

Chemical Analysis Report

NE-DIST-2017-06-21-01

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

Event Description: **Interlachen 2- 6/20/17**

Request ID: **RQ-2017-06-19-16**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 14-JUL-2017 11:33



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: Cowpen Lake Center

Collection Date/Time: 06/20/2017 09:50

Field ID: G1NE0039 06202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907786	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P327255	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P327406	
		Sulfate	4.0		mg SO4/L	P327409	
	SM 2120 B	Color (true)	8.6		PCU	P327258	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P327452	
	SM 2540 C-97	TDS	44		mg/L	P327625	
	SM 2540 D-97	TSS	3	I	mg/L	P327827	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P327456	
1907791	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P327366	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P327534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327474	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P327388	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P327458	
1907796	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327263	

Sample Location: Lake Fanny Center

Collection Date/Time: 06/20/2017 10:35

Field ID: 20020100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907787	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P327255	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P327406	
		Sulfate	12		mg SO4/L	P327409	
	SM 2120 B	Color (true)	3.6	I	PCU	P327258	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327452	
	SM 2540 C-97	TDS	51		mg/L	P327625	
	SM 2540 D-97	TSS	2	U	mg/L	P327827	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P327456	
1907792	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P327366	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P327534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327474	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P327388	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P327458	
1907797	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327263	

Sample Location: Gillis Pond Center

Collection Date/Time: 06/20/2017 11:00

Field ID: G1NE0863 06202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907788	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P327255	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P327406	
		Sulfate	7.1		mg SO4/L	P327409	
	SM 2120 B	Color (true)	2.5	U	PCU	P327258	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327452	

Field ID: G1NE0863 06202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907788	SM 2540 C-97	TDS	43		mg/L	P327625	
	SM 2540 D-97	TSS	2	I	mg/L	P327827	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327456	
1907793	EPA 350.1 Rev. 2.0	Ammonia-N	0.033	Y	mg N/L	P327366	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	Y	mg N/L	P327342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033	Y	mg N/L	P327474	
	EPA 365.1 Rev. 2.0	Total-P	0.006	Y	mg P/L	P327397	
	SM 5310 B-00	Organic Carbon	1.3	Y	mg C/L	P327458	
1907798	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327263	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: NO2NO3-N: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: Galilee Lake Center

Collection Date/Time: 06/20/2017 11:50

Field ID: G1NE0870 06202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907789	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P327255	
	EPA 300.0 Rev. 2.1	Chloride	9.1		mg Cl/L	P327407	
		Sulfate	5.5		mg SO4/L	P327410	
	SM 2120 B	Color (true)	16	A	PCU	P327258	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P327510	
	SM 2540 C-97	TDS	41		mg/L	P327625	
	SM 2540 D-97	TSS	3	I	mg/L	P327827	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P327512	
1907794	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P327366	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P327342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327474	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P327397	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P327458	
1907799	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327263	

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.

Sample Location: Field Blank

Collection Date/Time: 06/20/2017 10:25

Field ID: 06202017

Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907790	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P327255	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P327407	
		Sulfate	0.20	U	mg SO4/L	P327410	
	SM 2120 B	Color (true)	2.5	U	PCU	P327258	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327510	
	SM 2540 C-97	TDS	15	U	mg/L	P327624	

Field ID: 06202017

Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907790	SM 2540 D-97	TSS	2	U	mg/L	P327826	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327512	
1907795	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P327366	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P327342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327474	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P327397	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P327587	
1907800	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327264	

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.

EPA 350.1 Rev. 2.0: The result was confirmed on 06/23/2017.

Non-Conformance Report

NCR ID: 6508

Event(s)

NE-DIST-2017-06-21-01

Job(s)

TLH-2017-06-21-21

Sample(s)

1907793

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample(s) not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with sulfuric acid on 06/21/2017 at 11:26.

Authorized by/Date: Ramsey K. White 6/23/2017

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: P327255

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327406

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327407

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327409

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327410

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327366

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327388

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327397

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327263

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327264

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

Reference Method: SM 2120 B
Batch ID: P327258

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P327452

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

Reference Method: SM 2320 B-97
Batch ID: P327510

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

Reference Method: SM 2540 C-97
Batch ID: P327624

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P327625

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327826

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327827

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327458

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

Reference Method: SM 5310 B-00
Batch ID: P327587

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: P327406

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327407

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327409

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327410

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327366

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327388

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327397

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327263

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327264

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

Reference Method: SM 2320 B-97
Batch ID: P327452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P327510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P327456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907606	Chloride	93.4		P	90 - 110
1907786	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907789	Chloride	95.5		P	90 - 110
1908023	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907606	Sulfate	91.3		P	90 - 110
1907786	Sulfate	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907789	Sulfate	94.0		P	90 - 110
1908023	Sulfate	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907794	Ammonia-N	96.7	94.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907858	Kjeldahl Nitrogen	96.7	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908795	Kjeldahl Nitrogen	100	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907644	NO2NO3-N	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907791	Total-P	99.2	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907794	Total-P	94.0	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907614	O-Phosphate-P	94.1	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907864	O-Phosphate-P	92.8	94.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P327456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907606	Fluoride	98.9	101	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908499	Fluoride	98.8	98.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P327458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907492	Organic Carbon	92.2	94.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907883	Organic Carbon	93.0	93.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907690	Turbidity	0.500	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907606	Chloride	1.59	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908023	Chloride	1.18	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907606	Sulfate	2.48	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907794	Ammonia-N	2.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907858	Kjeldahl Nitrogen	4.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908795	Kjeldahl Nitrogen	0.899	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907644	NO2NO3-N	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907791	Total-P	0.713	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907794	Total-P	3.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907614	O-Phosphate-P	2.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907864	O-Phosphate-P	2.05	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P327258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907789	Color (true)	4.70	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P327452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907606	Total Alkalinity	3.25	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P327510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908499	Total Alkalinity	0.620	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P327624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907567	TDS	3.19	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P327625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907643	TDS	5.11	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P327827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907643	TSS	6.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P327456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907606	Fluoride	1.49	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908499	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P327458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907492	Organic Carbon	1.28	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P327587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907883	Organic Carbon	0.225	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: A77183
Included Lab Sample IDs: 1907786, 1907787, 1907788, 1907789, 1907790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	106	P/P	90 - 110
Chloride	106	99.0	P/P	90 - 110
Chloride	95.1	100	P/P	90 - 110
Sulfate	106	106	P/P	90 - 110
Sulfate	106	99.1	P/P	90 - 110
Sulfate	95.9	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77249
Included Lab Sample IDs: 1907786, 1907787, 1907788, 1907789, 1907790

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

Reference Method: SM 2120 B
Run ID: A77251
Included Lab Sample IDs: 1907786, 1907787, 1907788, 1907789, 1907790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	98.2	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77252
Included Lab Sample IDs: 1907796, 1907797, 1907798, 1907799, 1907800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77289
Included Lab Sample IDs: 1907791, 1907792, 1907793, 1907794, 1907795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	102	P/P	90 - 110
Ammonia-N	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A77329

Included Lab Sample IDs: 1907786, 1907787, 1907788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77329

Included Lab Sample IDs: 1907786, 1907787, 1907788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77331

Included Lab Sample IDs: 1907791, 1907792, 1907793, 1907794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	92.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77340

Included Lab Sample IDs: 1907791, 1907792, 1907793, 1907794, 1907795

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

Reference Method: SM 2320 B-97

Run ID: A77355

Included Lab Sample IDs: 1907789, 1907790

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

Reference Method: SM 4500 F-C-97

Run ID: A77355

Included Lab Sample IDs: 1907789, 1907790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.1	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77356

Included Lab Sample IDs: 1907793, 1907794, 1907795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	96.5	P/P	90 - 110
Kjeldahl Nitrogen	99.1	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77361

Included Lab Sample IDs: 1907791, 1907792, 1907793, 1907794, 1907795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77361

Included Lab Sample IDs: 1907791, 1907792, 1907793, 1907794, 1907795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77379

Included Lab Sample IDs: 1907795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77467

Included Lab Sample IDs: 1907791, 1907792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	103	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				0.500	
EPA 300.0 Rev. 2.1	Chloride	103	93.4 99.7		1.59	
	Chloride	103	104 95.5		1.18	
	Sulfate	102	91.3 98.6		2.48	
	Sulfate	102	101 94.0			
EPA 350.1 Rev. 2.0	Ammonia-N	104	96.7 94.4			2.12
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	96.7 103			4.85
	Kjeldahl Nitrogen	102	100 99.4			0.899
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103 101			1.38
EPA 365.1 Rev. 2.0	Total-P	104	99.2 98.5			0.713
	Total-P	101	94.0 97.2			3.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	94.1 96.4			2.41
	O-Phosphate-P	99.6	92.8 94.9			2.05
SM 2120 B	Color (true)				4.70	
SM 2320 B-97	Total Alkalinity	104			3.25	
	Total Alkalinity	103			0.620	
SM 2540 C-97	TDS				3.19	
	TDS				5.11	
SM 2540 D-97	TSS				6.06	
SM 4500 F-C-97	Fluoride	97.1	98.9 101			1.49
	Fluoride	93.5	98.8 98.8			0.0
SM 5310 B-00	Organic Carbon	93.8	92.2 94.1			1.28
	Organic Carbon	96.6	93.0 93.4			0.225

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1907786, 1907787, 1907788, 1907789, 1907790
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1907786, 1907787, 1907788, 1907789, 1907790
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1907786, 1907787, 1907788, 1907789, 1907790
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1907791, 1907792, 1907793, 1907794, 1907795
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1907791, 1907792, 1907793, 1907794, 1907795
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1907791, 1907792, 1907793, 1907794, 1907795
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1907791, 1907792, 1907793, 1907794, 1907795
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1907796, 1907797, 1907798, 1907799, 1907800
SM 2120 B / E31780	True Color measured at 450 nm	1907786, 1907787, 1907788, 1907789, 1907790
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1907786, 1907787, 1907788, 1907789, 1907790
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1907786, 1907787, 1907788, 1907789, 1907790
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1907786, 1907787, 1907788, 1907789, 1907790
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1907786, 1907787, 1907788, 1907789, 1907790
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1907791, 1907792, 1907793, 1907794, 1907795

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	06/21/2017			06/21/2017 15:22	DeAsia Armster	1907786, 1907787, 1907788, 1907789, 1907790
EPA 300.0 Rev. 2.1	06/21/2017			06/22/2017	Julia Storbeck	1907786, 1907787, 1907788
	06/21/2017			06/23/2017	Julia Storbeck	1907789, 1907790
EPA 350.1 Rev. 2.0	06/21/2017			06/22/2017	Sofia Elnemr	1907791, 1907792, 1907793, 1907794, 1907795
EPA 351.2 Rev. 2.0	06/21/2017	06/23/2017	Adrian Shelby	06/27/2017	Joseph Suarez	1907793, 1907794, 1907795
	06/21/2017	06/27/2017	Adrian Shelby	06/30/2017	Joseph Suarez	1907791, 1907792
EPA 353.2 Rev. 2.0	06/21/2017			06/26/2017	Beverly Y. Sanders	1907791, 1907792, 1907793, 1907794, 1907795
EPA 365.1 Rev. 2.0	06/21/2017	06/23/2017	Vijayalakshmi Reddy	06/26/2017	Lipi Saha	1907791, 1907792, 1907793, 1907794, 1907795
EPA 365.1 Rev. 2.0 dissolved	06/21/2017			06/21/2017 14:55	Ping Hua	1907796
	06/21/2017			06/21/2017 14:56	Ping Hua	1907797
	06/21/2017			06/21/2017 14:57	Ping Hua	1907798
	06/21/2017			06/21/2017 14:58	Ping Hua	1907799, 1907800
SM 2120 B	06/21/2017			06/21/2017 15:18	Tanya Welborn	1907786, 1907787
	06/21/2017			06/21/2017 15:19	Tanya Welborn	1907788
	06/21/2017			06/21/2017 15:21	Tanya Welborn	1907789, 1907790
SM 2320 B-97	06/21/2017			06/24/2017	Dale L. Simmons	1907786, 1907787, 1907788
	06/21/2017			06/26/2017	Dale L. Simmons	1907789, 1907790
SM 2540 C-97	06/21/2017			06/23/2017	Yijie Li	1907786, 1907787, 1907788, 1907789, 1907790
SM 2540 D-97	06/21/2017			06/23/2017	Yijie Li	1907786, 1907787, 1907788, 1907789, 1907790
SM 4500 F-C-97	06/21/2017			06/24/2017	Dale L. Simmons	1907786, 1907787, 1907788
	06/21/2017			06/26/2017	Dale L. Simmons	1907789, 1907790
SM 5310 B-00	06/21/2017			06/25/2017	Sofia Elnemr	1907791, 1907792, 1907793, 1907794
	06/21/2017			06/26/2017	Sofia Elnemr	1907795