

Chemical Analysis Report

NE-DIST-2018-04-06-01

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

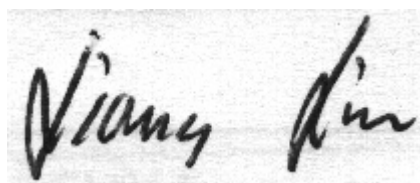
Event Description: **SCI Reference**
Request ID: **RQ-2018-02-12-39**
Customer: **NE-DIST**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-MAY-2018 17:04

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Little Orange Cr. at Hwy 21

Collection Date/Time: 04/05/2018 10:00

Field ID: 20020004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981845	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P342952	
	EPA 300.0	Bromide**	0.044		mg Br/L	P343503	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P343108	
		Sulfate	0.90		mg SO4/L	P343128	
	SM 2120 B	Color (true)	530		PCU	P342929	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	93		mg/L	P343219	
	SM 2540 D-97	TSS	4	I	mg/L	P343541	
	SM 4500 F-C-97	Fluoride	0.070	I	mg F/L	P343509	
1981846	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P343444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P343081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P343472	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P343197	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P343322	
1981847	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P342943	
1981852	EPA 8321B	2,4-D	0.0020	U	ug/L	P342880	
		Sucralose**	0.11	U	ug/L	P342827	
		Bentazon	8.0E-04	U	ug/L	P342880	
		MCP	0.0020	U	ug/L	P342880	
		Triclopyr**	0.0040	U	ug/L	P342880	
		Imidacloprid	0.0020	U	ug/L	P342880	MS
		Diuron	0.0020	U	ug/L	P342880	
		Pyraclostrobin**	0.0020	U	ug/L	P342880	
		Primidone**	0.0043	I	ug/L	P342880	
		Linuron	0.0040	U	ug/L	P342880	
		Acetaminophen**	0.0080	U	ug/L	P342880	MS
		Fenuron	0.016	U	ug/L	P342880	
		Imazapyr**	0.0040	U	ug/L	P342880	
		Carbamazepine**	4.0E-04	U	ug/L	P342880	
		Fluridone**	8.0E-04	U	ug/L	P342880	
		Hydrocodone**	8.0E-04	U	ug/L	P342880	
1981853	EPA 200.7 Rev. 4.4	Calcium	3.80		mg/L	P343227	
		Magnesium	1.51		mg/L	P343227	
		Potassium	1.0	I	mg/L	P343227	
		Sodium	4.2		mg/L	P343227	

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: P342952

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342952

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343227

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0
Batch ID: P343503

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343108

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343128

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343444

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343472

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343197

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342943

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

Reference Method: EPA 8321B
Batch ID: P342827

Component	Result	Code	Units
Sucralose	0.11	U	ug/L

Reference Method: EPA 8321B
Batch ID: P342880

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.021	I	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P342929

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343505

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

Reference Method: SM 2540 C-97
Batch ID: P343219

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343541

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P343509

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343322

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343227

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	96.2		P	85 - 115
Magnesium	98.5		P	85 - 115
Potassium	94.7		P	85 - 115
Sodium	93.9		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P343503

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343108

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343128

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343081

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343472

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P342827

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

Reference Method: EPA 8321B
Batch ID: P342880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	100		P	40 - 150
Acetaminophen	120		P	30 - 150
Bentazon	109		P	30 - 150
Carbamazepine	84.9		P	40 - 150
Diuron	65.1		P	40 - 150
Fenuron	124		P	40 - 150
Fluridone	60.3		P	40 - 150
Hydrocodone	112		P	40 - 150
Imazapyr	88.7		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	78.1		P	40 - 150
MCPP	92.3		P	40 - 150
Primidone	108		P	40 - 150
Pyraclostrobin	70.8		P	40 - 150
Triclopyr	91.0		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P343505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343509

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P343322

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343227

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983249	Calcium	84.1	84.6	P/P	80 - 120
1983249	Magnesium	86.5	86.6	P/P	80 - 120
1983249	Potassium	85.2	84.5	P/P	80 - 120
1983249	Sodium	84.7	83.4	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P343503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983217	Bromide	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981808	Chloride	99.6		P	90 - 110
1981859	Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981808	Sulfate	99.0		P	90 - 110
1981859	Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981827	Ammonia-N	97.8	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981827	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981824	NO2NO3-N	100	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981864	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981822	O-Phosphate-P	98.5	97.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P342827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981709	Sucralose	51.2	49.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983038	2,4-D	103	106	P/P	40 - 150
1983038	Acetaminophen	162	156	F/F	30 - 150
1983038	Bentazon	36.3	30.2	P/P	30 - 150
1983038	Carbamazepine	105	108	P/P	40 - 150
1983038	Diuron	73.9	71.7	P/P	40 - 150
1983038	Fenuron	110	104	P/P	40 - 150
1983038	Fluridone	47.2	56.1	P/P	40 - 150
1983038	Hydrocodone	123	116	P/P	40 - 150
1983038	Imazapyr	109	92.7	P/P	40 - 150
1983038	Imidacloprid	248	233	F/F	40 - 160
1983038	Linuron	82.0	91.2	P/P	40 - 150
1983038	MCP	75.1	83.1	P/P	40 - 150
1983038	Primidone	108	113	P/P	40 - 150
1983038	Pyraclostrobin	53.9	65.6	P/P	40 - 150
1983038	Triclopyr	78.5	83.4	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P343509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981919	Fluoride	102	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981341	Organic Carbon	93.6	93.2	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981845	Turbidity	16.6	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983249	Calcium	0.286	Spike	P	0 - 20
1983249	Magnesium	0.0513	Spike	P	0 - 20
1983249	Potassium	0.753	Spike	P	0 - 20
1983249	Sodium	1.42	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P343503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983217	Bromide	0.782	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981808	Chloride	0.876	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981808	Sulfate	0.565	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981827	Ammonia-N	0.522	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981827	Kjeldahl Nitrogen	0.753	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981824	NO2NO3-N	2.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981864	Total-P	0.555	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981822	O-Phosphate-P	0.713	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P342827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981709	Sucralose	1.53	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P342880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983038	2,4-D	2.47	Spike	P	0 - 30
1983038	Acetaminophen	3.67	Spike	P	0 - 30
1983038	Bentazon	16.4	Spike	P	0 - 30
1983038	Carbamazepine	3.18	Spike	P	0 - 30
1983038	Diuron	0.849	Spike	P	0 - 30
1983038	Fenuron	6.05	Spike	P	0 - 30
1983038	Fluridone	17.3	Spike	P	0 - 30
1983038	Hydrocodone	6.02	Spike	P	0 - 30
1983038	Imazapyr	14.2	Spike	P	0 - 30
1983038	Imidacloprid	6.33	Spike	P	0 - 30
1983038	Linuron	10.7	Spike	P	0 - 30
1983038	MCPP	10.1	Spike	P	0 - 30
1983038	Primidone	4.90	Spike	P	0 - 30
1983038	Pyraclostrobin	19.5	Spike	P	0 - 30
1983038	Triclopyr	5.98	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P342929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981814	Color (true)	0.157	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P343505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981919	Total Alkalinity	1.62	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981856	TDS	3.16	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P343509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981919	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981341	Organic Carbon	0.247	Spike	P	0 - 20

* 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: 1981852
Field Sample ID: 20020004

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	136	P	30 - 160
EPA 8321B	Carbamazepine-d10	137	P	30 - 160
EPA 8321B	Diuron-d6	95.2	P	30 - 160
EPA 8321B	Primidone-d5	96.6	P	30 - 160
EPA 8321B	Sucralose-d6	41.2	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A83083
Included Lab Sample IDs: 1981845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	100	P/P	90 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83086

Included Lab Sample IDs: 1981847

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83088

Included Lab Sample IDs: 1981845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	98.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83148

Included Lab Sample IDs: 1981845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	102	P/P	90 - 110
Sulfate	99.5	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A83189

Included Lab Sample IDs: 1981853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	99.9	99.7	P/P	90 - 110
Sodium	99.9	99.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83192

Included Lab Sample IDs: 1981852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	78.2	106	P/P	60 - 130

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83201

Included Lab Sample IDs: 1981846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83208

Included Lab Sample IDs: 1981846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83210

Included Lab Sample IDs: 1981846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83249

Included Lab Sample IDs: 1981846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83258

Included Lab Sample IDs: 1981846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83264

Included Lab Sample IDs: 1981845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83264

Included Lab Sample IDs: 1981845

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

Reference Method: EPA 300.0

Run ID: A83272

Included Lab Sample IDs: 1981845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.7	96.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83283

Included Lab Sample IDs: 1981852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	85.4	88.6	P/P	50 - 150
Acetaminophen	105	99.5	P/P	60 - 150
Bentazon	82.9	79.3	P/P	50 - 150
Carbamazepine	106	104	P/P	60 - 150
Diuron	114	106	P/P	60 - 150
Fenuron	109	110	P/P	60 - 150
Fluridone	99.5	98.9	P/P	60 - 160
Hydrocodone	98.8	113	P/P	60 - 150
Imazapyr	89.4	87.5	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83283
Included Lab Sample IDs: 1981852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	94.8	108	P/P	60 - 150
Linuron	110	104	P/P	60 - 150
MCPP	94.2	94.2	P/P	50 - 150
Primidone	102	105	P/P	60 - 150
Pyraclostrobin	111	113	P/P	60 - 150
Triclopyr	95.7	96.4	P/P	50 - 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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				16.6	
EPA 200.7 Rev. 4.4	Calcium	96.2	84.1 84.6			0.286
	Magnesium	98.5	86.5 86.6			0.0513
	Potassium	94.7	85.2 84.5			0.753
	Sodium	93.9	84.7 83.4			1.42
EPA 300.0	Bromide	103	100 101			0.782
EPA 300.0 Rev. 2.1	Chloride	101	99.6 99.2		0.876	
	Sulfate	101	99.0 98.6		0.565	
EPA 350.1 Rev. 2.0	Ammonia-N	96.1	97.8 98.3			0.522
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.7	105 103			0.753
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	100 103			2.46
EPA 365.1 Rev. 2.0	Total-P	99.8	105 106			0.555
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	98.5 97.8			0.713
EPA 8321B	2,4-D	100	103 106			2.47
	Acetaminophen	120	162 156			3.67
	Bentazon	109	36.3 30.2			16.4
	Carbamazepine	84.9	108 105			3.18
	Diuron	65.1	73.9 71.7			0.849
	Fenuron	124	110 104			6.05
	Fluridone	60.3	56.1 47.2			17.3
	Hydrocodone	112	123 116			6.02
	Imazapyr	88.7	109 92.7			14.2
	Imidacloprid	115	248 233			6.33
	Linuron	78.1	82.0 91.2			10.7
	MCPP	92.3	75.1 83.1			10.1
	Primidone	108	108 113			4.90
	Pyraclostrobin	70.8	53.9 65.6			19.5
	Sucralose	115	51.2 49.6			1.53
	Triclopyr	91.0	78.5 83.4			5.98
SM 2120 B	Color (true)				0.157	
SM 2320 B-97	Total Alkalinity	101			1.62	
SM 2540 C-97	TDS				3.16	
SM 4500 F-C-97	Fluoride	101	102 101			0.480
SM 5310 B-00	Organic Carbon	97.4	93.6 93.2			0.247

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1981845
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1981853
EPA 300.0 / E31780	Bromide in aqueous matrices	1981845
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1981845
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1981845
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1981846
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1981846
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1981846
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1981846
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1981847
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1981852
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1981852
SM 2120 B / E31780	True Color measured at 450 nm	1981845
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1981845
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1981845
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1981845
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1981845
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1981846

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	04/06/2018			04/06/2018 15:08	William L. Brown IV	1981845
EPA 200.7 Rev. 4.4	04/06/2018	04/11/2018 18:30	Elliott D. Healy	04/12/2018 10:58	Betina Topolski	1981853
EPA 300.0	04/06/2018			04/16/2018 22:03	Julia Storbeck	1981845
EPA 300.0 Rev. 2.1	04/06/2018			04/09/2018 20:01	Lipi Saha	1981845
EPA 350.1 Rev. 2.0	04/06/2018			04/13/2018 13:39	Julia Storbeck	1981846
EPA 351.2 Rev. 2.0	04/06/2018	04/10/2018 10:00	Adrian Shelby	04/12/2018 08:58	Joseph Suarez	1981846
EPA 353.2 Rev. 2.0	04/06/2018			04/16/2018 11:48	Lauren Bottorf	1981846
EPA 365.1 Rev. 2.0	04/06/2018	04/11/2018 13:08	Sima Feizi	04/13/2018 09:26	Beverly Y. Sanders	1981846
EPA 365.1 Rev. 2.0 dissolved	04/06/2018			04/06/2018 16:37	Megan Treadwell	1981847
EPA 8321B	04/06/2018	04/09/2018 11:30	Julie Michelle Frank	04/11/2018 12:46	Julie Michelle Frank	1981852
	04/06/2018	04/11/2018 09:00	Hoor Shaik	04/13/2018 06:56	Julie Michelle Frank	1981852
	04/06/2018	04/11/2018 09:00	Hoor Shaik	04/13/2018 23:40	Julie Michelle Frank	1981852
SM 2120 B	04/06/2018			04/06/2018 15:12	Tanya Welborn	1981845
SM 2320 B-97	04/06/2018			04/16/2018 10:02	Dale L. Simmons	1981845
SM 2540 C-97	04/06/2018			04/09/2018 14:02	Yijie Li	1981845
SM 2540 D-97	04/06/2018			04/09/2018 14:02	Yijie Li	1981845
SM 4500 F-C-97	04/06/2018			04/16/2018 10:02	Dale L. Simmons	1981845
SM 5310 B-00	04/06/2018			04/12/2018 19:44	Megan Treadwell	1981846