

Chemical Analysis Report

NW-DIST-2018-05-11-01

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

Event Description: **Laurel Hill West**
Request ID: **RQ-2018-05-07-42**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 04-JUN-2018 11:21

A handwritten signature in black ink, appearing to read "Colin Wright", 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 group are included in this report: Nutrients.

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: Turkey Creek above Williams Rd

Collection Date/Time: 05/10/2018 11:00

Field ID: G4NW0409

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992167	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P345146	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P345289	
		Sulfate	1.4		mg SO4/L	P345290	
	SM 2120 B	Color (true)	28		PCU	P345136	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	29		mg/L	P345719	
	SM 2540 D-97	TSS	4	I	mg/L	P345711	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1992173	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P345387	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P345400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.57		mg N/L	P345407	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P345336	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P345359	
1992179	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P345150	

Ref. Method and Comment:

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: East Branch Pine Log Creek above Bear Bay Flats Road

Collection Date/Time: 05/10/2018 11:35

Field ID: G4NW0208

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992168	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P345146	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P345289	
		Sulfate	0.20	U	mg SO4/L	P345290	
	SM 2120 B	Color (true)	140		PCU	P345136	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	49		mg/L	P345719	
	SM 2540 D-97	TSS	5	I	mg/L	P345711	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1992174	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P345387	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P345400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P345407	
	EPA 365.1 Rev. 2.0	Total-P	0.077		mg P/L	P345336	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P345359	
1992180	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P345150	

Ref. Method and Comment:

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: Pine Log Creek upstream of Long Road

Collection Date/Time: 05/10/2018 12:00

Field ID: G4NW0315

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992169	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P345146	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P345289	
		Sulfate	1.2		mg SO4/L	P345290	
	SM 2120 B	Color (true)	27	A	PCU	P345136	
	SM 2320 B-97	Total Alkalinity	8.9		mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	28		mg/L	P345719	
	SM 2540 D-97	TSS	2	I	mg/L	P345711	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1992175	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P345387	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P345400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P345407	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P345336	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P345359	
1992181	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P345150	

Ref. Method and Comment:

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: Beech Tree Creek above Un-named Road

Collection Date/Time: 05/10/2018 12:30

Field ID: G4NW0330

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992170	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P345146	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P345289	
		Sulfate	0.75		mg SO4/L	P345290	
	SM 2120 B	Color (true)	15		PCU	P345136	
	SM 2320 B-97	Total Alkalinity	0.70	I	mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	15	U	mg/L	P345719	
	SM 2540 D-97	TSS	4	I	mg/L	P345711	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1992176	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P345383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P345400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P345407	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P345337	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P345359	
1992182	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345150	

Ref. Method and Comment:

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: Long Creek upstream of Long Road

Collection Date/Time: 05/10/2018 12:50

Field ID: G4NW0308

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992171	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P345146	

Field ID: G4NW0308

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992171	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P345289	
		Sulfate	0.45	I	mg SO4/L	P345290	
	SM 2120 B	Color (true)	39		PCU	P345136	
	SM 2320 B-97	Total Alkalinity	2.4	I	mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	23	I	mg/L	P345719	
	SM 2540 D-97	TSS	2	I	mg/L	P345711	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1992177	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P345383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P345400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P345407	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P345337	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P345544	
1992183	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345150	

Ref. Method and Comment:

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: Pond Creek in McCloud Bay upstream of Hwy 393 **Collection Date/Time: 05/10/2018 13:40**

Field ID: G4NW0349

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992172	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P345146	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P345289	
		Sulfate	1.5		mg SO4/L	P345290	
	SM 2120 B	Color (true)	32		PCU	P345136	
	SM 2320 B-97	Total Alkalinity	5.1		mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	32		mg/L	P345719	
	SM 2540 D-97	TSS	3	I	mg/L	P345711	
1992178	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P345383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20		mg N/L	P345400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P345407	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P345337	
1992184	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P345544	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P345150	

Ref. Method and Comment:

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.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345146

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345289

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345383

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345387

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345400

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345407

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345336

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345337

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: P345150

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

Reference Method: SM 2120 B
Batch ID: P345136

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P345482

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

Reference Method: SM 2540 C-97
Batch ID: P345719

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P345711

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P345359

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

Reference Method: SM 5310 B-00
Batch ID: P345544

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345289

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345289

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345383

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345387

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: P345400

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345407

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345336

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345337

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345150

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P345482

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.1		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P345544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992098	Chloride	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992098	Sulfate	90.3		P	90 - 110
1992222	Sulfate	94.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991626	Ammonia-N	98.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992077	Ammonia-N	100	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992178	Kjeldahl Nitrogen	92.7	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992102	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992101	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992250	Total-P	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992179	O-Phosphate-P	96.6	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992222	Fluoride	95.2	93.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991899	Organic Carbon	94.0	95.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P345544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992177	Organic Carbon	96.0	96.0	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992167	Turbidity	2.37	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992098	Chloride	0.544	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992098	Sulfate	0.377	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991626	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992077	Ammonia-N	0.614	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992178	Kjeldahl Nitrogen	3.88	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992102	NO2NO3-N	0.935	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992101	Total-P	0.717	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992250	Total-P	0.972	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992179	O-Phosphate-P	0.872	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P345136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992169	Color (true)	1.07	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P345482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992222	Total Alkalinity	4.30	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P345719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992222	TDS	1.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992222	Fluoride	1.45	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P345359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991899	Organic Carbon	1.01	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P345544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992177	Organic Carbon	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

* 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 Calibration Verification

Reference Method: SM 2120 B

Run ID: A83828

Included Lab Sample IDs: 1992167, 1992168, 1992169, 1992170, 1992171, 1992172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	97.9	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83829

Included Lab Sample IDs: 1992167, 1992168, 1992169, 1992170, 1992171, 1992172

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83830

Included Lab Sample IDs: 1992179, 1992180, 1992181, 1992182, 1992183, 1992184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.6	P/P	90 - 110
O-Phosphate-P	98.5	99.5	P/P	90 - 110
O-Phosphate-P	99.4	98.4	P/P	90 - 110
O-Phosphate-P	99.6	98.5	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83885

Included Lab Sample IDs: 1992167, 1992168, 1992169, 1992170, 1992171, 1992172

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

Reference Method: SM 5310 B-00

Run ID: A83906

Included Lab Sample IDs: 1992173, 1992174, 1992175, 1992176

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.1	95.2	P/P	90 - 110
Organic Carbon	95.2	94.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83925

Included Lab Sample IDs: 1992173, 1992174, 1992175, 1992176, 1992177, 1992178

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83925

Included Lab Sample IDs: 1992173, 1992174, 1992175, 1992176, 1992177, 1992178

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83934

Included Lab Sample IDs: 1992173, 1992174, 1992175, 1992176, 1992177, 1992178

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

Reference Method: SM 2320 B-97

Run ID: A83969

Included Lab Sample IDs: 1992167, 1992168, 1992169, 1992170, 1992171, 1992172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83969

Included Lab Sample IDs: 1992167, 1992168, 1992169, 1992170, 1992171, 1992172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83989

Included Lab Sample IDs: 1992177, 1992178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83997

Included Lab Sample IDs: 1992174

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84025

Included Lab Sample IDs: 1992173, 1992174, 1992175, 1992176, 1992177, 1992178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.4	94.7	P/P	90 - 110
Kjeldahl Nitrogen	94.7	93.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84046

Included Lab Sample IDs: 1992173, 1992175, 1992176, 1992177, 1992178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84046

Included Lab Sample IDs: 1992173, 1992175, 1992176, 1992177, 1992178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	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				2.37	
EPA 300.0 Rev. 2.1	Chloride	96.9	92.7		0.544	
	Sulfate	96.4	90.3 94.6		0.377	
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.8 101			1.58
	Ammonia-N	101	100 101			0.614
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.8	92.7 97.1			3.88
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.0 100			0.935
EPA 365.1 Rev. 2.0	Total-P	101	103 102			0.717
	Total-P	100	101 99.6			0.972
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	96.6 97.5			0.872
SM 2120 B	Color (true)				1.07	
SM 2320 B-97	Total Alkalinity	102			4.30	
SM 2540 C-97	TDS				1.34	
SM 4500 F-C-97	Fluoride	95.6	95.2 93.6			1.45
SM 5310 B-00	Organic Carbon	95.1	94.0 95.1			1.01
	Organic Carbon	95.0	96.0 96.0			0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1992173, 1992174, 1992175, 1992176, 1992177, 1992178
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1992173, 1992174, 1992175, 1992176, 1992177, 1992178
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1992173, 1992174, 1992175, 1992176, 1992177, 1992178
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1992173, 1992174, 1992175, 1992176, 1992177, 1992178
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1992179, 1992180, 1992181, 1992182, 1992183, 1992184
SM 2120 B / E31780	True Color measured at 450 nm	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1992167, 1992168, 1992169, 1992170, 1992171, 1992172

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1992173, 1992174, 1992175, 1992176, 1992177, 1992178

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	05/11/2018			05/11/2018 14:35	Tanya Welborn	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
EPA 300.0 Rev. 2.1	05/11/2018			05/14/2018 20:54	Lipi Saha	1992167
	05/11/2018			05/14/2018 21:30	Lipi Saha	1992168
	05/11/2018			05/14/2018 21:42	Lipi Saha	1992169
	05/11/2018			05/14/2018 21:54	Lipi Saha	1992170
	05/11/2018			05/14/2018 22:06	Lipi Saha	1992171
EPA 350.1 Rev. 2.0	05/11/2018			05/14/2018 22:18	Lipi Saha	1992172
	05/11/2018			05/15/2018 10:18	Ping Hua	1992176
	05/11/2018			05/15/2018 10:20	Ping Hua	1992177
	05/11/2018			05/15/2018 10:27	Ping Hua	1992178
	05/11/2018			05/15/2018 12:30	Ping Hua	1992173
EPA 351.2 Rev. 2.0	05/11/2018			05/15/2018 12:32	Ping Hua	1992174
	05/11/2018			05/15/2018 12:33	Ping Hua	1992175
	05/11/2018	05/16/2018 11:00	Adrian Shelby	05/18/2018 17:16	Joseph Suarez	1992173
	05/11/2018	05/16/2018 11:00	Adrian Shelby	05/18/2018 17:17	Joseph Suarez	1992174
	05/11/2018	05/16/2018 11:00	Adrian Shelby	05/18/2018 17:21	Joseph Suarez	1992175
EPA 353.2 Rev. 2.0	05/11/2018			05/18/2018 17:23	Joseph Suarez	1992176
	05/11/2018			05/18/2018 17:24	Joseph Suarez	1992177
	05/11/2018	05/16/2018 11:00	Adrian Shelby	05/18/2018 17:25	Joseph Suarez	1992178
	05/11/2018			05/16/2018 11:37	Lauren Bottorf	1992173
	05/11/2018			05/16/2018 11:38	Lauren Bottorf	1992174
EPA 365.1 Rev. 2.0	05/11/2018			05/16/2018 11:40	Lauren Bottorf	1992175
	05/11/2018			05/16/2018 11:41	Lauren Bottorf	1992176
	05/11/2018			05/16/2018 11:42	Lauren Bottorf	1992177
	05/11/2018			05/16/2018 11:43	Lauren Bottorf	1992178
	05/11/2018	05/15/2018 12:25	Sima Feizi	05/17/2018 14:48	Beverly Y. Sanders	1992174
EPA 365.1 Rev. 2.0 dissolved	05/11/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 10:39	Beverly Y. Sanders	1992173
	05/11/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 10:40	Beverly Y. Sanders	1992175
	05/11/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 10:42	Beverly Y. Sanders	1992176
	05/11/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 10:43	Beverly Y. Sanders	1992177
	05/11/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 10:44	Beverly Y. Sanders	1992178
SM 2120 B	05/11/2018			05/11/2018 14:09	Julia Storbeck	1992179
	05/11/2018			05/11/2018 14:41	Julia Storbeck	1992180
	05/11/2018			05/11/2018 14:53	Julia Storbeck	1992181
	05/11/2018			05/11/2018 15:00	Julia Storbeck	1992183
	05/11/2018			05/11/2018 15:01	Julia Storbeck	1992184
	05/11/2018			05/11/2018 15:28	Julia Storbeck	1992182
	05/11/2018			05/11/2018 14:30	Tanya Welborn	1992167
	05/11/2018			05/11/2018 14:31	Tanya Welborn	1992168

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	05/11/2018			05/11/2018 14:32	Tanya Welborn	1992169
	05/11/2018			05/11/2018 14:33	Tanya Welborn	1992170
	05/11/2018			05/11/2018 14:34	Tanya Welborn	1992171
	05/11/2018			05/11/2018 14:35	Tanya Welborn	1992172
SM 2320 B-97	05/11/2018			05/16/2018 00:33	Dale L. Simmons	1992167
	05/11/2018			05/16/2018 00:44	Dale L. Simmons	1992168
	05/11/2018			05/16/2018 00:54	Dale L. Simmons	1992169
	05/11/2018			05/16/2018 01:03	Dale L. Simmons	1992170
	05/11/2018			05/16/2018 01:15	Dale L. Simmons	1992171
SM 2540 C-97	05/11/2018			05/16/2018 01:26	Dale L. Simmons	1992172
	05/11/2018			05/16/2018 15:26	Yijie Li	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
SM 2540 D-97	05/11/2018			05/16/2018 15:26	Yijie Li	1992167, 1992168, 1992169, 1992170, 1992171, 1992172
SM 4500 F-C-97	05/11/2018			05/16/2018 00:33	Dale L. Simmons	1992167
	05/11/2018			05/16/2018 00:44	Dale L. Simmons	1992168
	05/11/2018			05/16/2018 00:54	Dale L. Simmons	1992169
	05/11/2018			05/16/2018 01:03	Dale L. Simmons	1992170
	05/11/2018			05/16/2018 01:15	Dale L. Simmons	1992171
	05/11/2018			05/16/2018 01:26	Dale L. Simmons	1992172
SM 5310 B-00	05/11/2018			05/15/2018 06:02	Megan Treadwell	1992173
	05/11/2018			05/15/2018 06:17	Megan Treadwell	1992174
	05/11/2018			05/15/2018 06:31	Megan Treadwell	1992175
	05/11/2018			05/15/2018 07:14	Megan Treadwell	1992176
	05/11/2018			05/16/2018 15:27	Megan Treadwell	1992177
	05/11/2018			05/16/2018 16:27	Megan Treadwell	1992178