

Chemical Analysis Report

NE-DIST-2018-06-29-01

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

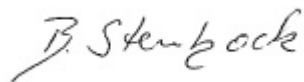
Event Description: **Interlachen 2**
Request ID: **RQ-2018-06-18-11**
Customer: **NE-DIST**
Project ID: **SMP**

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

For additional information please contact
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Liang-Tsair Lin, Ph.D.
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 25-JUL-2018 18:46



NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

Results for the following analytical 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: Galilee Lake Center

Collection Date/Time: 06/28/2018 12:30

Field ID: G1NE0870

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004427	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P347783	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P348363	
		Sulfate	3.3		mg SO4/L	P348367	
	SM 2120 B	Color (true)	18		PCU	P347778	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P348196	RPD
	SM 2540 C-97	TDS	27		mg/L	P348156	
	SM 2540 D-97	TSS	3	I	mg/L	P348064	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P348103	
2004432	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P348353	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P348140	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347833	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P348077	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P348373	
2004437	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P347922	

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: South Bull Pond Center

Collection Date/Time: 06/28/2018 10:15

Field ID: G1NE0861

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004428	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P347783	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P348363	
		Sulfate	2.5		mg SO4/L	P348367	
	SM 2120 B	Color (true)	260		PCU	P347778	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348196	RPD
	SM 2540 C-97	TDS	69		mg/L	P348156	
	SM 2540 D-97	TSS	3	I	mg/L	P348064	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P348103	
2004433	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P348353	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P348140	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347833	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P348077	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P348328	
2004438	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P347922	

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: Cowpen Lake Center

Collection Date/Time: 06/28/2018 10:55

Field ID: 20020053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004429	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P347783	
	EPA 300.0 Rev. 2.1	Chloride	8.5		mg Cl/L	P348363	
		Sulfate	3.4		mg SO4/L	P348367	
	SM 2120 B	Color (true)	14		PCU	P347778	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P348196	RPD
	SM 2540 C-97	TDS	40		mg/L	P348156	
	SM 2540 D-97	TSS	2	I	mg/L	P348064	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P348103	
2004434	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P348354	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P348140	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347834	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P348077	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P348373	
2004439	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347923	

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: Gillis Pond Center

Collection Date/Time: 06/28/2018 12:00

Field ID: G1NE0863

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004430	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P347783	
	EPA 300.0 Rev. 2.1	Chloride	11	J	mg Cl/L	P348630	
		Sulfate	2.8	J	mg SO4/L	P348633	
	SM 2120 B	Color (true)	210	J	PCU	P347778	
	SM 2320 B-97	Total Alkalinity	0.65	UJ	mg CaCO3/L	P348196	RPD
	SM 2540 C-97	TDS	33	J	mg/L	P348156	
	SM 2540 D-97	TSS	4	IJ	mg/L	P348064	
	SM 4500 F-C-97	Fluoride	0.035	UJ	mg F/L	P348103	
2004435	EPA 350.1 Rev. 2.0	Ammonia-N	1.3		mg N/L	P348354	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P348140	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P347834	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P348078	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P348373	
2004440	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347923	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Sample container broken. Sample integrity may be compromised.

EPA 300.0 Rev. 2.1: Sulfate: Sample container broken. Sample integrity may be compromised.

SM 2120 B: Sample container broken. Sample integrity may be compromised.

SM 2320 B-97: Sample container broken. Sample integrity may be compromised.

SM 2540 C-97: Sample container broken. Sample integrity may be compromised.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample container broken. Sample integrity may be compromised.

SM 4500 F-C-97: Sample container broken. Sample integrity may be compromised.

Sample Location: Lake Fanny Center

Collection Date/Time: 06/28/2018 11:25

Field ID: 20020100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004431	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P347783	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P348630	
		Sulfate	7.7		mg SO4/L	P348633	
	SM 2120 B	Color (true)	27		PCU	P347778	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348196	RPD
	SM 2540 C-97	TDS	55		mg/L	P348157	
	SM 2540 D-97	TSS	3	IA	mg/L	P348065	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P348103	
2004436	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P348354	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P348140	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.095		mg N/L	P347834	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P348078	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P348373	
2004441	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347923	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 7113

Event(s)

NE-DIST-2018-06-29-01

Job(s)

TLH-2018-06-29-55

Sample(s)

2004430

Test(s)

NCR Type: CUSTODY

NCR Category: General

Observation: Sample was dropped at approximately 2:25pm on 6/29/18 and developed a hole leaking a small volume of sample.

Resolution: Sample was transfered to a new bottle and relabeled at 2:29pm on 6/29/18.

Authorized by/Date: Peter D. Kaus 7/20/2018

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347783

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348363

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348367

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348630

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348633

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348353

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348354

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348140

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347833

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347834

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348077

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347922

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347923

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

Reference Method: SM 2120 B
Batch ID: P347778

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P348196

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

Reference Method: SM 2540 C-97
Batch ID: P348156

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P348157

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P348064

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P348065

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P348103

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P348328

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

Reference Method: SM 5310 B-00
Batch ID: P348373

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: P348363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348367

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348630

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	107		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348633

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348353

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348354

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348140

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347833

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347834

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348077

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347922

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347923

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

Reference Method: SM 2120 B
Batch ID: P347778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P348196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P348103

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

Reference Method: SM 5310 B-00
Batch ID: P348328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P348373

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004379	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004379	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004430	Chloride	105	97.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004430	Sulfate	98.4	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004381	Ammonia-N	98.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004434	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004539	Kjeldahl Nitrogen	103	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004381	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004434	NO2NO3-N	100	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004312	Total-P	98.8	92.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004435	Total-P	94.8	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003957	O-Phosphate-P	90.6	91.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347923

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004170	O-Phosphate-P	96.2	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P348103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004379	Fluoride	98.4	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P348328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003948	Organic Carbon	100	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P348373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004306	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004380	Turbidity	1.59	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004379	Chloride	0.758	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004379	Sulfate	0.888	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004430	Chloride	5.62	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004430	Sulfate	1.70	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004381	Ammonia-N	1.77	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004434	Ammonia-N	0.278	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004539	Kjeldahl Nitrogen	4.62	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004381	NO2NO3-N	0.980	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004434	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004312	Total-P	5.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004435	Total-P	2.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003957	O-Phosphate-P	1.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004170	O-Phosphate-P	0.263	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P347778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004379	Color (true)	1.59	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P348196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004379	Total Alkalinity	3.62	Sample	F	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P348156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004302	TDS	3.51	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P348157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004163	TDS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P348103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004379	Fluoride	0.509	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P348328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003948	Organic Carbon	0.975	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P348373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004306	Organic Carbon	1.70	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: SM 2120 B

Run ID: A84943

Included Lab Sample IDs: 2004427, 2004428, 2004429, 2004430, 2004431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115
Color (true)	102	102	P/P	90 - 115
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84944

Included Lab Sample IDs: 2004427, 2004428, 2004429, 2004430, 2004431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84966

Included Lab Sample IDs: 2004432, 2004433, 2004434, 2004435, 2004436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85002

Included Lab Sample IDs: 2004437, 2004438, 2004439, 2004440, 2004441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A85091

Included Lab Sample IDs: 2004427, 2004428, 2004429, 2004430, 2004431

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85110

Included Lab Sample IDs: 2004432, 2004433, 2004435

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85129

Included Lab Sample IDs: 2004427, 2004428, 2004429, 2004430, 2004431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	107	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85140

Included Lab Sample IDs: 2004434, 2004436

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

Reference Method: SM 5310 B-00

Run ID: A85182

Included Lab Sample IDs: 2004433

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85187

Included Lab Sample IDs: 2004427, 2004428, 2004429, 2004430, 2004431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	98.6	P/P	90 - 110
Chloride	99.3	98.6	P/P	90 - 110
Chloride	99.7	99.7	P/P	90 - 110
Sulfate	96.9	97.1	P/P	90 - 110
Sulfate	98.1	98.0	P/P	90 - 110
Sulfate	98.6	96.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85188

Included Lab Sample IDs: 2004432, 2004433, 2004434, 2004435, 2004436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	102	102	P/P	90 - 110
Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85189

Included Lab Sample IDs: 2004432, 2004433, 2004434, 2004435, 2004436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.0	P/P	90 - 110
Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85195

Included Lab Sample IDs: 2004432, 2004434, 2004435, 2004436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.9	99.8	P/P	90 - 110
Organic Carbon	99.8	98.8	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	Precision		
				LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.59	
EPA 300.0 Rev. 2.1	Chloride	99.5	98.4		0.758	
	Chloride	107	105 97.1			5.62
	Sulfate	97.1	101		0.888	
	Sulfate	104	98.4 96.6			1.70
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.5 100			1.77
	Ammonia-N	102	102 101			0.278
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103 97.6			4.62
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102 102			0.980
	NO2NO3-N	99.5	100 102			0.990
EPA 365.1 Rev. 2.0	Total-P	97.8	98.8 92.5			5.24
	Total-P	98.1	94.8 97.4			2.63
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	90.6 91.8			1.32
	O-Phosphate-P	99.5	96.2 96.5			0.263
SM 2120 B	Color (true)	99.5			1.59	
SM 2320 B-97	Total Alkalinity	104			3.62	
SM 2540 C-97	TDS				3.51	
	TDS				8.00	
SM 4500 F-C-97	Fluoride	101	98.4 97.8			0.509
SM 5310 B-00	Organic Carbon	99.6	100 102			0.975
	Organic Carbon	95.1	101			1.70

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2004427, 2004428, 2004429, 2004430, 2004431
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2004427, 2004428, 2004429, 2004430, 2004431
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2004427, 2004428, 2004429, 2004430, 2004431
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2004432, 2004433, 2004434, 2004435, 2004436
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2004432, 2004433, 2004434, 2004435, 2004436
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2004432, 2004433, 2004434, 2004435, 2004436
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2004432, 2004433, 2004434, 2004435, 2004436
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2004437, 2004438, 2004439, 2004440, 2004441
SM 2120 B / E31780	True Color measured at 450 nm	2004427, 2004428, 2004429, 2004430, 2004431
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2004427, 2004428, 2004429, 2004430, 2004431
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2004427, 2004428, 2004429, 2004430, 2004431
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2004427, 2004428, 2004429, 2004430, 2004431
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2004427, 2004428, 2004429, 2004430, 2004431
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2004432, 2004433, 2004434, 2004435, 2004436

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	06/29/2018			06/29/2018 14:16	William L. Brown IV	2004430
	06/29/2018			06/29/2018 16:25	William L. Brown IV	2004427, 2004428, 2004429, 2004431
EPA 300.0 Rev. 2.1	06/29/2018			07/10/2018 22:52	Lipi Saha	2004427
	06/29/2018			07/10/2018 23:03	Lipi Saha	2004428
	06/29/2018			07/10/2018 23:51	Lipi Saha	2004429
	06/29/2018			07/13/2018 21:10	Lipi Saha	2004430
	06/29/2018			07/13/2018 21:47	Lipi Saha	2004431
EPA 350.1 Rev. 2.0	06/29/2018			07/12/2018 11:34	Ping Hua	2004432
	06/29/2018			07/12/2018 11:35	Ping Hua	2004433
	06/29/2018			07/12/2018 11:50	Ping Hua	2004434
	06/29/2018			07/12/2018 12:59	Ping Hua	2004435
	06/29/2018			07/12/2018 13:10	Ping Hua	2004436
EPA 351.2 Rev. 2.0	06/29/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:06	Joseph Suarez	2004432
	06/29/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:07	Joseph Suarez	2004433
	06/29/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:09	Joseph Suarez	2004434
	06/29/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:10	Joseph Suarez	2004435
	06/29/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:15	Joseph Suarez	2004436
EPA 353.2 Rev. 2.0	06/29/2018			07/02/2018 12:58	Lauren Bottorf	2004432
	06/29/2018			07/02/2018 12:59	Lauren Bottorf	2004433
	06/29/2018			07/02/2018 13:06	Lauren Bottorf	2004434
	06/29/2018			07/02/2018 13:12	Lauren Bottorf	2004435
	06/29/2018			07/02/2018 13:13	Lauren Bottorf	2004436
EPA 365.1 Rev. 2.0	06/29/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 11:47	Beverly Y. Sanders	2004432
	06/29/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 11:48	Beverly Y. Sanders	2004433
	06/29/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 11:51	Beverly Y. Sanders	2004435
	06/29/2018	07/09/2018 12:30	Lipi Saha	07/11/2018 11:10	Beverly Y. Sanders	2004434
	06/29/2018	07/09/2018 12:30	Lipi Saha	07/11/2018 11:13	Beverly Y. Sanders	2004436
EPA 365.1 Rev. 2.0 dissolved	06/29/2018			06/29/2018 15:06	Megan Treadwell	2004437
	06/29/2018			06/29/2018 15:07	Megan Treadwell	2004438
	06/29/2018			06/29/2018 15:08	Megan Treadwell	2004439, 2004440
	06/29/2018			06/29/2018 15:09	Megan Treadwell	2004441
SM 2120 B	06/29/2018			06/29/2018 15:47	Tanya Welborn	2004427
	06/29/2018			06/29/2018 15:49	Tanya Welborn	2004429
	06/29/2018			06/29/2018 15:51	Tanya Welborn	2004431
	06/29/2018			06/29/2018 16:03	Tanya Welborn	2004428
	06/29/2018			06/29/2018 16:09	Tanya Welborn	2004430
SM 2320 B-97	06/29/2018			07/10/2018 21:09	Dale L. Simmons	2004427
	06/29/2018			07/10/2018 21:15	Dale L. Simmons	2004428
	06/29/2018			07/10/2018 21:23	Dale L. Simmons	2004429
	06/29/2018			07/10/2018 21:28	Dale L. Simmons	2004430

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	06/29/2018			07/10/2018 21:34	Dale L. Simmons	2004431
SM 2540 C-97	06/29/2018			07/03/2018 14:08	Yijie Li	2004427, 2004428, 2004429, 2004430, 2004431
SM 2540 D-97	06/29/2018			07/03/2018 14:08	Yijie Li	2004427, 2004428, 2004429, 2004430, 2004431
SM 4500 F-C-97	06/29/2018			07/07/2018 14:57	Dale L. Simmons	2004427
	06/29/2018			07/07/2018 15:05	Dale L. Simmons	2004428
	06/29/2018			07/07/2018 15:17	Dale L. Simmons	2004429
	06/29/2018			07/07/2018 15:25	Dale L. Simmons	2004430
	06/29/2018			07/07/2018 15:34	Dale L. Simmons	2004431
SM 5310 B-00	06/29/2018			07/11/2018 22:27	Megan Treadwell	2004434
	06/29/2018			07/11/2018 23:51	Megan Treadwell	2004436
	06/29/2018			07/12/2018 00:38	Megan Treadwell	2004433
	06/29/2018			07/12/2018 01:49	Megan Treadwell	2004435
	06/29/2018			07/12/2018 02:20	Megan Treadwell	2004432