

Chemical Analysis Report

WQAP-2017-11-30-02

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

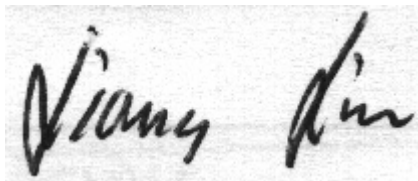
Event Description: **SCI Rocky Creek w/Dup&Blank**
Request ID: **RQ-2017-11-27-59**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-DEC-2017 16:59

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: ROCKY CRK

Collection Date/Time: 11/29/2017 12:05

Field ID: G1SW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949618	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P336148	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P336267	
		Sulfate	17		mg SO4/L	P336271	
	SM 2120 B	Color (true)	89	A	PCU	P336141	
	SM 2320 B-97	Total Alkalinity	63		mg CaCO3/L	P336617	
	SM 2540 C-97	TDS	181		mg/L	P336442	
	SM 2540 D-97	TSS	2	U	mg/L	P336303	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P336620	
1949621	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P336629	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P336562	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P336384	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P336471	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P336335	
1949624	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P336133	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ROCKY CRK

Collection Date/Time: 11/29/2017 12:05

Field ID: G1SW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949632	EPA 8321B	Sucralose**	3.6		ug/L	P336107	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P336034	
		Diuron	0.012		ug/L	P336034	
		Fenuron	0.0080	U	ug/L	P336034	
		Imidacloprid	0.038		ug/L	P336034	MS
		Bentazon	0.044		ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.0080	U	ug/L	P336034	
		MCPD	0.0020	U	ug/L	P336034	
		Carbamazepine**	0.022		ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.018		ug/L	P336034	
		Fluridone**	0.036		ug/L	P336034	

Sample Location: ROCKY CRK dup

Collection Date/Time: 11/29/2017 12:10

Field ID: G1SW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949619	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P336148	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P336267	
		Sulfate	17		mg SO4/L	P336271	
	SM 2120 B	Color (true)	86		PCU	P336141	
	SM 2320 B-97	Total Alkalinity	63		mg CaCO3/L	P336617	

Field ID: G1SW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949619	SM 2540 C-97	TDS	180		mg/L	P336442	
	SM 2540 D-97	TSS	2	U	mg/L	P336303	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P336620	
1949622	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P336629	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P336562	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P336384	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P336471	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P336335	
1949625	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P336133	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 11/29/2017 12:16

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949620	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P336148	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P336267	
		Sulfate	0.20	U	mg SO4/L	P336271	
	SM 2120 B	Color (true)	2.5	U	PCU	P336141	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P336617	
	SM 2540 C-97	TDS	15	U	mg/L	P336442	
	SM 2540 D-97	TSS	2	U	mg/L	P336304	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336620	
1949623	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P336629	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P336562	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P336384	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P336376	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P336335	
1949626	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P336133	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P336148

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P336267

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336271

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336629

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336562

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336384

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336376

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336471

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336133

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

Reference Method: EPA 8321B
Batch ID: P336107

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P336141

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P336617

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

Reference Method: SM 2540 C-97
Batch ID: P336442

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336303

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336304

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P336620

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336335

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

Reference Method: USGS O-2060-01
Batch ID: P336034

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
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336271

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	107		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336384

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336376

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336471

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336133

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

Reference Method: EPA 8321B
Batch ID: P336107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	67.4		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P336617

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P336620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P336335

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P336034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	97.6		P	40 - 150
Acetaminophen	115		P	30 - 150
Bentazon	75.8		P	30 - 150
Carbamazepine	109		P	40 - 150
Diuron	106		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	105		P	40 - 150
Imidacloprid	98.3		P	40 - 160
Linuron	100		P	40 - 150
MCP	92.1		P	40 - 150
Primidone	93.9		P	40 - 150
Triclopyr	89.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949462	Chloride	94.9		P	90 - 110
1949482	Chloride	93.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949462	Sulfate	95.6		P	90 - 110
1949482	Sulfate	94.8		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949621	Kjeldahl Nitrogen	95.6	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949161	NO2NO3-N	106	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949467	Total-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949621	Total-P	94.7	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949468	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P336107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949632	Sucralose	76.2	82.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P336620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949722	Fluoride	98.2	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P336335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949464	Organic Carbon	97.2	96.9	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P336034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948788	2,4-D	70.0	71.5	P/P	40 - 150
1948788	Acetaminophen	122	125	P/P	30 - 150
1948788	Bentazon	45.1	44.6	P/P	30 - 150
1948788	Carbamazepine	90.4	93.1	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P336034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948788	Diuron	85.6	88.0	P/P	40 - 150
1948788	Fenuron	66.5	74.1	P/P	40 - 150
1948788	Fluridone	89.7	94.3	P/P	40 - 150
1948788	Imidacloprid	164	174	F/F	40 - 160
1948788	Linuron	99.0	99.5	P/P	40 - 150
1948788	MCP	59.4	58.1	P/P	40 - 150
1948788	Primidone	82.9	82.9	P/P	40 - 150
1948788	Triclopyr	61.3	57.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949618	Turbidity	2.26	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949462	Chloride	0.576	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949462	Sulfate	0.649	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949621	Ammonia-N	0.253	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949621	Kjeldahl Nitrogen	1.14	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949161	NO2NO3-N	7.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949467	Total-P	0.869	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949621	Total-P	0.371	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949468	O-Phosphate-P	0.199	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P336107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949632	Sucralose	2.51	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P336141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949618	Color (true)	2.71	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949722	Total Alkalinity	1.19	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P336442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949547	TDS	5.65	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
 Batch ID: P336620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949722	Fluoride	0.474	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P336335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949464	Organic Carbon	0.262	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P336034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948788	2,4-D	2.26	Spike	P	0 - 30
1948788	Acetaminophen	2.70	Spike	P	0 - 30
1948788	Bentazon	1.00	Spike	P	0 - 30
1948788	Carbamazepine	2.94	Spike	P	0 - 30
1948788	Diuron	2.72	Spike	P	0 - 30
1948788	Fenuron	8.74	Spike	P	0 - 30
1948788	Fluridone	5.01	Spike	P	0 - 30
1948788	Imidacloprid	5.83	Spike	P	0 - 30
1948788	Linuron	0.427	Spike	P	0 - 30
1948788	MCPP	2.11	Spike	P	0 - 30
1948788	Primidone	0.0415	Spike	P	0 - 30
1948788	Triclopyr	6.48	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: 1949632
 Field Sample ID: G1SW0053

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	123	P	30 - 160
EPA 8321B	Carbamazepine-d10	99.0	P	30 - 160
EPA 8321B	Diuron-d6	91.2	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	82.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	72.0	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	123	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	99.0	P	30 - 160
USGS O-2060-01	Diuron-d6	91.2	P	30 - 160
USGS O-2060-01	Primidone-d5	101	P	30 - 160
USGS O-2060-01	Sucralose-d6	82.6	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A80568
Included Lab Sample IDs: 1949632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	74.5	109	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80611
Included Lab Sample IDs: 1949624, 1949625, 1949626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A80612
Included Lab Sample IDs: 1949618, 1949619, 1949620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80613
Included Lab Sample IDs: 1949618, 1949619, 1949620

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80632
Included Lab Sample IDs: 1949618, 1949619, 1949620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	99.7	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A80692
Included Lab Sample IDs: 1949621, 1949622, 1949623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.5	98.6	P/P	90 - 110

Reference Method: USGS O-2060-01
Run ID: A80693
Included Lab Sample IDs: 1949632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.9	98.5	P/P	50 - 150
Acetaminophen	117	115	P/P	60 - 150
Bentazon	99.4	100	P/P	50 - 150
Carbamazepine	115	113	P/P	60 - 150
Diuron	111	104	P/P	60 - 150
Fenuron	114	112	P/P	60 - 150
Fluridone	117	116	P/P	60 - 160
Imidacloprid	108	103	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A80693

Included Lab Sample IDs: 1949632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Linuron	110	115	P/P	60 - 150
MCP	94.3	98.8	P/P	50 - 150
Primidone	119	114	P/P	60 - 150
Triclopyr	87.7	90.6	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80702

Included Lab Sample IDs: 1949621, 1949622, 1949623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80757

Included Lab Sample IDs: 1949621, 1949622

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

Reference Method: SM 2320 B-97

Run ID: A80770

Included Lab Sample IDs: 1949618, 1949619, 1949620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A80770

Included Lab Sample IDs: 1949618, 1949619, 1949620

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80773

Included Lab Sample IDs: 1949621, 1949622, 1949623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80787

Included Lab Sample IDs: 1949623

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80797
Included Lab Sample IDs: 1949621, 1949622, 1949623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	98.8	P/P	90 - 110
Kjeldahl Nitrogen	99.8	99.0	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				2.26	
EPA 300.0 Rev. 2.1	Chloride	94.7	94.9 93.1		0.576	
	Sulfate	95.5	95.6 94.8		0.649	
EPA 350.1 Rev. 2.0	Ammonia-N	107				0.253
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.2	95.6 97.3			1.14
EPA 353.2 Rev. 2.0	NO2NO3-N	102	106 98.4			7.37
EPA 365.1 Rev. 2.0	Total-P	101	101 102			0.869
	Total-P	96.7	94.7 94.3			0.371
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101 101			0.199
EPA 8321B	Sucralose	67.4	76.2 82.2			2.51
SM 2120 B	Color (true)				2.71	
SM 2320 B-97	Total Alkalinity	103			1.19	
SM 2540 C-97	TDS				5.65	
SM 4500 F-C-97	Fluoride	98.2	98.2 97.6			0.474
SM 5310 B-00	Organic Carbon	98.5	97.2 96.9			0.262
USGS O-2060-01	2,4-D	97.6	70.0 71.5			2.26
	Acetaminophen	115	125 122			2.70
	Bentazon	75.8	45.1 44.6			1.00
	Carbamazepine	109	93.1 90.4			2.94
	Diuron	106	88.0 85.6			2.72
	Fenuron	109	74.1 66.5			8.74
	Fluridone	105	94.3 89.7			5.01
	Imidacloprid	98.3	174 164			5.83
	Linuron	100	99.5 99.0			0.427
	MCPP	92.1	59.4 58.1			2.11
	Primidone	93.9	82.9 82.9			0.0415
	Triclopyr	89.1	61.3 57.4			6.48

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1949618, 1949619, 1949620
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1949618, 1949619, 1949620
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1949618, 1949619, 1949620

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1949621, 1949622, 1949623
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1949621, 1949622, 1949623
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1949621, 1949622, 1949623
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1949621, 1949622, 1949623
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1949624, 1949625, 1949626
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1949632
SM 2120 B / E31780	True Color measured at 450 nm	1949618, 1949619, 1949620
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1949618, 1949619, 1949620
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1949618, 1949619, 1949620
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1949618, 1949619, 1949620
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1949618, 1949619, 1949620
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1949621, 1949622, 1949623
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1949632
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1949632

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	11/30/2017			11/30/2017 17:11	Tanya Welborn	1949618, 1949619, 1949620
EPA 300.0 Rev. 2.1	11/30/2017			12/02/2017	Julia Storbeck	1949618, 1949619, 1949620
EPA 350.1 Rev. 2.0	11/30/2017			12/07/2017	Sofia Elnemr	1949621, 1949622, 1949623
EPA 351.2 Rev. 2.0	11/30/2017	12/07/2017	Adrian Shelby	12/08/2017	Joseph Suarez	1949621, 1949622, 1949623
EPA 353.2 Rev. 2.0	11/30/2017			12/05/2017	Lauren Bottorf	1949621, 1949622, 1949623
EPA 365.1 Rev. 2.0	11/30/2017	12/05/2017	Sima Feizi	12/08/2017	Beverly Y. Sanders	1949623
	11/30/2017	12/06/2017	Sima Feizi	12/07/2017	Lipi Saha	1949621, 1949622
EPA 365.1 Rev. 2.0 dissolved	11/30/2017			11/30/2017 14:01	Megan Treadwell	1949624, 1949625
	11/30/2017			11/30/2017 14:02	Megan Treadwell	1949626
EPA 8321B	11/30/2017	11/30/2017	Juyoung Kim	11/30/2017	Juyoung Kim	1949632
SM 2120 B	11/30/2017			11/30/2017 14:17	Tanya Welborn	1949618
	11/30/2017			11/30/2017 14:18	Tanya Welborn	1949619
	11/30/2017			11/30/2017 14:19	Tanya Welborn	1949620
SM 2320 B-97	11/30/2017			12/07/2017	Dale L. Simmons	1949618, 1949619, 1949620
SM 2540 C-97	11/30/2017			12/01/2017	DeAsia Armster	1949618, 1949619, 1949620
SM 2540 D-97	11/30/2017			12/01/2017	DeAsia Armster	1949618, 1949619, 1949620
SM 4500 F-C-97	11/30/2017			12/07/2017	Dale L. Simmons	1949618, 1949619, 1949620
SM 5310 B-00	11/30/2017			12/05/2017	Ping Hua	1949621, 1949622, 1949623
USGS O-2060-01	11/30/2017	12/04/2017	Hoor Shaik	12/05/2017	Julie Michelle Frank	1949632
	11/30/2017	12/04/2017	Hoor Shaik	12/06/2017	Julie Michelle Frank	1949632