

Chemical Analysis Report

NE-DIST-2017-02-21-01

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

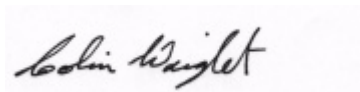
Event Description: **UEC South**
Request ID: **RQ-2017-02-20-08**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Colin Wright, Program Administrator

Date Certified: 13-MAR-2017 09:55

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on 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: 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: Red House Branch @ Heffron Rd.

Collection Date/Time: 02/20/2017 09:55

Field ID: G5NE0095 02202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873998	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P320211	
	EPA 300.0 Rev. 2.1	Chloride	52		mg Cl/L	P321008	
		Sulfate	21		mg SO4/L	P321011	
	SM 2120 B	Color (true)	41		PCU	P320224	
	SM 2320 B-97	Total Alkalinity	226		mg CaCO3/L	P320413	
	SM 2540 C-97	TDS	365		mg/L	P320672	
	SM 2540 D-97	TSS	2	I	mg/L	P320619	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P320422	
1874000	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P320320	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P320258	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P320465	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P320296	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P320484	
1874002	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P320204	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries 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: Red House Branch @ Heffron Rd.

Collection Date/Time: 02/20/2017 09:55

Field ID: G5NE0095 02202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1874049	EPA 8321B	Sucralose**	0.13		ug/L	P320274	
	USGS O-2060-01	Diuron	0.0040	U	ug/L	P320202	
		Fenuron	0.0080	U	ug/L	P320202	
		Imidacloprid	0.0040	U	ug/L	P320202	
		Linuron	0.0040	U	ug/L	P320202	
		Acetaminophen**	0.0040	U	ug/L	P320202	
		Carbamazepine**	4.0E-04	U	ug/L	P320202	
		Primidone**	0.0080	U	ug/L	P320202	
		Fluridone**	0.0049	J	ug/L	P320202	MS

Ref. Method and Comment:

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Sample Location: Moses Creek @ US1

Collection Date/Time: 02/20/2017 11:40

Field ID: G5NE0069 02202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873999	EPA 180.1 Rev. 2.0	Turbidity	4.3	A	NTU	P320212	
	EPA 300.0 Rev. 2.1	Chloride	80		mg Cl/L	P321226	
		Sulfate	11		mg SO4/L	P321228	
	SM 2120 B	Color (true)	76		PCU	P320224	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P320413	
	SM 2540 C-97	TDS	353		mg/L	P320672	
	SM 2540 D-97	TSS	4	I	mg/L	P320619	

Field ID: G5NE0069 02202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873999	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P320422	
1874001	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P320320	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P320258	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P320465	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P320297	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P320484	
1874003	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.092		mg P/L	P320204	

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P320211

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P320212

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321008

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321011

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321226

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321228

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320320

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320258

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320465

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320297

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

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

Reference Method: EPA 8321B
Batch ID: P320274

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P320224

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P320413

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

Reference Method: SM 2540 C-97
Batch ID: P320672

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P320619

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P320422

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320484

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

Reference Method: USGS O-2060-01
Batch ID: P320202

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: P321008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	90.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321226

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321228

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	91.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320320

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: P320258

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320465

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	90.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320297

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	90.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

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

Reference Method: EPA 8321B
Batch ID: P320274

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	89.7		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P320413

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P320422

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

Reference Method: SM 5310 B-00
Batch ID: P320484

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

Reference Method: USGS O-2060-01
Batch ID: P320202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	79.2		P	40 - 140
Carbamazepine	115		P	40 - 140
Diuron	85.2		P	40 - 140
Fenuron	105		P	40 - 140
Fluridone	86.8		P	40 - 140
Imidacloprid	102		P	40 - 160
Linuron	92.8		P	40 - 140
Primidone	86.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873900	Chloride	93.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873900	Sulfate	90.1		P	90 - 110
1873976	Sulfate	90.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874123	Chloride	100		P	90 - 110
1874534	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874123	Sulfate	97.6		P	90 - 110
1874534	Sulfate	91.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873902	Ammonia-N	95.1	93.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874001	Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873905	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873904	Total-P	97.8	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874124	Total-P	97.2	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873860	O-Phosphate-P	96.5	97.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P320274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874519	Sucralose	82.6	74.3	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P320422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874059	Fluoride	104	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874000	Organic Carbon	94.4	93.6	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P320202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874049	Acetaminophen	72.4	72.0	P/P	40 - 140
1874049	Carbamazepine	58.0	49.6	P/P	40 - 140
1874049	Diuron	41.2	46.8	P/P	40 - 140
1874049	Fenuron	49.2	49.2	P/P	40 - 140
1874049	Fluridone	38.7	48.3	F/P	40 - 140
1874049	Imidacloprid	113	110	P/P	40 - 160
1874049	Linuron	70.0	60.8	P/P	40 - 140
1874049	Primidone	48.0	58.4	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P320211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873898	Turbidity	2.86	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P320212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873999	Turbidity	3.53	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873976	Chloride	0.338	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873976	Sulfate	0.233	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874534	Chloride	0.0595	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874534	Sulfate	0.0905	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873902	Ammonia-N	1.22	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874001	Kjeldahl Nitrogen	0.964	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873905	NO2NO3-N	0.735	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873904	Total-P	1.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874124	Total-P	1.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873860	O-Phosphate-P	0.928	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P320274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874519	Sucralose	10.4	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P320224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873853	Color (true)	1.78	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P320413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874059	Total Alkalinity	0.174	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P320672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873912	TDS	5.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P320422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874059	Fluoride	2.40	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874000	Organic Carbon	0.504	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P320202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874049	Acetaminophen	0.554	Spike	P	0 - 30
1874049	Carbamazepine	15.6	Spike	P	0 - 30
1874049	Diuron	12.7	Spike	P	0 - 30
1874049	Fenuron	0.0	Spike	P	0 - 30
1874049	Fluridone	19.8	Spike	P	0 - 30
1874049	Imidacloprid	2.15	Spike	P	0 - 30
1874049	Linuron	14.1	Spike	P	0 - 30
1874049	Primidone	19.5	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

Quality Assurance Report Surrogates

Lab Sample ID: 1874049
Field Sample ID: G5NE0095 02202017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	92.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	72.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	69.0	P	40 - 160
USGS O-2060-01	Diuron-d6	55.0	P	40 - 150
USGS O-2060-01	Primidone-d5	63.6	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74619
Included Lab Sample IDs: 1874002, 1874003

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74620
Included Lab Sample IDs: 1873998, 1873999

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

Reference Method: SM 2120 B
Run ID: A74622
Included Lab Sample IDs: 1873998, 1873999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.8	94.5	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74655
Included Lab Sample IDs: 1874000, 1874001

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

Reference Method: USGS O-2060-01
Run ID: A74666
Included Lab Sample IDs: 1874049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	91.6	98.8	P/P	60 - 150
Carbamazepine	110	132	P/P	60 - 150
Diuron	97.2	114	P/P	60 - 150
Fenuron	118	128	P/P	60 - 150
Fluridone	111	112	P/P	60 - 150
Imidacloprid	110	117	P/P	60 - 150
Linuron	92.0	102	P/P	60 - 150
Primidone	96.0	111	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A74670
Included Lab Sample IDs: 1874049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	90.3	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74673
Included Lab Sample IDs: 1874000, 1874001

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	95.5	P/P	90 - 110
Kjeldahl Nitrogen	99.8	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74675
Included Lab Sample IDs: 1874000, 1874001

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.7	97.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A74690
Included Lab Sample IDs: 1873998, 1873999

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

Reference Method: SM 4500 F-C-97
Run ID: A74690
Included Lab Sample IDs: 1873998, 1873999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74706
Included Lab Sample IDs: 1874000, 1874001

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A74718
Included Lab Sample IDs: 1874000, 1874001

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A74874
Included Lab Sample IDs: 1873998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	94.3	97.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A74874
Included Lab Sample IDs: 1873998

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	92.0	93.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A74977
Included Lab Sample IDs: 1873999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	98.6	P/P	90 - 110
Sulfate	93.0	95.5	P/P	90 - 110

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				2.86	
	Turbidity				3.53	
EPA 300.0 Rev. 2.1	Chloride	95.7	93.5		0.338	
	Chloride	99.0	97.2	100	0.0595	
	Sulfate	90.6	90.5	90.1	0.233	
	Sulfate	91.3	91.1	97.6	0.0905	
EPA 350.1 Rev. 2.0	Ammonia-N	101	95.1	93.6		1.22
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	103		0.964
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	102		0.735
EPA 365.1 Rev. 2.0	Total-P	90.6	97.8	95.9		1.85
	Total-P	90.1	97.2	96.0		1.32
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	96.5	97.4		0.928
EPA 8321B	Sucralose	89.7	82.6	74.3		10.4
SM 2120 B	Color (true)				1.78	
SM 2320 B-97	Total Alkalinity	103			0.174	
SM 2540 C-97	TDS				5.13	
SM 4500 F-C-97	Fluoride	96.1	104	100		2.40
SM 5310 B-00	Organic Carbon	98.2	94.4	93.6		0.504
USGS O-2060-01	Acetaminophen	79.2	72.4	72.0		0.554
	Carbamazepine	115	58.0	49.6		15.6
	Diuron	85.2	41.2	46.8		12.7
	Fenuron	105	49.2	49.2		0.0
	Fluridone	86.8	38.7	48.3		19.8
	Imidacloprid	102	113	110		2.15
	Linuron	92.8	70.0	60.8		14.1
	Primidone	86.4	48.0	58.4		19.5

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1873998, 1873999
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1873998, 1873999
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1873998, 1873999
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1874000, 1874001
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1874000, 1874001
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1874000, 1874001
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1874000, 1874001
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1874002, 1874003
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1874049
SM 2120 B / E31780	True Color measured at 450 nm	1873998, 1873999
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1873998, 1873999
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1873998, 1873999
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1873998, 1873999
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1873998, 1873999
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1874000, 1874001
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1874049

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	02/21/2017			02/21/2017 15:21	Sima Feizi	1873998, 1873999
EPA 300.0 Rev. 2.1	02/21/2017			03/03/2017	Ping Hua	1873998
	02/21/2017			03/08/2017	Elisa J Lutz	1873999
EPA 350.1 Rev. 2.0	02/21/2017			02/22/2017	Sofia Elnemr	1874000, 1874001
EPA 351.2 Rev. 2.0	02/21/2017	02/22/2017	Adrian Shelby	02/23/2017	Joseph Suarez	1874000, 1874001
EPA 353.2 Rev. 2.0	02/21/2017			02/24/2017	Beverly Y. Sanders	1874000, 1874001
EPA 365.1 Rev. 2.0	02/21/2017	02/22/2017	Vijayalakshmi Reddy	02/23/2017	Lipi Saha	1874000, 1874001
EPA 365.1 Rev. 2.0 dissolved	02/21/2017			02/21/2017 15:05	Julia Storbeck	1874003
	02/21/2017			02/21/2017 15:08	Julia Storbeck	1874002
EPA 8321B	02/21/2017	02/22/2017	Mohammad Ghaffari	02/22/2017	Mohammad Ghaffari	1874049
SM 2120 B	02/21/2017			02/21/2017 15:58	Julie Michelle Frank	1873998
	02/21/2017			02/21/2017 15:59	Julie Michelle Frank	1873999
SM 2320 B-97	02/21/2017			02/23/2017	Dale L. Simmons	1873998, 1873999
SM 2540 C-97	02/21/2017			02/23/2017	Yijie Li	1873998, 1873999
SM 2540 D-97	02/21/2017			02/23/2017	Yijie Li	1873998, 1873999
SM 4500 F-C-97	02/21/2017			02/23/2017	Dale L. Simmons	1873998, 1873999
SM 5310 B-00	02/21/2017			02/23/2017	Julie Michelle Frank	1874000, 1874001
USGS O-2060-01	02/21/2017	02/23/2017	Hoor Shaik	02/24/2017	Juyoung Kim	1874049