

Chemical Analysis Report

NE-DIST-2017-02-08-01

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

Event Description: **Suwannee Springs and Boat**

Request ID: **RQ-2017-02-06-15**

Customer: **NE-DIST**

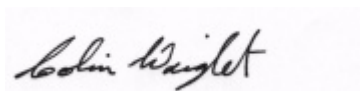
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 02-MAR-2017 11:52



NON-CONFORMANCE REPORT INCLUDED

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: Santa Fe R @ Hollingsworth Bluff

Collection Date/Time: 02/07/2017 09:45

Field ID: G1NE0624 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870830	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P319537	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P319982	
		Sulfate	30		mg SO4/L	P319985	
	SM 2120 B	Color (true)	31		PCU	P319541	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P319951	
	SM 2540 C-97	TDS	227		mg/L	P320250	
	SM 2540 D-97	TSS	2	U	mg/L	P319889	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P319955	
1870834	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P319696	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P319647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.97		mg N/L	P319901	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P319756	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P319673	
1870838	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.064		mg P/L	P319532	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Cow Creek @ SR 138

Collection Date/Time: 02/07/2017 10:05

Field ID: G1NE0565 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870831	EPA 180.1 Rev. 2.0	Turbidity	0.75	A	NTU	P319537	
	EPA 300.0 Rev. 2.1	Chloride	7.8		mg Cl/L	P319983	
		Sulfate	0.31	I	mg SO4/L	P319986	
	SM 2120 B	Color (true)	120	A	PCU	P319541	
	SM 2320 B-97	Total Alkalinity	179		mg CaCO3/L	P320109	
	SM 2540 C-97	TDS	224		mg/L	P320250	
	SM 2540 D-97	TSS	2	U	mg/L	P319889	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P319955	
1870835	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P319696	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P319647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P319901	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P319757	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P319673	
1870839	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P319532	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Cow Creek @ SR 138

Collection Date/Time: 02/07/2017 10:05

Field ID: G1NE0565 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1NE0565 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870854	EPA 8321B	Sucralose**	0.010	U	ug/L	P319242	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P319088	
		Fenuron	0.0080	U	ug/L	P319088	
		Imidacloprid	0.0040	U	ug/L	P319088	
		Linuron	0.0040	U	ug/L	P319088	
		Acetaminophen**	0.0040	U	ug/L	P319088	
		Carbamazepine**	4.0E-04	U	ug/L	P319088	
		Primidone**	0.0080	U	ug/L	P319088	
		Fluridone**	4.0E-04	U	ug/L	P319088	

Sample Location: Wacassassa R @ SR 24

Collection Date/Time: 02/07/2017 12:05

Field ID: G1NE0829 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870832	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P319537	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P319983	
		Sulfate	0.75		mg SO4/L	P319986	
	SM 2120 B	Color (true)	21		PCU	P319541	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P320109	
	SM 2540 C-97	TDS	134		mg/L	P320250	
	SM 2540 D-97	TSS	2	U	mg/L	P319889	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P319956	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P319696	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P319647	
1870836	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P319901	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P319757	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P319673	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Wacassassa R @ SR 24

Collection Date/Time: 02/07/2017 12:05

Field ID: G1NE0829 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870855	EPA 8321B	Sucralose**	0.010	U	ug/L	P319242	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P319088	
		Fenuron	0.0080	U	ug/L	P319088	
		Imidacloprid	0.0040	U	ug/L	P319088	
		Linuron	0.0040	U	ug/L	P319088	
		Acetaminophen**	0.0040	U	ug/L	P319088	
		Carbamazepine**	4.0E-04	U	ug/L	P319088	
		Primidone**	0.0080	U	ug/L	P319088	
		Fluridone**	4.0E-04	U	ug/L	P319088	

Sample Location: Blue Spring

Collection Date/Time: 02/07/2017 11:35

Field ID: G1NE0868 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870833	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P319537	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P319983	
		Sulfate	1.1		mg SO4/L	P319986	
	SM 2120 B	Color (true)	2.5	U	PCU	P319541	
	SM 2320 B-97	Total Alkalinity	114	A	mg CaCO3/L	P320109	
	SM 2540 C-97	TDS	115		mg/L	P320250	
	SM 2540 D-97	TSS	2	U	mg/L	P319889	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P319956	
1870837	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P320241	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P319647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.80		mg N/L	P319901	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P319757	
	SM 5310 B-00	Organic Carbon	0.64	I	mg C/L	P319673	
1870841	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P319532	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Wacassassa River @ SR 24

Collection Date/Time: 02/07/2017 12:05

Field ID: G1NE0829 02072017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1871037	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P319582	

Non-Conformance Report

NCR ID: 6250

Event(s)

NE-DIST-2017-02-08-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: 1) Submittal forms received with samples on 2/8/17 indicate collection on 2/2/17, the sample containers indicate collection on 2/7/17.

2) No sample received for W-P04-F from Wacassassa River @ SR 24 on 02/08/17 with RQ-2017-02-06-15. Sample was received on 02/09/17 with samples from RQ-2017-02-06-17.

Resolution: 1) Customer (Jeremy Parrish) contacted via phone and email. Customer verbally confirmed samples were collected on 2/7/17, awaiting response to email request for amended submittal forms. Samples were logged in according to collection date on container.

2) Sample collected at Wacassassa River @ SR 24 was added to the event created on 02/08/17 for RQ-2017-02-06-15.

Authorised by/Date: Ramsey K. White 2/28/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test. Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319537

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319982

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319983

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319986

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319696

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320241

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319647

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319901

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319756

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319757

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319582

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

Reference Method: EPA 8321B
Batch ID: P319242

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P319541

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P319951

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

Reference Method: SM 2320 B-97
Batch ID: P320109

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

Reference Method: SM 2540 C-97
Batch ID: P320250

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P319889

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P319955

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P319956

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P319673

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

Reference Method: USGS O-2060-01
Batch ID: P319088

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319982

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	106		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319696

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320241

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319647

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319756

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319757

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319582

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P319242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	75.7		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P319951

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

Reference Method: SM 2320 B-97
Batch ID: P320109

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

Reference Method: SM 4500 F-C-97
Batch ID: P319955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P319956

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

Reference Method: SM 5310 B-00
Batch ID: P319673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P319088

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	119		P	40 - 140
Carbamazepine	120		P	40 - 140
Diuron	87.6		P	40 - 140
Fenuron	98.4		P	40 - 140
Fluridone	90.0		P	40 - 140
Imidacloprid	106		P	40 - 160
Linuron	88.8		P	40 - 140
Primidone	98.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870790	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1871091	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870714	Sulfate	98.8		P	90 - 110
1870790	Sulfate	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1871091	Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870792	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1872659	Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870862	Kjeldahl Nitrogen	100	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870835	NO2NO3-N	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870731	Total-P	93.3	92.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870867	Total-P	93.3	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870814	O-Phosphate-P	98.3	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1871037	O-Phosphate-P	99.4	96.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P319242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870854	Sucralose	84.3	87.4	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P319955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870934	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P319956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870833	Fluoride	101	99.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P319673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870730	Organic Carbon	89.7	92.4	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P319088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869371	Acetaminophen	85.6	89.2	P/P	40 - 140
1869371	Carbamazepine	93.2	93.6	P/P	40 - 140
1869371	Diuron	71.2	72.0	P/P	40 - 140
1869371	Fenuron	78.4	80.8	P/P	40 - 140
1869371	Fluridone	70.4	72.8	P/P	40 - 140
1869371	Imidacloprid	148	146	P/P	40 - 160
1869371	Linuron	75.6	88.0	P/P	40 - 140
1869371	Primidone	83.6	82.0	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870790	Chloride	0.347	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1871091	Chloride	0.987	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870790	Sulfate	0.276	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1871091	Sulfate	0.772	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870792	Ammonia-N	1.12	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1872659	Ammonia-N	0.465	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870862	Kjeldahl Nitrogen	0.916	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870835	NO2NO3-N	2.33	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870731	Total-P	1.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870867	Total-P	0.442	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870814	O-Phosphate-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1871037	O-Phosphate-P	2.66	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P319242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870854	Sucralose	3.61	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P319541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870831	Color (true)	1.23	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870934	Total Alkalinity	0.266	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P320109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870833	Total Alkalinity	0.623	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P320250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870791	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P319955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870934	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
 Batch ID: P319956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870833	Fluoride	1.04	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P319673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870730	Organic Carbon	2.08	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P319088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869371	Acetaminophen	4.12	Spike	P	0 - 30
1869371	Carbamazepine	0.428	Spike	P	0 - 30
1869371	Diuron	1.12	Spike	P	0 - 30
1869371	Fenuron	3.02	Spike	P	0 - 30
1869371	Fluridone	3.35	Spike	P	0 - 30
1869371	Imidacloprid	1.09	Spike	P	0 - 30
1869371	Linuron	15.2	Spike	P	0 - 30
1869371	Primidone	1.93	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: 1870854
 Field Sample ID: G1NE0565 02072017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	93.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	99.0	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	80.2	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1870854
Field Sample ID: G1NE0565 02072017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Diuron-d6	46.2	P	40 - 150
USGS O-2060-01	Primidone-d5	48.2	P	40 - 150

Lab Sample ID: 1870855
Field Sample ID: G1NE0829 02072017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	99.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	112	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	120	P	40 - 160
USGS O-2060-01	Diuron-d6	84.6	P	40 - 150
USGS O-2060-01	Primidone-d5	83.6	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74352
Included Lab Sample IDs: 1870838, 1870839, 1870841

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.0	P/P	90 - 110
O-Phosphate-P	102	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74353
Included Lab Sample IDs: 1870830, 1870831, 1870832, 1870833

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A74354
Included Lab Sample IDs: 1870830, 1870831, 1870832, 1870833

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74369
Included Lab Sample IDs: 1871037

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.5	P/P	90 - 110

Reference Method: USGS O-2060-01
Run ID: A74390
Included Lab Sample IDs: 1870854, 1870855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	127	138	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A74390

Included Lab Sample IDs: 1870854, 1870855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	134	127	P/P	60 - 150
Carbamazepine	128	140	P/P	60 - 150
Carbamazepine	140	148	P/P	60 - 150
Diuron	118	118	P/P	60 - 150
Diuron	118	126	P/P	60 - 150
Fenuron	115	116	P/P	60 - 150
Fenuron	116	113	P/P	60 - 150
Fluridone	107	108	P/P	60 - 150
Fluridone	108	112	P/P	60 - 150
Imidacloprid	101	102	P/P	60 - 150
Imidacloprid	93.6	101	P/P	60 - 150
Linuron	86.8	96.8	P/P	60 - 150
Linuron	96.8	91.6	P/P	60 - 150
Primidone	104	94.4	P/P	60 - 150
Primidone	94.4	103	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A74405

Included Lab Sample IDs: 1870834, 1870835, 1870836, 1870837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74413

Included Lab Sample IDs: 1870834, 1870835, 1870836

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

Reference Method: EPA 8321B

Run ID: A74419

Included Lab Sample IDs: 1870854, 1870855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	87.5	97.9	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74442

Included Lab Sample IDs: 1870834, 1870835, 1870836, 1870837

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74455

Included Lab Sample IDs: 1870834

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.6	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74487

Included Lab Sample IDs: 1870835, 1870836, 1870837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74493

Included Lab Sample IDs: 1870834, 1870835, 1870836, 1870837

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

Reference Method: SM 2320 B-97

Run ID: A74518

Included Lab Sample IDs: 1870830

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

Reference Method: SM 4500 F-C-97

Run ID: A74518

Included Lab Sample IDs: 1870830, 1870831, 1870832, 1870833

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	106	105	P/P	90 - 110
Fluoride	99.0	106	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74527

Included Lab Sample IDs: 1870830, 1870831, 1870832, 1870833

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	106	P/P	90 - 110
Chloride	104	102	P/P	90 - 110
Sulfate	91.4	97.7	P/P	90 - 110
Sulfate	97.7	92.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74571

Included Lab Sample IDs: 1870831, 1870832, 1870833

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74627

Included Lab Sample IDs: 1870837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 300.0 Rev. 2.1	Chloride	105	104			0.347	
	Chloride	106	102			0.987	
	Sulfate	97.6	99.0	98.8		0.276	
	Sulfate	98.9	99.2			0.772	
EPA 350.1 Rev. 2.0	Ammonia-N	106	102	101			1.12
	Ammonia-N	96.3	99.7	100			0.465
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	100	99.1			0.916
EPA 353.2 Rev. 2.0	NO2NO3-N	106	105	103			2.33
EPA 365.1 Rev. 2.0	Total-P	96.4	93.3	92.0			1.30
	Total-P	94.1	93.3	93.7			0.442
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.3	97.0			1.05
	O-Phosphate-P	99.2	99.4	96.5			2.66
EPA 8321B	Sucralose	75.7	84.3	87.4			3.61
SM 2120 B	Color (true)					1.23	
SM 2320 B-97	Total Alkalinity	103				0.266	
	Total Alkalinity	104				0.623	
SM 2540 C-97	TDS					0.0	
SM 4500 F-C-97	Fluoride	96.1	101	100			0.473
	Fluoride	103	101	99.6			1.04
SM 5310 B-00	Organic Carbon	97.4	89.7	92.4			2.08
USGS O-2060-01	Acetaminophen	119	85.6	89.2			4.12
	Carbamazepine	120	93.2	93.6			0.428
	Diuron	87.6	71.2	72.0			1.12
	Fenuron	98.4	78.4	80.8			3.02
	Fluridone	90.0	70.4	72.8			3.35
	Imidacloprid	106	148	146			1.09
	Linuron	88.8	75.6	88.0			15.2
	Primidone	98.4	83.6	82.0			1.93

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1870830, 1870831, 1870832, 1870833
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1870830, 1870831, 1870832, 1870833
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1870830, 1870831, 1870832, 1870833
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1870834, 1870835, 1870836, 1870837
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1870834, 1870835, 1870836, 1870837
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1870834, 1870835, 1870836, 1870837
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1870834, 1870835, 1870836, 1870837

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1870838, 1870839, 1870841, 1871037
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1870854, 1870855
SM 2120 B / E31780	True Color measured at 450 nm	1870830, 1870831, 1870832, 1870833
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1870830, 1870831, 1870832, 1870833
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1870830, 1870831, 1870832, 1870833
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1870830, 1870831, 1870832, 1870833
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1870830, 1870831, 1870832, 1870833
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1870834, 1870835, 1870836, 1870837
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1870854, 1870855

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/08/2017			02/08/2017 16:31	Julie Michelle Frank	1870830, 1870831, 1870832, 1870833
EPA 300.0 Rev. 2.1	02/08/2017			02/16/2017	Ping Hua	1870830, 1870831, 1870832, 1870833
EPA 350.1 Rev. 2.0	02/08/2017			02/10/2017	Sofia Elnemr	1870834, 1870835, 1870836
	02/08/2017			02/21/2017	Sofia Elnemr	1870837
EPA 351.2 Rev. 2.0	02/08/2017	02/10/2017	Adrian Shelby	02/13/2017	Joseph Suarez	1870834, 1870835, 1870836, 1870837
EPA 353.2 Rev. 2.0	02/08/2017			02/15/2017	Beverly Y. Sanders	1870834, 1870835, 1870836, 1870837
EPA 365.1 Rev. 2.0	02/08/2017	02/13/2017	Vijayalakshmi Reddy	02/14/2017	Lipi Saha	1870834
	02/08/2017	02/13/2017	Vijayalakshmi Reddy	02/15/2017	Lipi Saha	1870835, 1870836, 1870837
EPA 365.1 Rev. 2.0 dissolved	02/08/2017			02/08/2017 16:06	Julie Michelle Frank	1870838
	02/08/2017			02/08/2017 16:11	Julie Michelle Frank	1870839
	02/08/2017			02/08/2017 16:12	Julie Michelle Frank	1870841
	02/09/2017			02/09/2017 11:08	Lipi Saha	1871037
EPA 8321B	02/08/2017	02/09/2017	Mohammad Ghaffari	02/10/2017	Mohammad Ghaffari	1870854, 1870855
SM 2120 B	02/08/2017			02/08/2017 18:46	Julie Michelle Frank	1870830
	02/08/2017			02/08/2017 18:48	Julie Michelle Frank	1870831, 1870832
	02/08/2017			02/08/2017 18:49	Julie Michelle Frank	1870833
SM 2320 B-97	02/08/2017			02/15/2017	Dale L. Simmons	1870830
	02/08/2017			02/19/2017	Dale L. Simmons	1870831, 1870832, 1870833
SM 2540 C-97	02/08/2017			02/10/2017	Sima Feizi	1870830, 1870831, 1870832, 1870833
SM 2540 D-97	02/08/2017			02/10/2017	Sima Feizi	1870830, 1870831, 1870832, 1870833
SM 4500 F-C-97	02/08/2017			02/15/2017	Dale L. Simmons	1870830, 1870831, 1870832, 1870833
SM 5310 B-00	02/08/2017			02/09/2017	Julie Michelle Frank	1870834, 1870835, 1870836, 1870837
USGS O-2060-01	02/08/2017	02/09/2017	Hoor Shaik	02/10/2017	Juyoung Kim	1870854, 1870855