reference Method: EPA 8321B
Batch ID: P340095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	93.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	76.9		P	40 - 150
Acetaminophen	101		P	30 - 150
Bentazon	123		P	30 - 150
Carbamazepine	89.2		P	40 - 150
Diuron	82.2		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	81.9		P	40 - 150
Imazapyr	76.8		P	40 - 150
Imidacloprid	94.8		P	40 - 160
Linuron	86.0		P	40 - 150
MCPP	69.9		P	40 - 150
Primidone	91.2		P	40 - 150
Triclopyr	76.0		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P340616

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P340534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968604	Chloride	92.9		P	90 - 110
1968711	Chloride	94.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968604	Sulfate	92.3		P	90 - 110
1968711	Sulfate	93.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968605	Ammonia-N	98.6	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968554	Kjeldahl Nitrogen	98.8	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968547	NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968558	Total-P	104	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968555	O-Phosphate-P	98.7	99.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P340095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968561	Sucralose	104	101	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968488	2,4-D	51.0	56.1	P/P	40 - 150
1968488	Acetaminophen	130	108	P/P	30 - 150
1968488	Bentazon	32.0	34.0	P/P	30 - 150
1968488	Carbamazepine	82.7	75.0	P/P	40 - 150
1968488	Diuron	72.2	60.7	P/P	40 - 150
1968488	Fenuron	86.5	75.9	P/P	40 - 150
1968488	Fluridone	66.8	53.7	P/P	40 - 150
1968488	Imazapyr	20.3	20.7	F/F	40 - 150
1968488	Imidacloprid	144	127	P/P	40 - 160
1968488	Linuron	88.8	63.2	P/P	40 - 150
1968488	MCP	36.5	39.1	F/F	40 - 150
1968488	Primidone	87.0	75.9	P/P	40 - 150
1968488	Triclopyr	43.9	47.9	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P340618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968284	Fluoride	92.3	94.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967818	Organic Carbon	98.2	99.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968604	Turbidity	1.94	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968711	Chloride	1.05	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968711	Sulfate	0.691	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968605	Ammonia-N	1.21	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968554	Kjeldahl Nitrogen	4.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968547	NO2NO3-N	0.456	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968558	Total-P	6.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968555	O-Phosphate-P	0.303	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P340095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968561	Sucralose	2.77	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P340165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968488	2,4-D	8.17	Spike	P	0 - 30
1968488	Acetaminophen	18.1	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P340165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968488	Bentazon	5.30	Spike	P	0 - 30
1968488	Carbamazepine	9.60	Spike	P	0 - 30
1968488	Diuron	11.7	Spike	P	0 - 30
1968488	Fenuron	13.0	Spike	P	0 - 30
1968488	Fluridone	20.4	Spike	P	0 - 30
1968488	Imazapyr	0.614	Spike	P	0 - 30
1968488	Imidacloprid	8.00	Spike	P	0 - 30
1968488	Linuron	22.8	Spike	P	0 - 30
1968488	MCPP	6.91	Spike	P	0 - 30
1968488	Primidone	13.6	Spike	P	0 - 30
1968488	Triclopyr	8.78	Spike	P	0 - 30

Reference Method: SM 2120 B
 Batch ID: P340109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968601	Color (true)	1.92	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P340616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968284	Total Alkalinity	0.00798	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P340777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968388	TDS	5.65	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P340618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968284	Fluoride	1.47	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P340534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967818	Organic Carbon	0.621	Spike	P	0 - 20

* 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: 1968614
 Field Sample ID: G1CE0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	39.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	115	P	30 - 160
EPA 8321B	Carbamazepine-d10	79.1	P	30 - 160
EPA 8321B	Diuron-d6	62.9	P	30 - 160
EPA 8321B	Primidone-d5	77.8	P	30 - 160
EPA 8321B	Sucralose-d6	133	P	40 - 160

Lab Sample ID: 1968615
 Field Sample ID: G1CE0007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	32.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.8	P	30 - 160
EPA 8321B	Diuron-d6	61.0	P	30 - 160
EPA 8321B	Primidone-d5	80.8	P	30 - 160
EPA 8321B	Sucralose-d6	119	P	40 - 160

Lab Sample ID: 1968616
 Field Sample ID: G1CE0007DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	30.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	76.9	P	30 - 160
EPA 8321B	Diuron-d6	61.8	P	30 - 160
EPA 8321B	Primidone-d5	82.4	P	30 - 160
EPA 8321B	Sucralose-d6	122	P	40 - 160

Lab Sample ID: 1968617
 Field Sample ID: BLANK_02152018

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	64.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	92.9	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Sucralose-d6	102	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
 Run ID: A82119
 Included Lab Sample IDs: 1968601, 1968604

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82120

Included Lab Sample IDs: 1968601, 1968604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82129

Included Lab Sample IDs: 1968603, 1968606

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

Reference Method: EPA 8321B

Run ID: A82169

Included Lab Sample IDs: 1968614, 1968615, 1968616, 1968617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	94.0	95.2	P/P	60 - 150
Sucralose	98.3	94.0	P/P	60 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82190

Included Lab Sample IDs: 1968601, 1968604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Chloride	104	103	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82249

Included Lab Sample IDs: 1968602, 1968605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82256

Included Lab Sample IDs: 1968602, 1968605

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82258

Included Lab Sample IDs: 1968602, 1968605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A82268

Included Lab Sample IDs: 1968602, 1968605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82285

Included Lab Sample IDs: 1968614, 1968615, 1968616, 1968617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	104	96.4	P/P	50 - 150
Acetaminophen	112	107	P/P	60 - 150
Bentazon	110	130	P/P	50 - 150
Carbamazepine	106	124	P/P	60 - 150
Diuron	116	134	P/P	60 - 150
Fenuron	112	121	P/P	60 - 150
Fluridone	115	121	P/P	60 - 160
Imazapyr	91.2	84.1	P/P	50 - 150
Imidacloprid	106	111	P/P	60 - 150
Linuron	131	121	P/P	60 - 150
MCPP	102	101	P/P	50 - 150
Primidone	109	116	P/P	60 - 150
Triclopyr	98.4	104	P/P	50 - 150

Reference Method: SM 2320 B-97

Run ID: A82295

Included Lab Sample IDs: 1968601, 1968604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82295

Included Lab Sample IDs: 1968601, 1968604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	96.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82298

Included Lab Sample IDs: 1968614

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	109	109	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82317

Included Lab Sample IDs: 1968602, 1968605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	102	101	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.94	
EPA 300.0 Rev. 2.1	Chloride	96.5	94.6	92.9		1.05	
	Sulfate	94.2	93.5	92.3		0.691	
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	98.6	97.4			1.21
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	98.8	104			4.56
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	105	105	106			0.456
EPA 365.1 Rev. 2.0	Total-P	103	104	97.5			6.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.7	99.0			0.303
EPA 8321B	2,4-D	76.9	51.0	56.1			8.17
	Acetaminophen	101	130	108			18.1
	Bentazon	123	32.0	34.0			5.30
	Carbamazepine	89.2	82.7	75.0			9.60
	Diuron	82.2	72.2	60.7			11.7
	Fenuron	111	86.5	75.9			13.0
	Fluridone	81.9	66.8	53.7			20.4
	Imazapyr	76.8	20.3	20.7			0.614
	Imidacloprid	94.8	144	127			8.00
	Linuron	86.0	88.8	63.2			22.8
	MCPP	69.9	36.5	39.1			6.91
	Primidone	91.2	87.0	75.9			13.6
	Sucralose	93.2	104	101			2.77
	Triclopyr	76.0	43.9	47.9			8.78
SM 2120 B	Color (true)					1.92	
SM 2320 B-97	Total Alkalinity	98.8				0.0079	
SM 2540 C-97	TDS					5.65	
SM 4500 F-C-97	Fluoride	94.7	92.3	94.5			1.47
SM 5310 B-00	Organic Carbon	95.8	98.2	99.1			0.621

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1968601, 1968604
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1968601, 1968604
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1968601, 1968604
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1968602, 1968605
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1968602, 1968605
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1968602, 1968605
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1968602, 1968605
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1968603, 1968606

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1968614, 1968615, 1968616, 1968617
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1968614, 1968615, 1968616, 1968617
SM 2120 B / E31780	True Color measured at 450 nm	1968601, 1968604
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1968601, 1968604
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1968601, 1968604
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1968601, 1968604
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1968601, 1968604
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1968602, 1968605

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	02/16/2018			02/16/2018 15:13	Tanya Welborn	1968601, 1968604
EPA 300.0 Rev. 2.1	02/16/2018			02/21/2018	Julia Storbeck	1968601, 1968604
EPA 350.1 Rev. 2.0	02/16/2018			02/27/2018	Ping Hua	1968602, 1968605
EPA 351.2 Rev. 2.0	02/16/2018	02/22/2018	Adrian Shelby	02/23/2018	Joseph Suarez	1968602, 1968605
EPA 353.2 Rev. 2.0	02/16/2018			02/23/2018	Lauren Bottorf	1968602, 1968605
EPA 365.1 Rev. 2.0	02/16/2018	02/22/2018	Sima Feizi	02/23/2018	Lipi Saha	1968602, 1968605
EPA 365.1 Rev. 2.0 dissolved	02/16/2018			02/16/2018 16:26	Megan Treadwell	1968603
	02/16/2018			02/16/2018 16:27	Megan Treadwell	1968606
EPA 8321B	02/16/2018	02/16/2018	Julie Michelle Frank	02/18/2018	Juyoung Kim	1968614, 1968615, 1968616, 1968617
	02/16/2018	02/21/2018	Hoor Shaik	02/23/2018	Julie Michelle Frank	1968614, 1968615, 1968616, 1968617
	02/16/2018	02/21/2018	Hoor Shaik	02/24/2018	Julie Michelle Frank	1968614, 1968615, 1968616, 1968617
	02/16/2018	02/21/2018	Hoor Shaik	02/27/2018	Julie Michelle Frank	1968614
SM 2120 B	02/16/2018			02/16/2018 16:02	Tanya Welborn	1968601
	02/16/2018			02/16/2018 16:03	Tanya Welborn	1968604
SM 2320 B-97	02/16/2018			02/26/2018	Dale L. Simmons	1968601, 1968604
SM 2540 C-97	02/16/2018			02/19/2018	Ping Hua	1968601, 1968604
SM 2540 D-97	02/16/2018			02/19/2018	Yijie Li	1968601, 1968604
SM 4500 F-C-97	02/16/2018			02/26/2018	Dale L. Simmons	1968601, 1968604
SM 5310 B-00	02/16/2018			02/23/2018	Megan Treadwell	1968602, 1968605