

Chemical Analysis Report

NE-DIST-2017-02-01-01

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

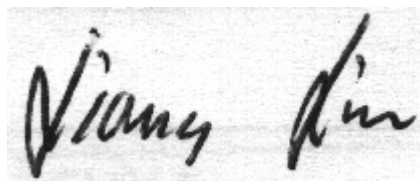
Event Description: **Suwannee North 2**
Request ID: **RQ-2017-01-30-10**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 23-FEB-2017 11:37

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Falling Creek @ US 441

Collection Date/Time: 01/31/2017 09:20

Field ID: G1NE0236 01312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868494	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P319112	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P319383	
		Sulfate	1.6		mg SO4/L	P319385	
	SM 2120 B	Color (true)	370		PCU	P319142	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P319318	
	SM 2540 C-97	TDS	106		mg/L	P319880	
	SM 2540 D-97	TSS	2	U	mg/L	P319489	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P319322	
1868497	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P319344	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P319127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319471	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P319129	
	SM 5310 B-00	Organic Carbon	47		mg C/L	P319239	
1868500	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P319106	
1868578	EPA 8321B	Sucralose**	0.014	I	ug/L	P319087	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P318793	
		Fenuron	0.0080	U	ug/L	P318793	
		Imidacloprid	0.0040	U	ug/L	P318793	
		Linuron	0.0040	U	ug/L	P318793	
		Acetaminophen**	0.0040	U	ug/L	P318793	
		Carbamazepine**	4.0E-04	U	ug/L	P318793	
		Primidone**	0.0080	U	ug/L	P318793	
		Fluridone**	4.0E-04	U	ug/L	P318793	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Deep Creek @ US 441

Collection Date/Time: 01/31/2017 09:55

Field ID: G1NE0267 01312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868495	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P319112	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P319383	
		Sulfate	2.7		mg SO4/L	P319385	
	SM 2120 B	Color (true)	410		PCU	P319142	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P319318	
	SM 2540 C-97	TDS	145		mg/L	P319880	
	SM 2540 D-97	TSS	2	U	mg/L	P319489	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P319322	
1868498	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P319344	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P319127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P319471	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P319311	
	SM 5310 B-00	Organic Carbon	43		mg C/L	P319239	

Field ID: G1NE0267 01312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868501	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.074		mg P/L	P319106	
1868579	EPA 8321B	Sucralose**	0.010	U	ug/L	P319087	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P318793	
		Fenuron	0.0080	U	ug/L	P318793	
		Imidacloprid	0.0040	U	ug/L	P318793	
		Linuron	0.0040	U	ug/L	P318793	
		Acetaminophen**	0.0040	U	ug/L	P318793	
		Carbamazepine**	4.0E-04	U	ug/L	P318793	
		Primidone**	0.0080	U	ug/L	P318793	
		Fluridone**	4.0E-04	U	ug/L	P318793	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Creek @ US 441

Collection Date/Time: 01/31/2017 10:20

Field ID: G1NE0251 01312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868496	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P319112	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P319383	
		Sulfate	2.8		mg SO4/L	P319385	
	SM 2120 B	Color (true)	140		PCU	P319142	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P319318	
	SM 2540 C-97	TDS	97		mg/L	P319880	
	SM 2540 D-97	TSS	2	U	mg/L	P319489	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P319322	
1868499	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P319344	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P319127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319471	
	EPA 365.1 Rev. 2.0	Total-P	0.40		mg P/L	P319311	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P319239	
1868502	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.37		mg P/L	P319106	
1868580	EPA 8321B	Sucralose**	0.010	U	ug/L	P319087	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P318793	
		Fenuron	0.0080	U	ug/L	P318793	
		Imidacloprid	0.0040	U	ug/L	P318793	
		Linuron	0.0040	U	ug/L	P318793	
		Acetaminophen**	0.0040	U	ug/L	P318793	
		Carbamazepine**	4.0E-04	U	ug/L	P318793	
		Primidone**	0.0080	U	ug/L	P318793	
		Fluridone**	4.0E-04	U	ug/L	P318793	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Hunters Creek @ SR 135

Collection Date/Time: 01/31/2017 10:55

Field ID: G1NE0384 01312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868584	EPA 8321B	Sucralose**	0.010	U	ug/L	P319087	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P318793	
		Fenuron	0.0080	U	ug/L	P318793	
		Imidacloprid	0.0040	U	ug/L	P318793	
		Linuron	0.0040	U	ug/L	P318793	
		Acetaminophen**	0.0040	U	ug/L	P318793	
		Carbamazepine**	4.0E-04	U	ug/L	P318793	
		Primidone**	0.0080	U	ug/L	P318793	
		Fluridone**	4.0E-04	U	ug/L	P318793	

Sample Location: Swift Creek @ CR 25A

Collection Date/Time: 01/31/2017 11:30

Field ID: G1NE0327 01312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868585	EPA 8321B	Sucralose**	0.010	U	ug/L	P319087	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P318793	
		Fenuron	0.0080	U	ug/L	P318793	
		Imidacloprid	0.0040	U	ug/L	P318793	
		Linuron	0.0040	U	ug/L	P318793	
		Acetaminophen**	0.0040	U	ug/L	P318793	
		Carbamazepine**	4.0E-04	U	ug/L	P318793	
		Primidone**	0.0080	U	ug/L	P318793	
		Fluridone**	4.0E-04	U	ug/L	P318793	

Sample Location: Camp Branch @ CR 25A

Collection Date/Time: 01/31/2017 11:50

Field ID: G1NE0269 01312017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868586	EPA 8321B	Sucralose**	0.010	U	ug/L	P319087	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P318793	
		Fenuron	0.0080	U	ug/L	P318793	
		Imidacloprid	0.0040	U	ug/L	P318793	
		Linuron	0.0040	U	ug/L	P318793	
		Acetaminophen**	0.0040	U	ug/L	P318793	
		Carbamazepine**	4.0E-04	U	ug/L	P318793	
		Primidone**	0.0080	U	ug/L	P318793	
		Fluridone**	0.0031		ug/L	P318793	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P319112

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319344

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319471

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319129

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319311

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319106

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

Reference Method: EPA 8321B
Batch ID: P319087

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P319142

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P319318

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P319880

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319489

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P319322

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P319239

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

Reference Method: USGS O-2060-01
Batch ID: P318793

Component	Result	Code	Units
Acetaminophen	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0080	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319344

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319471

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319311

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319106

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

Reference Method: EPA 8321B
Batch ID: P319087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	85.2		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P319318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P319322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P319239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.2		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P318793

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	78.8		P	40 - 140
Carbamazepine	94.8		P	40 - 140
Diuron	88.4		P	40 - 140
Fenuron	92.4		P	40 - 140
Fluridone	70.0		P	40 - 140
Imidacloprid	94.0		P	40 - 160
Linuron	74.4		P	40 - 140
Primidone	70.8		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867410	Chloride	101		P	90 - 110
1868471	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1867410	Sulfate	98.0		P	90 - 110
1868471	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868477	Ammonia-N	102	96.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868403	NO2NO3-N	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868474	Total-P	97.1	92.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868512	Total-P	94.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868552	O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P319087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868580	Sucralose	105	112	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P319322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868587	Fluoride	99.8	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P319239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868302	Organic Carbon	98.2	96.7	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P318793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866907	Acetaminophen	72.4	74.4	P/P	40 - 140
1866907	Carbamazepine	99.3	103	P/P	40 - 140
1866907	Diuron	70.8	72.4	P/P	40 - 140
1866907	Fenuron	83.6	86.4	P/P	40 - 140
1866907	Fluridone	50.8	54.8	P/P	40 - 140
1866907	Imidacloprid	130	113	P/P	40 - 160
1866907	Linuron	80.4	73.6	P/P	40 - 140
1866907	Primidone	100	94.0	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868472	Turbidity	5.71	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867410	Chloride	0.180	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1867410	Sulfate	0.310	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868477	Ammonia-N	5.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868510	Kjeldahl Nitrogen	0.391	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868403	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868474	Total-P	5.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868512	Total-P	4.22	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868552	O-Phosphate-P	1.94	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P319087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868580	Sucralose	6.45	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P319142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868536	Color (true)	4.63	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868587	Total Alkalinity	0.263	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P319880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868473	TDS	2.51	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P319322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868587	Fluoride	0.947	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P319239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868302	Organic Carbon	1.54	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P318793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866907	Acetaminophen	2.72	Spike	P	0 - 30
1866907	Carbamazepine	3.86	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P318793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866907	Diuron	1.79	Spike	P	0 - 30
1866907	Fenuron	3.29	Spike	P	0 - 30
1866907	Fluridone	7.30	Spike	P	0 - 30
1866907	Imidacloprid	12.9	Spike	P	0 - 30
1866907	Linuron	8.83	Spike	P	0 - 30
1866907	Primidone	6.58	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: 1868578
Field Sample ID: G1NE0236 01312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	76.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	109	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	83.0	P	40 - 160
USGS O-2060-01	Diuron-d6	55.4	P	40 - 150
USGS O-2060-01	Primidone-d5	83.6	P	40 - 150

Lab Sample ID: 1868579
Field Sample ID: G1NE0267 01312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	80.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	91.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	78.2	P	40 - 160
USGS O-2060-01	Diuron-d6	52.8	P	40 - 150
USGS O-2060-01	Primidone-d5	66.8	P	40 - 150

Lab Sample ID: 1868580
Field Sample ID: G1NE0251 01312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	95.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	102	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	95.6	P	40 - 160
USGS O-2060-01	Diuron-d6	74.0	P	40 - 150
USGS O-2060-01	Primidone-d5	102	P	40 - 150

Lab Sample ID: 1868584
Field Sample ID: G1NE0384 01312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	102	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	95.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	101	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1868584
Field Sample ID: G1NE0384 01312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Diuron-d6	74.2	P	40 - 150
USGS O-2060-01	Primidone-d5	101	P	40 - 150

Lab Sample ID: 1868585
Field Sample ID: G1NE0327 01312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	108	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	89.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	88.8	P	40 - 160
USGS O-2060-01	Diuron-d6	61.4	P	40 - 150
USGS O-2060-01	Primidone-d5	119	P	40 - 150

Lab Sample ID: 1868586
Field Sample ID: G1NE0269 01312017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	122	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	91.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	105	P	40 - 160
USGS O-2060-01	Diuron-d6	87.4	P	40 - 150
USGS O-2060-01	Primidone-d5	99.4	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74214
Included Lab Sample IDs: 1868500, 1868501, 1868502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	102	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74215
Included Lab Sample IDs: 1868494, 1868495, 1868496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	96.5	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A74223
Included Lab Sample IDs: 1868494, 1868495, 1868496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115
Color (true)	104	104	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A74237

Included Lab Sample IDs: 1868578, 1868579, 1868580, 1868584, 1868585, 1868586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	112	123	P/P	60 - 150
Carbamazepine	115	127	P/P	60 - 150
Diuron	118	109	P/P	60 - 150
Fenuron	112	126	P/P	60 - 150
Fluridone	107	92.8	P/P	60 - 150
Imidacloprid	84.4	110	P/P	60 - 150
Linuron	111	116	P/P	60 - 150
Primidone	121	102	P/P	60 - 150

Reference Method: EPA 8321B

Run ID: A74240

Included Lab Sample IDs: 1868578, 1868579, 1868580, 1868584, 1868585, 1868586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	125	122	P/P	60 - 150
Sucralose	90.8	125	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A74257

Included Lab Sample IDs: 1868497, 1868498, 1868499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74267

Included Lab Sample IDs: 1868497, 1868498, 1868499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	108	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74281

Included Lab Sample IDs: 1868494, 1868495, 1868496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74281

Included Lab Sample IDs: 1868494, 1868495, 1868496

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74283

Included Lab Sample IDs: 1868497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74290

Included Lab Sample IDs: 1868497, 1868498, 1868499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	99.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74307

Included Lab Sample IDs: 1868494, 1868495, 1868496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	97.0	92.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74335

Included Lab Sample IDs: 1868497, 1868498, 1868499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74336

Included Lab Sample IDs: 1868498, 1868499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.1	99.7	P/P	90 - 110
Total-P	99.7	98.6	P/P	90 - 110

* 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						5.71	
EPA 300.0 Rev. 2.1	Chloride	100		101	98.3		0.180	
	Sulfate	97.6		98.0	96.2		0.310	
EPA 350.1 Rev. 2.0	Ammonia-N	105		102	96.2			5.39
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102						0.391
EPA 353.2 Rev. 2.0	NO2NO3-N	104		108	106			0.509
EPA 365.1 Rev. 2.0	Total-P	98.2		97.1	92.0			5.22
	Total-P	98.7		94.0	98.5			4.22
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103		102	104			1.94
EPA 8321B	Sucralose	85.2		105	112			6.45
SM 2120 B	Color (true)						4.63	
SM 2320 B-97	Total Alkalinity	104					0.263	
SM 2540 C-97	TDS						2.51	
SM 4500 F-C-97	Fluoride	102		99.8	101			0.947
SM 5310 B-00	Organic Carbon	94.2		98.2	96.7			1.54
USGS O-2060-01	Acetaminophen	78.8		72.4	74.4			2.72

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Carbamazepine	94.8	99.3	103			3.86
	Diuron	88.4	70.8	72.4			1.79
	Fenuron	92.4	83.6	86.4			3.29
	Fluridone	70.0	50.8	54.8			7.30
	Imidacloprid	94.0	130	113			12.9
	Linuron	74.4	80.4	73.6			8.83
	Primidone	70.8	100	94.0			6.58

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1868494, 1868495, 1868496
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1868494, 1868495, 1868496
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1868494, 1868495, 1868496
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1868497, 1868498, 1868499
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1868497, 1868498, 1868499
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1868497, 1868498, 1868499
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1868497, 1868498, 1868499
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1868500, 1868501, 1868502
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1868578, 1868579, 1868580, 1868584, 1868585, 1868586
SM 2120 B / E31780	True Color measured at 450 nm	1868494, 1868495, 1868496
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1868494, 1868495, 1868496
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1868494, 1868495, 1868496
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1868494, 1868495, 1868496
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1868494, 1868495, 1868496
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1868497, 1868498, 1868499
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1868578, 1868579, 1868580, 1868584, 1868585, 1868586

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	02/01/2017			02/01/2017 16:18	Julie Michelle Frank	1868494, 1868495, 1868496
EPA 300.0 Rev. 2.1	02/01/2017			02/06/2017	Ping Hua	1868494, 1868495, 1868496
EPA 350.1 Rev. 2.0	02/01/2017			02/02/2017	Sofia Elnemr	1868497, 1868498, 1868499
EPA 351.2 Rev. 2.0	02/01/2017	02/02/2017	Adrian Shelby	02/03/2017	Joseph Suarez	1868497, 1868498, 1868499
EPA 353.2 Rev. 2.0	02/01/2017			02/07/2017	Virginia P. Brown	1868497, 1868498, 1868499
EPA 365.1 Rev. 2.0	02/01/2017	02/02/2017	Adrian Shelby	02/06/2017	Lipi Saha	1868497
	02/01/2017	02/06/2017	Vijayalakshmi Reddy	02/07/2017	Lipi Saha	1868498, 1868499
EPA 365.1 Rev. 2.0 dissolved	02/01/2017			02/01/2017 14:51	Julia Storbeck	1868501
	02/01/2017			02/01/2017 15:26	Julia Storbeck	1868502
	02/01/2017			02/01/2017 15:28	Julia Storbeck	1868500
EPA 8321B	02/01/2017	02/02/2017	Mohammad Ghaffari	02/02/2017	Mohammad Ghaffari	1868578, 1868579, 1868580, 1868584, 1868585, 1868586
SM 2120 B	02/01/2017			02/01/2017 18:12	Jared I. Manley	1868496
	02/01/2017			02/01/2017 18:48	Jared I. Manley	1868494
	02/01/2017			02/01/2017 18:49	Jared I. Manley	1868495
SM 2320 B-97	02/01/2017			02/04/2017	Dale L. Simmons	1868494, 1868495, 1868496
SM 2540 C-97	02/01/2017			02/02/2017	Sima Feizi	1868494, 1868495, 1868496
SM 2540 D-97	02/01/2017			02/02/2017	Sima Feizi	1868494, 1868495, 1868496
SM 4500 F-C-97	02/01/2017			02/04/2017	Dale L. Simmons	1868494, 1868495, 1868496
SM 5310 B-00	02/01/2017			02/02/2017	Julie Michelle Frank	1868497, 1868498, 1868499
USGS O-2060-01	02/01/2017	02/01/2017	Hoor Shaik	02/02/2017	Juyoung Kim	1868578, 1868579, 1868580, 1868584, 1868585, 1868586