

Chemical Analysis Report

WQAP-2017-12-07-01

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

Event Description: **Peace Streams**
Request ID: **RQ-2017-12-11-07**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
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2295 Victoria Ave.
Suite 364
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Certified by: Colin Wright, Program Administrator

Date Certified: 29-DEC-2017 12:46

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over a light gray rectangular 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: Metals, 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: Myrtle 1995 @ Pine Island St.

Collection Date/Time: 12/06/2017 09:57

Field ID: G3SD120617-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1951496	EPA 180.1 Rev. 2.0	Turbidity	7.5	A	NTU	P336597	
	EPA 300.0 Rev. 2.1	Chloride	33		mg Cl/L	P336707	
		Sulfate	14		mg SO4/L	P336713	
	SM 2120 B	Color (true)	190		PCU	P336553	
	SM 2320 B-97	Total Alkalinity	204		mg CaCO3/L	P336989	
	SM 2540 C-97	TDS	324	A	mg/L	P337015	
	SM 2540 D-97	TSS	3	I	mg/L	P336775	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P336992	
1951497	EPA 350.1 Rev. 2.0	Ammonia-N	0.28		mg N/L	P337340	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P336902	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P336801	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P336883	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P336821	
1951498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P336590	
1951571	EPA 200.7 Rev. 4.4	Calcium	81.8		mg/L	P336745	
		Iron	2.58E+03		ug/L	P336745	
		Magnesium	6.30		mg/L	P336745	
		Potassium	3.2		mg/L	P336745	
		Sodium	23.1		mg/L	P336745	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P336745	
		Arsenic	1.48		ug/L	P336745	
		Cadmium	0.020	U	ug/L	P336745	
		Chromium	0.43	I	ug/L	P336745	
		Copper	0.20	U	ug/L	P336745	
		Lead	0.12	I	ug/L	P336745	
		Nickel	0.31	I	ug/L	P336745	
		Silver	0.010	U	ug/L	P336745	

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: Myrtle 1995 @ Pine Island St.

Collection Date/Time: 12/06/2017 09:57

Field ID: G3SD120617-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1951559	EPA 8321B	Sucralose**	0.012	I	ug/L	P336428	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P336466	
		Diuron	0.0029	I	ug/L	P336466	
		Fenuron	0.0080	U	ug/L	P336466	
		Imidacloprid	0.0041		ug/L	P336466	
		Bentazon	8.0E-04	U	ug/L	P336466	
		Linuron	0.0040	U	ug/L	P336466	
		Acetaminophen**	0.0080	U	ug/L	P336466	
		MCP	0.0020	U	ug/L	P336466	
		Carbamazepine**	4.0E-04	U	ug/L	P336466	

Field ID: G3SD120617-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1951559	USGS O-2060-01	Triclopyr**	0.0040	U	ug/L	P336466	
		Primidone**	0.0040	U	ug/L	P336466	
		Fluridone**	4.0E-04	U	ug/L	P336466	

Sample Location: Hawthorne Creek @ Reynolds St.

Collection Date/Time: 12/06/2017 09:28

Field ID: G3SD120617-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1951560	EPA 8321B	Sucralose**	0.14		ug/L	P336428	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P336466	
		Diuron	0.19		ug/L	P336466	
		Fenuron	0.20		ug/L	P336466	
		Imidacloprid	0.70		ug/L	P336466	
		Bentazon	8.0E-04	U	ug/L	P336466	
		Linuron	0.0040	U	ug/L	P336466	
		Acetaminophen**	0.0080	U	ug/L	P336466	
		MCP	0.0020	U	ug/L	P336466	
		Carbamazepine**	0.0034		ug/L	P336466	
		Triclopyr**	0.0040	U	ug/L	P336466	
		Primidone**	0.0040	U	ug/L	P336466	
		Fluridone**	4.0E-04	U	ug/L	P336466	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P336597

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P336745

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P336745

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336745

Component	Result	Code	Units
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336707

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336713

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337340

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336902

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336801

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336883

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336590

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

Reference Method: EPA 8321B
Batch ID: P336428

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P336553

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P336989

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

Reference Method: SM 2540 C-97
Batch ID: P337015

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336775

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P336992

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336821

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

Reference Method: USGS O-2060-01
Batch ID: P336466

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	104		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	104		P	85 - 115
Sodium	103		P	85 - 115
Zinc	99.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	97.0		P	85 - 115
Cadmium	96.1		P	85 - 115
Chromium	93.0		P	85 - 115
Copper	94.1		P	85 - 115
Lead	93.5		P	85 - 115
Nickel	95.4		P	85 - 115
Silver	97.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336707

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336713

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: P337340

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336801

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336883

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P336428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	112		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P336989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P336992

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P336821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P336466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	99.7		P	40 - 150
Acetaminophen	88.6		P	30 - 150
Bentazon	92.7		P	30 - 150
Carbamazepine	93.9		P	40 - 150
Diuron	81.1		P	40 - 150
Fenuron	95.1		P	40 - 150
Fluridone	93.2		P	40 - 150
Imidacloprid	91.9		P	40 - 160
Linuron	83.6		P	40 - 150
MCPP	91.3		P	40 - 150
Primidone	99.8		P	40 - 150
Triclopyr	91.0		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951621	Calcium	103		P	80 - 120
1951621	Iron	103		P	80 - 120
1951621	Magnesium	106		P	80 - 120
1951621	Potassium	102		P	80 - 120
1951621	Sodium	101		P	80 - 120
1951621	Zinc	98.5		P	80 - 120
1951771	Calcium	100		P	80 - 120
1951771	Iron	102	102	P/P	80 - 120
1951771	Magnesium	100		P	80 - 120
1951771	Potassium	104	104	P/P	80 - 120
1951771	Sodium	105		P	80 - 120
1951771	Zinc	94.4	94.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951621	Arsenic	98.3		P	80 - 120
1951621	Cadmium	98.8		P	80 - 120
1951621	Chromium	95.1		P	80 - 120
1951621	Copper	94.3		P	80 - 120
1951621	Lead	95.8		P	80 - 120
1951621	Nickel	96.3		P	80 - 120
1951621	Silver	99.2		P	80 - 120
1951771	Arsenic	99.8	97.2	P/P	80 - 120
1951771	Cadmium	99.6	95.6	P/P	80 - 120
1951771	Chromium	94.4	91.9	P/P	80 - 120
1951771	Copper	92.4	90.0	P/P	80 - 120
1951771	Lead	95.0	93.0	P/P	80 - 120
1951771	Nickel	94.0	92.6	P/P	80 - 120
1951771	Silver	99.3	97.0	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951594	Chloride	97.7		P	90 - 110
1951595	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951594	Sulfate	98.5		P	90 - 110
1951595	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951478	Ammonia-N	94.2	90.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951404	Kjeldahl Nitrogen	101	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951434	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951407	Total-P	97.0	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951479	O-Phosphate-P	98.8	99.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P336428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1950864	Sucralose	115	115	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P336992

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951399	Fluoride	98.0	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P336821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951352	Organic Carbon	105	106	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P336466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951659	2,4-D	88.4	83.8	P/P	40 - 150
1951659	Acetaminophen	104	112	P/P	30 - 150
1951659	Bentazon	76.5	72.8	P/P	30 - 150
1951659	Carbamazepine	107	110	P/P	40 - 150
1951659	Diuron	91.6	92.8	P/P	40 - 150
1951659	Fenuron	105	108	P/P	40 - 150
1951659	Fluridone	103	108	P/P	40 - 150
1951659	Imidacloprid	114	123	P/P	40 - 160
1951659	Linuron	97.3	101	P/P	40 - 150
1951659	MCP	84.2	80.5	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P336466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951659	Primidone	112	115	P/P	40 - 150
1951659	Triclopyr	77.8	75.5	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951496	Turbidity	5.04	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951771	Calcium	0.403	Spike	P	0 - 20
1951771	Iron	0.0797	Spike	P	0 - 20
1951771	Magnesium	0.0344	Spike	P	0 - 20
1951771	Potassium	0.155	Spike	P	0 - 20
1951771	Sodium	1.00	Spike	P	0 - 20
1951771	Zinc	0.0163	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951771	Arsenic	2.58	Spike	P	0 - 20
1951771	Cadmium	4.06	Spike	P	0 - 20
1951771	Chromium	2.67	Spike	P	0 - 20
1951771	Copper	2.54	Spike	P	0 - 20
1951771	Lead	2.10	Spike	P	0 - 20
1951771	Nickel	1.51	Spike	P	0 - 20
1951771	Silver	2.29	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951594	Chloride	0.711	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951594	Sulfate	1.40	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951478	Ammonia-N	3.35	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951404	Kjeldahl Nitrogen	3.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951434	NO2NO3-N	0.398	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951407	Total-P	1.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951479	O-Phosphate-P	0.605	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P336428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950864	Sucralose	0.0	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P336553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951475	Color (true)	1.17	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951399	Total Alkalinity	0.485	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P337015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951496	TDS	1.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P336992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951399	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P336821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951352	Organic Carbon	0.334	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P336466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951659	2,4-D	5.37	Spike	P	0 - 30
1951659	Acetaminophen	7.50	Spike	P	0 - 30
1951659	Bentazon	4.80	Spike	P	0 - 30
1951659	Carbamazepine	2.68	Spike	P	0 - 30
1951659	Diuron	1.30	Spike	P	0 - 30
1951659	Fenuron	3.48	Spike	P	0 - 30
1951659	Fluridone	5.21	Spike	P	0 - 30
1951659	Imidacloprid	6.59	Spike	P	0 - 30
1951659	Linuron	3.27	Spike	P	0 - 30
1951659	MCP	4.48	Spike	P	0 - 30
1951659	Primidone	3.00	Spike	P	0 - 30
1951659	Triclopyr	2.93	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: 1951559
 Field Sample ID: G3SD120617-2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	141	P	30 - 160
EPA 8321B	Carbamazepine-d10	99.2	P	30 - 160
EPA 8321B	Diuron-d6	96.8	P	30 - 160
EPA 8321B	Primidone-d5	96.3	P	30 - 160
EPA 8321B	Sucralose-d6	70.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	83.2	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1951559

Field Sample ID: G3SD120617-2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Acetaminophen-d4	141	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	99.2	P	30 - 160
USGS O-2060-01	Diuron-d6	96.8	P	30 - 160
USGS O-2060-01	Primidone-d5	96.3	P	30 - 160
USGS O-2060-01	Sucralose-d6	70.1	P	40 - 160

Lab Sample ID: 1951560

Field Sample ID: G3SD120617-6

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	137	P	30 - 160
EPA 8321B	Carbamazepine-d10	118	P	30 - 160
EPA 8321B	Diuron-d6	111	P	30 - 160
EPA 8321B	Primidone-d5	123	P	30 - 160
EPA 8321B	Sucralose-d6	70.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	74.5	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	137	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	118	P	30 - 160
USGS O-2060-01	Diuron-d6	111	P	30 - 160
USGS O-2060-01	Primidone-d5	123	P	30 - 160
USGS O-2060-01	Sucralose-d6	70.6	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80735

Included Lab Sample IDs: 1951496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.1	99.1	P/P	90 - 110
Sulfate	98.0	99.2	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A80756

Included Lab Sample IDs: 1951496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.5	95.0	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A80761

Included Lab Sample IDs: 1951498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A80763

Included Lab Sample IDs: 1951496

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

Reference Method: EPA 8321B

Run ID: A80771

Included Lab Sample IDs: 1951559, 1951560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	70.7	82.9	P/P	60 - 150
Sucralose	82.9	98.1	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80843

Included Lab Sample IDs: 1951497

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

Reference Method: SM 5310 B-00

Run ID: A80848

Included Lab Sample IDs: 1951497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A80853

Included Lab Sample IDs: 1951571

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	96.9	96.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A80857

Included Lab Sample IDs: 1951571

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	98.7	P/P	90 - 110
Iron	99.5	101	P/P	90 - 110
Magnesium	99.8	101	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	103	98.9	P/P	90 - 110
Zinc	99.0	99.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A80864

Included Lab Sample IDs: 1951571

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	99.7	P/P	90 - 110
Cadmium	99.2	97.5	P/P	90 - 110
Chromium	98.9	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A80864

Included Lab Sample IDs: 1951571

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	100	98.2	P/P	90 - 110
Nickel	100	98.9	P/P	90 - 110
Silver	99.7	98.1	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A80867

Included Lab Sample IDs: 1951559, 1951560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	91.0	95.5	P/P	50 - 150
2,4-D	95.5	99.5	P/P	50 - 150
Acetaminophen	102	104	P/P	60 - 150
Bentazon	94.1	95.4	P/P	50 - 150
Bentazon	95.4	95.7	P/P	50 - 150
Carbamazepine	107	109	P/P	60 - 150
Diuron	104	103	P/P	60 - 150
Fenuron	102	102	P/P	60 - 150
Fluridone	112	113	P/P	60 - 160
Imidacloprid	94.6	95.9	P/P	60 - 150
Linuron	106	108	P/P	60 - 150
MCPP	98.0	98.6	P/P	50 - 150
MCPP	98.6	99.6	P/P	50 - 150
Primidone	109	108	P/P	60 - 150
Triclopyr	92.3	98.4	P/P	50 - 150
Triclopyr	98.2	92.3	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80902

Included Lab Sample IDs: 1951497

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

Reference Method: SM 2320 B-97

Run ID: A80909

Included Lab Sample IDs: 1951496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A80909

Included Lab Sample IDs: 1951496

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80972

Included Lab Sample IDs: 1951497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81069

Included Lab Sample IDs: 1951497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.6	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						5.04	
EPA 200.7 Rev. 4.4	Calcium	101	103	100				0.403
	Iron	104	103	102	102			0.0797
	Magnesium	101	106	100				0.0344
	Potassium	104	102	104	104			0.155
	Sodium	103	101	105				1.00
	Zinc	99.4	98.5	94.4	94.4			0.0163
EPA 200.8 Rev. 5.4	Arsenic	97.0	98.3	99.8	97.2			2.58
	Cadmium	96.1	98.8	99.6	95.6			4.06
	Chromium	93.0	95.1	94.4	91.9			2.67
	Copper	94.1	94.3	92.4	90.0			2.54
	Lead	93.5	95.8	95.0	93.0			2.10
	Nickel	95.4	96.3	94.0	92.6			1.51
	Silver	97.9	99.2	99.3	97.0			2.29
EPA 300.0 Rev. 2.1	Chloride	97.6	97.7	98.3			0.711	
	Sulfate	97.6	98.5	98.7			1.40	
EPA 350.1 Rev. 2.0	Ammonia-N	101	94.2	90.8				3.35
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	101	97.5				3.56
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	105				0.398
EPA 365.1 Rev. 2.0	Total-P	98.2	97.0	98.9				1.85
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	98.8	99.4				0.605
EPA 8321B	Sucralose	112	115	115				0.0
SM 2120 B	Color (true)						1.17	
SM 2320 B-97	Total Alkalinity	100					0.485	
SM 2540 C-97	TDS						1.55	
SM 4500 F-C-97	Fluoride	96.4	98.0	98.0				0.0
SM 5310 B-00	Organic Carbon	97.6	105	106				0.334
USGS O-2060-01	2,4-D	99.7	88.4	83.8				5.37
	Acetaminophen	88.6	112	104				7.50
	Bentazon	92.7	76.5	72.8				4.80
	Carbamazepine	93.9	110	107				2.68
	Diuron	81.1	92.8	91.6				1.30

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
USGS O-2060-01	Fenuron	95.1	108	105			3.48
	Fluridone	93.2	108	103			5.21
	Imidacloprid	91.9	123	114			6.59
	Linuron	83.6	101	97.3			3.27
	MCP	91.3	84.2	80.5			4.48
	Primidone	99.8	115	112			3.00
	Triclopyr	91.0	77.8	75.5			2.93

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1951496
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1951571
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1951571
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1951496
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1951496
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1951497
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1951497
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1951497
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1951497
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1951498
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1951559, 1951560
SM 2120 B / E31780	True Color measured at 450 nm	1951496
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1951496
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1951496
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1951496
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1951496
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1951497
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1951559, 1951560
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1951559, 1951560

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	12/07/2017			12/07/2017 16:28	DeAsia Armster	1951496
EPA 200.7 Rev. 4.4	12/07/2017	12/11/2017	Elliott D. Healy	12/12/2017	Martin Acosta	1951571
EPA 200.8 Rev. 5.4	12/07/2017	12/11/2017	Elliott D. Healy	12/12/2017	Nadine Brooks	1951571
EPA 300.0 Rev. 2.1	12/07/2017			12/08/2017	Julia Storbeck	1951496
EPA 350.1 Rev. 2.0	12/07/2017			12/20/2017	Sofia Elnemr	1951497
EPA 351.2 Rev. 2.0	12/07/2017	12/13/2017	Adrian Shelby	12/18/2017	Joseph Suarez	1951497
EPA 353.2 Rev. 2.0	12/07/2017			12/12/2017	Beverly Y. Sanders	1951497
EPA 365.1 Rev. 2.0	12/07/2017	12/13/2017	Sima Feizi	12/14/2017	Lipi Saha	1951497
EPA 365.1 Rev. 2.0 dissolved	12/07/2017			12/07/2017 12:42	Megan Treadwell	1951498
EPA 8321B	12/07/2017	12/07/2017	Juyoung Kim	12/07/2017	Juyoung Kim	1951559, 1951560
SM 2120 B	12/07/2017			12/07/2017 12:55	Tanya Welborn	1951496
SM 2320 B-97	12/07/2017			12/14/2017	Dale L. Simmons	1951496
SM 2540 C-97	12/07/2017			12/08/2017	DeAsia Armster	1951496
SM 2540 D-97	12/07/2017			12/08/2017	DeAsia Armster	1951496
SM 4500 F-C-97	12/07/2017			12/14/2017	Dale L. Simmons	1951496
SM 5310 B-00	12/07/2017			12/11/2017	Ping Hua	1951497
USGS O-2060-01	12/07/2017	12/11/2017	Hoor Shaik	12/12/2017	Julie Michelle Frank	1951559, 1951560
	12/07/2017	12/11/2017	Hoor Shaik	12/13/2017	Julie Michelle Frank	1951559, 1951560