Chemical Analysis Report

NE-DIST-2018-06-26-01

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

Event Description: **Interlachen**
Request ID: **RQ-2018-06-18-14**
Customer: **NE-DIST**
Project ID: **SMP**

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Jacksonville, FL 32256-7577
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 16-JUL-2018 14:18

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: SMITH LAKE CENTER **Collection Date/Time: 06/25/2018 09:10**

Field ID: G2NE1156 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003157	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P347534	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P347643	
		Sulfate	1.4		mg SO4/L	P347644	
	SM 2120 B	Color (true)	28		PCU	P347516	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P347808	
	SM 2540 C-97	TDS	26		mg/L	P347909	
	SM 2540 D-97	TSS	2	U	mg/L	P347904	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347812	
2003163	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P347943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P348025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347683	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P347716	MS
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P347985	
2003169	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347566	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: MARINER LAKE CENTER **Collection Date/Time: 06/25/2018 10:10**

Field ID: G1NE0859 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003158	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P347534	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P347643	
		Sulfate	1.9		mg SO4/L	P347644	
	SM 2120 B	Color (true)	12		PCU	P347516	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P347808	
	SM 2540 C-97	TDS	16	I	mg/L	P347909	
	SM 2540 D-97	TSS	2	I	mg/L	P347904	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347812	
2003164	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P347943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P348025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P347590	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P347793	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P347985	
2003170	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347566	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: LAKE IDA CENTER **Collection Date/Time: 06/25/2018 10:35**

Field ID: 20020116 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003159	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P347534	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P347643	
		Sulfate	2.0		mg SO4/L	P347644	
	SM 2120 B	Color (true)	340		PCU	P347516	
	SM 2320 B-97	Total Alkalinity	1.7	I	mg CaCO3/L	P347808	
	SM 2540 C-97	TDS	44		mg/L	P347909	
	SM 2540 D-97	TSS	3	I	mg/L	P347904	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347812	
2003165	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P347943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P348025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P347590	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P347793	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P347985	
2003171	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P347567	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: CLEARWATER LAKE CENTER **Collection Date/Time: 06/25/2018 09:55**

Field ID: G2NE1131 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003160	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P347534	
	EPA 300.0 Rev. 2.1	Chloride	7.1		mg Cl/L	P347643	
		Sulfate	4.7		mg SO4/L	P347644	
	SM 2120 B	Color (true)	130		PCU	P347516	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P347808	
	SM 2540 C-97	TDS	36		mg/L	P347909	
	SM 2540 D-97	TSS	3	I	mg/L	P347904	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P347812	
2003166	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P347943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P348025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347590	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P347793	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P347985	
2003172	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347567	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: CHURCH LAKE CENTER **Collection Date/Time: 06/25/2018 10:55**

Field ID: G1NE0867 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003161	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P347534	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P347643	
		Sulfate	3.1		mg SO4/L	P347644	
	SM 2120 B	Color (true)	23	A	PCU	P347516	
	SM 2320 B-97	Total Alkalinity	4.3		mg CaCO3/L	P347808	
	SM 2540 C-97	TDS	21	I	mg/L	P347909	
	SM 2540 D-97	TSS	3	I	mg/L	P347904	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347812	
2003167	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P347943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P348025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347590	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P347793	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P347985	
2003173	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347567	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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: HARDESTY LAKE CENTER **Collection Date/Time: 06/25/2018 11:20**

Field ID: G1NE0869 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003162	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P347534	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P347643	
		Sulfate	0.59		mg SO4/L	P347644	
	SM 2120 B	Color (true)	280		PCU	P347516	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P347808	
	SM 2540 C-97	TDS	33		mg/L	P347909	
	SM 2540 D-97	TSS	2	I	mg/L	P347904	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347812	
2003168	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P347943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P348025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P347590	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P347793	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P347985	
2003174	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P347567	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low 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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347534

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347643

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347644

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347943

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348025

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347590

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347683

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347716

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347793

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: P347566

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347567

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

Reference Method: SM 2120 B
Batch ID: P347516

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P347808

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

Reference Method: SM 2540 C-97
Batch ID: P347909

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P347904

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P347985

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: P347643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347943

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: P348025

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347590

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347683

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347716

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347793

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347566

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347567

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

Reference Method: SM 2120 B
Batch ID: P347516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P347808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003101	Chloride	96.6		P	90 - 110
2003159	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003101	Sulfate	99.6		P	90 - 110
2003159	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003164	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003213	Kjeldahl Nitrogen	97.4	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003164	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003163	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003141	Total-P	87.9	90.3	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003213	Total-P	91.4	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003107	O-Phosphate-P	98.6	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003171	O-Phosphate-P	97.7	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003212	Fluoride	96.3	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002957	Organic Carbon	107		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003149	Turbidity	8.23	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P347643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003101	Chloride	2.70	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003164	Ammonia-N	1.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003213	Kjeldahl Nitrogen	0.576	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003164	NO2NO3-N	0.948	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003163	NO2NO3-N	0.995	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003141	Total-P	2.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003213	Total-P	3.07	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003107	O-Phosphate-P	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003171	O-Phosphate-P	0.335	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P347516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003161	Color (true)	5.16	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P347808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003212	Total Alkalinity	0.951	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P347909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003429	TDS	3.49	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P347812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003212	Fluoride	0.988	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P347985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002957	Organic Carbon	0.929	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: A84843
Included Lab Sample IDs: 2003157, 2003158, 2003159, 2003160, 2003161, 2003162

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A84846
Included Lab Sample IDs: 2003157, 2003158, 2003159, 2003160, 2003161, 2003162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84847
Included Lab Sample IDs: 2003157, 2003158, 2003159, 2003160, 2003161, 2003162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	92.9	97.9	P/P	90 - 110
Chloride	97.9	96.6	P/P	90 - 110
Sulfate	100	99.2	P/P	90 - 110
Sulfate	95.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A84855
Included Lab Sample IDs: 2003169, 2003170, 2003171, 2003172, 2003173, 2003174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.4	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84871
Included Lab Sample IDs: 2003164, 2003165, 2003166, 2003167, 2003168

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84911
Included Lab Sample IDs: 2003163

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A84959
Included Lab Sample IDs: 2003157, 2003158, 2003159, 2003160, 2003161, 2003162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A84959
Included Lab Sample IDs: 2003157, 2003158, 2003159, 2003160, 2003161, 2003162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84978
Included Lab Sample IDs: 2003163

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85013
Included Lab Sample IDs: 2003163, 2003164, 2003165, 2003166, 2003167, 2003168

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

Reference Method: SM 5310 B-00
Run ID: A85034
Included Lab Sample IDs: 2003163, 2003164, 2003165, 2003166, 2003167, 2003168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	96.8	P/P	90 - 110
Organic Carbon	96.8	97.6	P/P	90 - 110
Organic Carbon	97.6	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85037
Included Lab Sample IDs: 2003164, 2003165, 2003166, 2003167, 2003168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85090
Included Lab Sample IDs: 2003163, 2003164, 2003165, 2003166, 2003167, 2003168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.3	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					8.23	
EPA 300.0 Rev. 2.1	Chloride	95.0	96.6	106		2.70	
	Sulfate	98.3	99.6	106			
EPA 350.1 Rev. 2.0	Ammonia-N	101	104	105			1.07
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	97.4	98.2			0.576
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	102			0.948
	NO2NO3-N	100	100	101			0.995
EPA 365.1 Rev. 2.0	Total-P	92.0	87.9	90.3			2.57
	Total-P	96.9	91.4	94.3			3.07
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.6	100			1.31
	O-Phosphate-P	102	97.7	97.3			0.335
SM 2120 B	Color (true)	99.4				5.16	
SM 2320 B-97	Total Alkalinity	103				0.951	
SM 2540 C-97	TDS					3.49	
SM 4500 F-C-97	Fluoride	98.2	96.3	97.4			0.988
SM 5310 B-00	Organic Carbon	93.0	107				0.929

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2003163, 2003164, 2003165, 2003166, 2003167, 2003168
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2003163, 2003164, 2003165, 2003166, 2003167, 2003168
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2003163, 2003164, 2003165, 2003166, 2003167, 2003168
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2003163, 2003164, 2003165, 2003166, 2003167, 2003168
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2003169, 2003170, 2003171, 2003172, 2003173, 2003174
SM 2120 B / E31780	True Color measured at 450 nm	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2003163, 2003164, 2003165, 2003166, 2003167, 2003168

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	06/26/2018			06/26/2018 16:09	William L. Brown IV	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
EPA 300.0 Rev. 2.1	06/26/2018			06/27/2018 14:38	Lipi Saha	2003159
	06/26/2018			06/27/2018 16:49	Lipi Saha	2003157
	06/26/2018			06/27/2018 17:01	Lipi Saha	2003158
	06/26/2018			06/27/2018 17:13	Lipi Saha	2003160
	06/26/2018			06/27/2018 17:25	Lipi Saha	2003161
	06/26/2018			06/27/2018 17:37	Lipi Saha	2003162
EPA 350.1 Rev. 2.0	06/26/2018			07/03/2018 15:47	Julia Storbeck	2003164
	06/26/2018			07/03/2018 15:59	Julia Storbeck	2003163
	06/26/2018			07/03/2018 16:01	Julia Storbeck	2003165
	06/26/2018			07/03/2018 16:02	Julia Storbeck	2003166
	06/26/2018			07/03/2018 16:04	Julia Storbeck	2003167
	06/26/2018			07/03/2018 16:05	Julia Storbeck	2003168
EPA 351.2 Rev. 2.0	06/26/2018	07/06/2018 14:45	Adrian Shelby	07/09/2018 14:14	Joseph Suarez	2003163
	06/26/2018	07/06/2018 14:45	Adrian Shelby	07/09/2018 14:16	Joseph Suarez	2003164
	06/26/2018	07/06/2018 14:45	Adrian Shelby	07/09/2018 14:17	Joseph Suarez	2003165
	06/26/2018	07/06/2018 14:45	Adrian Shelby	07/09/2018 14:18	Joseph Suarez	2003166
	06/26/2018	07/06/2018 14:45	Adrian Shelby	07/09/2018 14:20	Joseph Suarez	2003167
	06/26/2018	07/06/2018 14:45	Adrian Shelby	07/09/2018 14:21	Joseph Suarez	2003168
EPA 353.2 Rev. 2.0	06/26/2018			06/27/2018 13:27	Lauren Bottorf	2003164
	06/26/2018			06/27/2018 13:33	Lauren Bottorf	2003165
	06/26/2018			06/27/2018 13:34	Lauren Bottorf	2003166
	06/26/2018			06/27/2018 13:35	Lauren Bottorf	2003167
	06/26/2018			06/27/2018 13:36	Lauren Bottorf	2003168
	06/26/2018			06/28/2018 12:32	Lauren Bottorf	2003163
EPA 365.1 Rev. 2.0	06/26/2018	06/28/2018 11:45	Sima Feizi	07/02/2018 17:44	Beverly Y. Sanders	2003163
	06/26/2018	07/02/2018 12:00	Sima Feizi	07/03/2018 11:48	Beverly Y. Sanders	2003164
	06/26/2018	07/02/2018 12:00	Sima Feizi	07/03/2018 11:49	Beverly Y. Sanders	2003165
	06/26/2018	07/02/2018 12:00	Sima Feizi	07/03/2018 11:50	Beverly Y. Sanders	2003166
	06/26/2018	07/02/2018 12:00	Sima Feizi	07/03/2018 11:51	Beverly Y. Sanders	2003167
	06/26/2018	07/02/2018 12:00	Sima Feizi	07/03/2018 11:52	Beverly Y. Sanders	2003168
EPA 365.1 Rev. 2.0 dissolved	06/26/2018			06/26/2018 14:40	Megan Treadwell	2003171
	06/26/2018			06/26/2018 14:59	Megan Treadwell	2003174
	06/26/2018			06/26/2018 15:06	Megan Treadwell	2003169
	06/26/2018			06/26/2018 15:07	Megan Treadwell	2003170
	06/26/2018			06/26/2018 15:12	Megan Treadwell	2003172
	06/26/2018			06/26/2018 15:13	Megan Treadwell	2003173
SM 2120 B	06/26/2018			06/26/2018 14:40	Tanya Welborn	2003157
	06/26/2018			06/26/2018 14:41	Tanya Welborn	2003158

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	06/26/2018			06/26/2018 14:43	Tanya Welborn	2003160
	06/26/2018			06/26/2018 14:44	Tanya Welborn	2003161
	06/26/2018			06/26/2018 15:01	Tanya Welborn	2003159
	06/26/2018			06/26/2018 15:02	Tanya Welborn	2003162
SM 2320 B-97	06/26/2018			06/30/2018 23:35	Dale L. Simmons	2003157
	06/26/2018			07/01/2018 00:16	Dale L. Simmons	2003158
	06/26/2018			07/01/2018 00:26	Dale L. Simmons	2003159
	06/26/2018			07/01/2018 00:35	Dale L. Simmons	2003160
	06/26/2018			07/01/2018 00:48	Dale L. Simmons	2003161
	06/26/2018			07/01/2018 00:56	Dale L. Simmons	2003162
SM 2540 C-97	06/26/2018			06/28/2018 15:21	Yijie Li	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
SM 2540 D-97	06/26/2018			06/28/2018 15:21	Yijie Li	2003157, 2003158, 2003159, 2003160, 2003161, 2003162
SM 4500 F-C-97	06/26/2018			06/30/2018 23:35	Dale L. Simmons	2003157
	06/26/2018			07/01/2018 00:16	Dale L. Simmons	2003158
	06/26/2018			07/01/2018 00:26	Dale L. Simmons	2003159
	06/26/2018			07/01/2018 00:35	Dale L. Simmons	2003160
	06/26/2018			07/01/2018 00:48	Dale L. Simmons	2003161
	06/26/2018			07/01/2018 00:56	Dale L. Simmons	2003162
SM 5310 B-00	06/26/2018			07/03/2018 02:05	Megan Treadwell	2003167
	06/26/2018			07/03/2018 02:43	Megan Treadwell	2003168
	06/26/2018			07/03/2018 06:24	Megan Treadwell	2003163
	06/26/2018			07/03/2018 07:15	Megan Treadwell	2003164
	06/26/2018			07/03/2018 07:32	Megan Treadwell	2003165
	06/26/2018			07/03/2018 07:50	Megan Treadwell	2003166