

Chemical Analysis Report

NE-DIST-2017-08-15-01

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

Event Description: **Suwannee springs**
Request ID: **RQ-2017-08-07-10**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 07-SEP-2017 13:35



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: Hart Springs

Collection Date/Time: 08/14/2017 11:50

Field ID: G1NE0013 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921225	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P330254	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P330287	
		Sulfate	37		mg SO4/L	P330284	
	SM 2120 B	Color (true)	2.5	U	PCU	P330270	
	SM 2320 B-97	Total Alkalinity	214		mg CaCO3/L	P330396	
	SM 2540 C-97	TDS	295		mg/L	P330568	
	SM 2540 D-97	TSS	2	U	mg/L	P330636	
	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P330398	
1921228	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P330371	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P330354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.2		mg N/L	P330474	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P330326	
	SM 5310 B-00	Organic Carbon	0.71	I	mg C/L	P330411	
1921231	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P330242	

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: Cow Creek @ SR 138

Collection Date/Time: 08/14/2017 10:35

Field ID: G1NE0565 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921226	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P330254	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P330287	
		Sulfate	0.20	U	mg SO4/L	P330284	
	SM 2120 B	Color (true)	460		PCU	P330270	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P330396	
	SM 2540 C-97	TDS	138		mg/L	P330568	
	SM 2540 D-97	TSS	4	I	mg/L	P330636	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P330398	
1921229	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P330372	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P330354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330474	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P330326	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P330411	
1921232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P330242	

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: Cow Creek @ SR 138

Collection Date/Time: 08/14/2017 10:35

Field ID: G1NE0565 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921239	EPA 8321B	Sucralose**	0.010	U	ug/L	P330336	

Field ID: G1NE0565 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921239	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P330193	
		Diuron	8.0E-04	U	ug/L	P330193	
		Fenuron	0.0080	U	ug/L	P330193	
		Imidacloprid	8.0E-04	U	ug/L	P330193	MS
		Bentazon	8.0E-04	U	ug/L	P330193	
		Linuron	0.0040	U	ug/L	P330193	
		Acetaminophen**	0.0080	U	ug/L	P330193	
		MCP	0.0020	U	ug/L	P330193	
		Carbamazepine**	4.0E-04	U	ug/L	P330193	
		Triclopyr**	0.0040	U	ug/L	P330193	
		Primidone**	0.0040	U	ug/L	P330193	
		Fluridone**	4.0E-04	U	ug/L	P330193	

Ref. Method and Comment:

EPA 8321B: MS accuracy for sucralose could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Santa Fe R @ Hollingsworth Bluff

Collection Date/Time: 08/14/2017 10:15

Field ID: G1NE0624 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921227	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P330254	
	EPA 300.0 Rev. 2.1	Chloride	8.7		mg Cl/L	P330287	
		Sulfate	11		mg SO4/L	P330284	
	SM 2120 B	Color (true)	440		PCU	P330270	
	SM 2320 B-97	Total Alkalinity	81		mg CaCO3/L	P330396	
	SM 2540 C-97	TDS	199		mg/L	P330568	
	SM 2540 D-97	TSS	2	I	mg/L	P330636	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P330398	
1921230	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P330372	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P330354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P330474	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P330326	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P330411	
1921233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P330242	

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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P330254

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: P330284

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330287

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330371

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330372

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330326

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330242

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

Reference Method: EPA 8321B
Batch ID: P330336

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P330270

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P330396

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

Reference Method: SM 2540 C-97
Batch ID: P330568

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330636

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P330398

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P330411

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

Reference Method: USGS O-2060-01
Batch ID: P330193

Component	Result	Code	Units
2,4-D	8.0E-04	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: P330284

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330287

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330371

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330372

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330474

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330326

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330242

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

Reference Method: EPA 8321B
Batch ID: P330336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	119		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P330396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P330398

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330411

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

Reference Method: USGS O-2060-01
Batch ID: P330193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	69.7		P	40 - 150
Acetaminophen	73.4		P	30 - 150
Bentazon	76.8		P	40 - 150
Carbamazepine	77.6		P	40 - 150
Diuron	83.4		P	40 - 150
Fenuron	87.9		P	40 - 150
Fluridone	94.9		P	40 - 150
Imidacloprid	70.1		P	40 - 160
Linuron	86.3		P	40 - 150
MCP	52.9		P	40 - 150
Primidone	80.0		P	40 - 150
Triclopyr	58.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920879	Sulfate	93.5		P	90 - 110
1920897	Sulfate	93.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920879	Chloride	93.6		P	90 - 110
1920897	Chloride	94.3		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920927	Ammonia-N	95.5	96.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921348	Ammonia-N	100	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921210	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921228	Total-P	93.6	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921156	O-Phosphate-P	97.9	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P330398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921462	Fluoride	99.1	99.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P330411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921153	Organic Carbon	92.8	92.4	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P330193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921412	Acetaminophen	90.9	101	P/P	30 - 150
1921412	Bentazon	42.9	45.3	P/P	40 - 150
1921412	Carbamazepine	81.9	88.0	P/P	40 - 150
1921412	Diuron	68.6	73.3	P/P	40 - 150
1921412	Fenuron	74.6	75.2	P/P	40 - 150
1921412	Imidacloprid	184	208	F/F	40 - 160
1921412	Linuron	89.4	85.3	P/P	40 - 150
1921412	MCP	77.8	74.1	P/P	40 - 150
1921412	Primidone	116	122	P/P	40 - 150
1921412	Triclopyr	75.3	62.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921209	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920879	Sulfate	2.97	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920879	Chloride	0.509	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920927	Ammonia-N	0.492	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921348	Ammonia-N	1.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921348	Kjeldahl Nitrogen	1.59	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921210	NO2NO3-N	0.454	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921228	Total-P	4.56	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921156	O-Phosphate-P	2.71	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P330336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920954	Sucralose	7.89	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P330270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921209	Color (true)	1.66	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921462	Total Alkalinity	0.0663	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P330568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921219	TDS	6.86	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P330398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921462	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P330411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921153	Organic Carbon	0.418	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P330193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921412	2,4-D	12.1	Spike	P	0 - 30
1921412	Acetaminophen	11.0	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P330193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921412	Bentazon	2.20	Spike	P	0 - 30
1921412	Carbamazepine	6.85	Spike	P	0 - 30
1921412	Diuron	5.08	Spike	P	0 - 30
1921412	Fenuron	0.854	Spike	P	0 - 30
1921412	Fluridone	19.7	Spike	P	0 - 30
1921412	Imidacloprid	6.56	Spike	P	0 - 30
1921412	Linuron	4.76	Spike	P	0 - 30
1921412	MCP	4.82	Spike	P	0 - 30
1921412	Primidone	5.72	Spike	P	0 - 30
1921412	Triclopyr	18.8	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: 1921239
Field Sample ID: G1NE0565 08142017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	92.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	66.7	P	30 - 160
EPA 8321B	Diuron-d6	61.3	P	30 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	49.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	113	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	92.6	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	66.7	P	30 - 160
USGS O-2060-01	Diuron-d6	61.3	P	30 - 160
USGS O-2060-01	Primidone-d5	106	P	30 - 160
USGS O-2060-01	Sucralose-d6	49.6	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78412
Included Lab Sample IDs: 1921231, 1921232, 1921233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78413
Included Lab Sample IDs: 1921225, 1921226, 1921227

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A78419

Included Lab Sample IDs: 1921225, 1921226, 1921227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	85 - 115
Color (true)	99.9	101	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A78421

Included Lab Sample IDs: 1921225, 1921226, 1921227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	94.1	P/P	90 - 110
Sulfate	100	93.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78450

Included Lab Sample IDs: 1921228, 1921229, 1921230

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78463

Included Lab Sample IDs: 1921228, 1921230

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

Reference Method: SM 2320 B-97

Run ID: A78465

Included Lab Sample IDs: 1921225, 1921226, 1921227

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

Reference Method: SM 4500 F-C-97

Run ID: A78465

Included Lab Sample IDs: 1921225, 1921226, 1921227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78471

Included Lab Sample IDs: 1921228, 1921229, 1921230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	96.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78477

Included Lab Sample IDs: 1921229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78492

Included Lab Sample IDs: 1921228, 1921229, 1921230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78496

Included Lab Sample IDs: 1921228, 1921229, 1921230

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

Reference Method: USGS O-2060-01

Run ID: A78596

Included Lab Sample IDs: 1921239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	86.2	97.4	P/P	50 - 150
Acetaminophen	79.8	80.8	P/P	60 - 150
Bentazon	105	106	P/P	50 - 150
Carbamazepine	80.5	82.0	P/P	60 - 150
Diuron	86.4	91.6	P/P	60 - 150
Fenuron	89.0	89.1	P/P	60 - 150
Fluridone	96.8	99.1	P/P	60 - 160
Imidacloprid	80.7	75.6	P/P	60 - 150
Linuron	101	99.1	P/P	60 - 150
MCP	66.1	65.7	P/P	50 - 150
Primidone	90.4	95.1	P/P	60 - 150
Triclopyr	71.1	78.4	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A78750

Included Lab Sample IDs: 1921239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	115	117	P/P	60 - 150

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.0	
EPA 300.0 Rev. 2.1	Chloride	99.0	93.6	94.3		0.509	
	Sulfate	98.7	93.5	93.2		2.97	
EPA 350.1 Rev. 2.0	Ammonia-N	101	95.5	96.3			0.492
	Ammonia-N	102	100	98.1			1.98
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					1.59
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	104	104			0.454
EPA 365.1 Rev. 2.0	Total-P	97.2	93.6	98.7			4.56
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.9	101			2.71
EPA 8321B	Sucralose	119					7.89
SM 2120 B	Color (true)					1.66	
SM 2320 B-97	Total Alkalinity	102				0.0663	
SM 2540 C-97	TDS					6.86	
SM 4500 F-C-97	Fluoride	96.3	99.1	99.1			0.0
SM 5310 B-00	Organic Carbon	94.2	92.8	92.4			0.418
USGS O-2060-01	2,4-D	69.7					12.1
	Acetaminophen	73.4	90.9	101			11.0
	Bentazon	76.8	42.9	45.3			2.20
	Carbamazepine	77.6	81.9	88.0			6.85
	Diuron	83.4	68.6	73.3			5.08
	Fenuron	87.9	74.6	75.2			0.854
	Fluridone	94.9					19.7
	Imidacloprid	70.1	184	208			6.56
	Linuron	86.3	89.4	85.3			4.76
	MCPP	52.9	77.8	74.1			4.82
	Primidone	80.0	116	122			5.72
	Triclopyr	58.3	75.3	62.4			18.8

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1921225, 1921226, 1921227
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1921225, 1921226, 1921227
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1921225, 1921226, 1921227
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1921228, 1921229, 1921230
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1921228, 1921229, 1921230
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1921228, 1921229, 1921230
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1921228, 1921229, 1921230
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1921231, 1921232, 1921233
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1921239
SM 2120 B / E31780	True Color measured at 450 nm	1921225, 1921226, 1921227
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1921225, 1921226, 1921227
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1921225, 1921226, 1921227
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1921225, 1921226, 1921227
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1921225, 1921226, 1921227
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1921228, 1921229, 1921230
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1921239

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1921239

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	08/15/2017			08/15/2017 16:41	DeAsia Armster	1921225, 1921226, 1921227
EPA 300.0 Rev. 2.1	08/15/2017			08/15/2017	Julia Storbeck	1921225, 1921226, 1921227
EPA 350.1 Rev. 2.0	08/15/2017			08/16/2017	Sofia Elnemr	1921228, 1921229, 1921230
EPA 351.2 Rev. 2.0	08/15/2017	08/17/2017	Adrian Shelby	08/18/2017	Joseph Suarez	1921228, 1921229, 1921230
EPA 353.2 Rev. 2.0	08/15/2017			08/18/2017	Beverly Y. Sanders	1921228, 1921229, 1921230
EPA 365.1 Rev. 2.0	08/15/2017	08/16/2017	Sima Feizi	08/17/2017	Lipi Saha	1921228, 1921229, 1921230
EPA 365.1 Rev. 2.0 dissolved	08/15/2017			08/15/2017 14:17	Ping Hua	1921231
	08/15/2017			08/15/2017 14:18	Ping Hua	1921232, 1921233
EPA 8321B	08/15/2017	08/24/2017	Julie Michelle Frank	08/31/2017	Julie Michelle Frank	1921239
SM 2120 B	08/15/2017			08/15/2017 16:08	Tanya Welborn	1921225
	08/15/2017			08/15/2017 16:47	Tanya Welborn	1921226
	08/15/2017			08/15/2017 16:48	Tanya Welborn	1921227
SM 2320 B-97	08/15/2017			08/16/2017	Dale L. Simmons	1921225, 1921226, 1921227
SM 2540 C-97	08/15/2017			08/16/2017	Yijie Li	1921225, 1921226, 1921227
SM 2540 D-97	08/15/2017			08/16/2017	Yijie Li	1921225, 1921226, 1921227
SM 4500 F-C-97	08/15/2017			08/16/2017	Dale L. Simmons	1921225, 1921226, 1921227
SM 5310 B-00	08/15/2017			08/17/2017	Ping Hua	1921228, 1921229, 1921230
USGS O-2060-01	08/15/2017	08/16/2017	Hoor Shaik	08/20/2017	Juyoung Kim	1921239