

Chemical Analysis Report

NE-DIST-2018-01-18-01

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

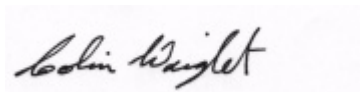
Event Description: **Interlachen_2018**
Request ID: **RQ-2018-01-15-21**
Customer: **NE-DIST**
Project ID: **SMP**

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

Date Certified: 12-FEB-2018 11:40

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 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: MARINER LAKE-CENTER

Collection Date/Time: 01/17/2018 12:00

Field ID: G1NE0859

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960149	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P338446	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P338535	
		Sulfate	2.4		mg SO4/L	P338536	
	SM 2120 B	Color (true)	16	A	PCU	P338450	
	SM 2320 B-97	Total Alkalinity	0.90	I	mg CaCO3/L	P339324	
	SM 2540 C-97	TDS	17	I	mg/L	P338819	
	SM 2540 D-97	TSS	2	U	mg/L	P338609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339354	
1960156	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P338727	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P338596	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P338572	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P338579	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P338920	
1960163	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338437	

Ref. Method and Comment:

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

Sample Location: HARDESTY LAKE-CENTER

Collection Date/Time: 01/17/2018 13:30

Field ID: G1NE0869

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960150	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P338446	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P338535	
		Sulfate	1.4		mg SO4/L	P338536	
	SM 2120 B	Color (true)	370		PCU	P338450	
	SM 2320 B-97	Total Alkalinity	0.96	I	mg CaCO3/L	P339324	
	SM 2540 C-97	TDS	42		mg/L	P338819	
	SM 2540 D-97	TSS	2	U	mg/L	P338609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339354	
1960157	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P338726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P338588	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P338572	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P338579	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P338920	
1960164	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P338437	

Ref. Method and Comment:

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

Sample Location: CLEARWATER LAKE

Collection Date/Time: 01/17/2018 11:35

Field ID: G2NE1131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960151	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P338446	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P338535	
		Sulfate	6.2		mg SO4/L	P338536	

Field ID: G2NE1131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960151	SM 2120 B	Color (true)	200		PCU	P338450	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P339324	
	SM 2540 C-97	TDS	54		mg/L	P338819	
	SM 2540 D-97	TSS	2	U	mg/L	P338609	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P339354	
1960158	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P338727	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P338588	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P338573	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P338579	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P338920	
1960165	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P338437	

Ref. Method and Comment:

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

Sample Location: CHURCH LAKE-CENTER

Collection Date/Time: 01/17/2018 13:05

Field ID: G1NE0867

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960152	EPA 180.1 Rev. 2.0	Turbidity	3.1	A	NTU	P338447	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P338535	
		Sulfate	4.3		mg SO4/L	P338536	
	SM 2120 B	Color (true)	36		PCU	P338450	
	SM 2320 B-97	Total Alkalinity	4.0		mg CaCO3/L	P339324	
	SM 2540 C-97	TDS	33		mg/L	P338819	
	SM 2540 D-97	TSS	2	U	mg/L	P338609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339354	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P338727	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P338588	
1960159	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P338573	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P338580	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P338920	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P338437	

Ref. Method and Comment:

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

Sample Location: LAKE IDA-CENTER

Collection Date/Time: 01/17/2018 12:40

Field ID: 20020116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960153	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P338447	
	EPA 300.0 Rev. 2.1	Chloride	8.3		mg Cl/L	P338535	
		Sulfate	2.1		mg SO4/L	P338536	
	SM 2120 B	Color (true)	380		PCU	P338450	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P339324	
	SM 2540 C-97	TDS	49		mg/L	P338820	
	SM 2540 D-97	TSS	2	U	mg/L	P338609	

Field ID: 20020116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960153	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339354	
1960160	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P338727	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P338588	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P338573	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P338580	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P338920	
1960167	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P338437	

Ref. Method and Comment:

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

Sample Location: SMITH LAKE CENTER

Collection Date/Time: 01/17/2018 10:40

Field ID: G2NE1156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960154	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P338447	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P338535	
		Sulfate	1.9		mg SO4/L	P338536	
	SM 2120 B	Color (true)	34		PCU	P338450	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P339324	
	SM 2540 C-97	TDS	19	I	mg/L	P338820	
	SM 2540 D-97	TSS	2	U	mg/L	P338609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339354	
1960161	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P338727	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P338588	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P338573	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P338580	
	SM 5310 B-00	Organic Carbon	9.3		mg C/L	P338870	
1960168	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P338437	

Ref. Method and Comment:

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

Sample Location: HARDESTY LAKE-CENTER

Collection Date/Time: 01/17/2018 13:35

Field ID: G1NE0869DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960155	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P338447	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P338535	
		Sulfate	1.4		mg SO4/L	P338536	
	SM 2120 B	Color (true)	380		PCU	P338451	
	SM 2320 B-97	Total Alkalinity	1.1	I	mg CaCO3/L	P339325	
	SM 2540 C-97	TDS	47		mg/L	P338820	
	SM 2540 D-97	TSS	2	U	mg/L	P338609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P339354	
1960162	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P338726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P338588	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P338572	

Field ID: G1NE0869DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960162	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P338580	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P338870	
1960169	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P338437	

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: P338446

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P338447

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338535

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338536

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338726

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338727

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338588

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338596

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338596

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338572

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338573

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338579

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338580

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338437

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

Reference Method: SM 2120 B
Batch ID: P338450

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P338451

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339324

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P339325

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

Reference Method: SM 2540 C-97
Batch ID: P338819

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P338820

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P338609

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P339354

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P338870

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

Reference Method: SM 5310 B-00
Batch ID: P338920

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: P338535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338536

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: P338536

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338726

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	91.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338588

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338572

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338573

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338579

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338580

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338437

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

Reference Method: SM 2320 B-97
Batch ID: P339324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P339325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P338870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.9		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P338920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960154	Chloride	95.8		P	90 - 110
1960460	Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960154	Sulfate	91.7		P	90 - 110
1960460	Sulfate	96.7		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338726

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960092	Ammonia-N	90.3	93.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960159	Ammonia-N	92.2	91.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338588

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960420	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960156	Kjeldahl Nitrogen	101	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960035	NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960158	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960004	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960420	Total-P	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960163	O-Phosphate-P	101	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P339354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960474	Fluoride	98.0	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P338870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960418	Organic Carbon	93.4	94.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P338920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1959942	Organic Carbon	105		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960032	Turbidity	3.58	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960152	Turbidity	3.59	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960460	Chloride	0.149	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960460	Sulfate	0.486	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960092	Ammonia-N	3.16	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960159	Ammonia-N	0.218	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960420	Kjeldahl Nitrogen	0.534	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960156	Kjeldahl Nitrogen	5.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960035	NO2NO3-N	0.174	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960158	NO2NO3-N	0.939	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960004	Total-P	0.367	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960420	Total-P	1.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960163	O-Phosphate-P	0.396	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P338450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960149	Color (true)	10.2	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P338451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960033	Color (true)	2.30	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P339324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960861	Total Alkalinity	0.164	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P339325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960644	Total Alkalinity	0.879	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P338819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960138	TDS	0.819	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P338820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960249	TDS	2.70	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P339354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960474	Fluoride	0.477	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P338870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960418	Organic Carbon	0.519	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P338920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959942	Organic Carbon	1.42	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 Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A81524
Included Lab Sample IDs: 1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	104	P/P	90 - 110
Chloride	104	106	P/P	90 - 110
Sulfate	104	99.8	P/P	90 - 110
Sulfate	99.8	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81535
Included Lab Sample IDs: 1960163, 1960164, 1960165, 1960166, 1960167, 1960168, 1960169

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	100	P/P	90 - 110
O-Phosphate-P	99.6	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81536
Included Lab Sample IDs: 1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A81537
Included Lab Sample IDs: 1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	85 - 115
Color (true)	101	104	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A81579
Included Lab Sample IDs: 1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81601

Included Lab Sample IDs: 1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81612

Included Lab Sample IDs: 1960157, 1960158, 1960159, 1960160, 1960161, 1960162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81617

Included Lab Sample IDs: 1960156

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81629

Included Lab Sample IDs: 1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	91.4	92.2	P/P	90 - 110
Ammonia-N	93.7	93.8	P/P	90 - 110
Ammonia-N	95.4	93.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81672

Included Lab Sample IDs: 1960161, 1960162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.4	93.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81692

Included Lab Sample IDs: 1960156, 1960157, 1960158, 1960159, 1960160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	98.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A81852

Included Lab Sample IDs: 1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	97.7	P/P	90 - 110
Total Alkalinity	97.7	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A81863

Included Lab Sample IDs: 1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	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				3.58	
	Turbidity				3.59	
EPA 300.0 Rev. 2.1	Chloride	99.3	99.9	95.8	0.149	
	Sulfate	94.9	96.7	91.7	0.486	
EPA 350.1 Rev. 2.0	Ammonia-N	93.2	90.3	93.7		3.16
	Ammonia-N	91.5	92.2	91.8		0.218
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	100	101		0.534
	Kjeldahl Nitrogen	108	101	108		5.73
EPA 353.2 Rev. 2.0	NO2NO3-N	105	104			0.174
	NO2NO3-N	105	103	102		0.939
EPA 365.1 Rev. 2.0	Total-P	100	102	102		0.367
	Total-P	95.2	100	102		1.95
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	101	101		0.396
SM 2120 B	Color (true)				10.2	
	Color (true)				2.30	
SM 2320 B-97	Total Alkalinity	99.6			0.164	
	Total Alkalinity	101			0.879	
SM 2540 C-97	TDS				0.819	
	TDS				2.70	
SM 4500 F-C-97	Fluoride	96.0	98.0	98.6		0.477
SM 5310 B-00	Organic Carbon	93.9	93.4	94.1		0.519
	Organic Carbon	98.8	105			1.42

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780 SM 2120 B / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L True Color measured at 450 nm	1960163, 1960164, 1960165, 1960166, 1960167, 1960168, 1960169 1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162

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	01/18/2018			01/18/2018 14:33	DeAsia Armster	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
EPA 300.0 Rev. 2.1	01/18/2018			01/19/2018	Julia Storbeck	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
EPA 350.1 Rev. 2.0	01/18/2018			01/24/2018	Ping Hua	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162
EPA 351.2 Rev. 2.0	01/18/2018	01/22/2018	Adrian Shelby	01/23/2018	Joseph Suarez	1960157, 1960158, 1960159, 1960160, 1960161, 1960162
	01/18/2018	01/23/2018	Adrian Shelby	01/24/2018	Joseph Suarez	1960156
EPA 353.2 Rev. 2.0	01/18/2018			01/22/2018	Lauren Bottorf	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162
EPA 365.1 Rev. 2.0	01/18/2018	01/22/2018	Sima Feizi	01/23/2018	Beverly Y. Sanders	1960156, 1960157, 1960158, 1960159, 1960160, 1960161, 1960162
EPA 365.1 Rev. 2.0 dissolved	01/18/2018			01/18/2018 14:09	Megan Treadwell	1960163
	01/18/2018			01/18/2018 14:30	Megan Treadwell	1960164
	01/18/2018			01/18/2018 14:31	Megan Treadwell	1960165, 1960166
	01/18/2018			01/18/2018 14:32	Megan Treadwell	1960167
	01/18/2018			01/18/2018 14:33	Megan Treadwell	1960168
	01/18/2018			01/18/2018 14:34	Megan Treadwell	1960169
SM 2120 B	01/18/2018			01/18/2018 16:18	DeAsia Armster	1960149
	01/18/2018			01/18/2018 16:20	DeAsia Armster	1960152
	01/18/2018			01/18/2018 16:22	DeAsia Armster	1960154
	01/18/2018			01/18/2018 16:38	DeAsia Armster	1960150
	01/18/2018			01/18/2018 16:39	DeAsia Armster	1960151
	01/18/2018			01/18/2018 16:40	DeAsia Armster	1960153, 1960155
SM 2320 B-97	01/18/2018			01/25/2018	Dale L. Simmons	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 2540 C-97	01/18/2018			01/19/2018	DeAsia Armster	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 2540 D-97	01/18/2018			01/19/2018	DeAsia Armster	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 4500 F-C-97	01/18/2018			02/05/2018	Dale L. Simmons	1960149, 1960150, 1960151, 1960152, 1960153, 1960154, 1960155
SM 5310 B-00	01/18/2018			01/24/2018	Megan Treadwell	1960161, 1960162
	01/18/2018			01/26/2018	Megan Treadwell	1960156, 1960157, 1960158, 1960159, 1960160