

Chemical Analysis Report

NE-DIST-2017-03-15-01

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

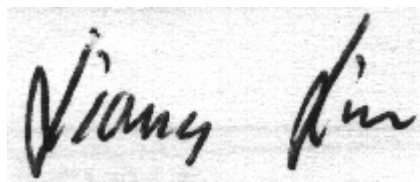
Event Description: **Gainesville Lakes**
Request ID: **RQ-2017-03-06-16**
Customer: **NE-DIST**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 10-APR-2017 14:06

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

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

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Lake Wauberg

Collection Date/Time: 03/14/2017 10:45

Field ID: G1NE0114 03142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880120	EPA 180.1 Rev. 2.0	Turbidity	39	A	NTU	P321634	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P322217	
		Sulfate	0.20	U	mg SO4/L	P322411	
	SM 2120 B	Color (true)	22	A	PCU	P321611	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P322071	
	SM 2540 C-97	TDS	94		mg/L	P322313	
	SM 2540 D-97	TSS	76		mg/L	P322176	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P321770	
1880124	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P321645	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P321714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321837	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P321656	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P321639	
1880128	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P321629	

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: Moon Lake

Collection Date/Time: 03/14/2017 11:55

Field ID: G1NE0197 03142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880121	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P321634	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P322217	
		Sulfate	16		mg SO4/L	P322220	
	SM 2120 B	Color (true)	34		PCU	P321607	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P322071	
	SM 2540 C-97	TDS	104	A	mg/L	P322314	
	SM 2540 D-97	TSS	2	I	mg/L	P322177	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P321770	
1880125	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P321645	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P321714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P321837	
	EPA 365.1 Rev. 2.0	Total-P	0.40		mg P/L	P321656	
	SM 5310 B-00	Organic Carbon	7.9		mg C/L	P321639	
1880129	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.34		mg P/L	P321629	

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: Blank

Collection Date/Time: 03/14/2017 13:00

Field ID: BLANK 03142017

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880122	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P321634	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P322217	
		Sulfate	0.20	U	mg SO4/L	P322408	

Field ID: BLANK 03142017

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880122	SM 2120 B	Color (true)	2.5	U	PCU	P321607	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P322071	
	SM 2540 C-97	TDS	15	U	mg/L	P322310	
	SM 2540 D-97	TSS	2	U	mg/L	P322173	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P321770	
1880126	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321644	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P321714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321837	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P321656	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P321639	
1880130	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P321629	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The result was confirmed on 03/15/2017.

Sample Location: Hammock Lake

Collection Date/Time: 03/14/2017 13:30

Field ID: G1NE0198 03142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1880123	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P321634	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P322217	
		Sulfate	6.1		mg SO4/L	P322408	
	SM 2120 B	Color (true)	30		PCU	P321607	
	SM 2320 B-97	Total Alkalinity	93		mg CaCO3/L	P322071	
	SM 2540 C-97	TDS	187		mg/L	P322314	
	SM 2540 D-97	TSS	11		mg/L	P322177	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P321770	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P321645	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P321714	
1880127	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321837	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P321656	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P321639	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P321629	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P321634

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322217

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322220

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322408

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322411

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321644

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321645

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321714

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321837

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321656

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: P321629

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

Reference Method: SM 2120 B
Batch ID: P321607

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P321611

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322071

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

Reference Method: SM 2540 C-97
Batch ID: P322310

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P322313

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P322314

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322173

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322176

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P322177

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P321770

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P321639

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: P322217

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322220

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322408

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322411

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321644

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321645

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321645

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321714

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321837

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: P321656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321629

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

Reference Method: SM 2320 B-97
Batch ID: P322071

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

Reference Method: SM 4500 F-C-97
Batch ID: P321770

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P321639

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322217

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880121	Chloride	96.0		P	90 - 110
1880195	Chloride	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880121	Sulfate	97.3		P	90 - 110
1880195	Sulfate	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322408

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880008	Sulfate	103		P	90 - 110
1880197	Sulfate	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880674	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879747	Ammonia-N	98.1	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880065	Ammonia-N	98.4	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880125	Kjeldahl Nitrogen	103	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880127	NO2NO3-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880139	Total-P	94.4	94.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880205	O-Phosphate-P	95.4	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P321770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880064	Fluoride	99.7	97.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P321639

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879968	Organic Carbon	91.4	93.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880120	Turbidity	1.53	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880195	Chloride	0.0821	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880195	Sulfate	0.218	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322408

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880008	Sulfate	0.133	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880674	Sulfate	1.26	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879747	Ammonia-N	0.750	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880065	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880125	Kjeldahl Nitrogen	2.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880127	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880139	Total-P	0.181	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880205	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P321607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880137	Color (true)	3.45	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P321611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880120	Color (true)	11.7	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P322071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880957	Total Alkalinity	0.282	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P322310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879737	TDS	3.14	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P322313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880064	TDS	5.01	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P322314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880121	TDS	8.61	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P321770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880064	Fluoride	1.44	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P321639

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879968	Organic Carbon	1.82	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: A75118
 Included Lab Sample IDs: 1880121, 1880122, 1880123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.1	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A75119
Included Lab Sample IDs: 1880120

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	99.4	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75129
Included Lab Sample IDs: 1880128, 1880129, 1880130, 1880131

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75131
Included Lab Sample IDs: 1880120, 1880121, 1880122, 1880123

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

Reference Method: SM 5310 B-00
Run ID: A75134
Included Lab Sample IDs: 1880124, 1880125, 1880126, 1880127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75137
Included Lab Sample IDs: 1880124, 1880125, 1880126, 1880127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	102	P/P	90 - 110
Ammonia-N	99.9	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A75182
Included Lab Sample IDs: 1880120, 1880121, 1880122, 1880123

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75195
Included Lab Sample IDs: 1880126

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75199
Included Lab Sample IDs: 1880124, 1880125, 1880126, 1880127

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75227

Included Lab Sample IDs: 1880124, 1880125, 1880126, 1880127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	95.1	P/P	90 - 110
Kjeldahl Nitrogen	99.5	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75230

Included Lab Sample IDs: 1880124, 1880125, 1880127

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

Reference Method: SM 2320 B-97

Run ID: A75310

Included Lab Sample IDs: 1880120, 1880121, 1880122, 1880123

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75326

Included Lab Sample IDs: 1880120, 1880121, 1880122, 1880123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	95.2	95.6	P/P	90 - 110
Chloride	99.9	100	P/P	90 - 110
Sulfate	95.9	97.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75396

Included Lab Sample IDs: 1880120, 1880122, 1880123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	101	92.8	P/P	90 - 110
Sulfate	97.5	102	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				1.53	
EPA 300.0 Rev. 2.1	Chloride	97.9	95.7 96.0		0.0821	
	Sulfate	96.3	98.5 97.3		0.218	
	Sulfate	101	103 102		0.133	
	Sulfate	103	103		1.26	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	98.1 98.9			0.750

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	98.4	97.3		1.06
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	103	107		2.49
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.0	99.0		1.02
EPA 365.1 Rev. 2.0	Total-P	99.9	94.4	94.8		0.181
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	95.4	95.4		0.0
SM 2120 B	Color (true)				3.45	
	Color (true)				11.7	
SM 2320 B-97	Total Alkalinity	103			0.282	
SM 2540 C-97	TDS				3.14	
	TDS				5.01	
	TDS				8.61	
SM 4500 F-C-97	Fluoride	96.4	99.7	97.9		1.44
SM 5310 B-00	Organic Carbon	93.5	91.4	93.9		1.82

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1880120, 1880121, 1880122, 1880123
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1880120, 1880121, 1880122, 1880123
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1880120, 1880121, 1880122, 1880123
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1880124, 1880125, 1880126, 1880127
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1880124, 1880125, 1880126, 1880127
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1880124, 1880125, 1880126, 1880127
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1880124, 1880125, 1880126, 1880127
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1880128, 1880129, 1880130, 1880131
SM 2120 B / E31780	True Color measured at 450 nm	1880120, 1880121, 1880122, 1880123
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1880120, 1880121, 1880122, 1880123
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1880120, 1880121, 1880122, 1880123
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1880120, 1880121, 1880122, 1880123
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1880120, 1880121, 1880122, 1880123
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1880124, 1880125, 1880126, 1880127

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	03/15/2017			03/15/2017 16:15	Blanca Fach	1880120, 1880121, 1880122, 1880123
EPA 300.0 Rev. 2.1	03/15/2017			03/24/2017	Ping Hua	1880121
	03/15/2017			03/28/2017	Ping Hua	1880122, 1880123
	03/15/2017			03/29/2017	Ping Hua	1880120
EPA 350.1 Rev. 2.0	03/15/2017			03/15/2017	Sofia Elnemr	1880124, 1880125, 1880126, 1880127
EPA 351.2 Rev. 2.0	03/15/2017	03/17/2017	Adrian Shelby	03/21/2017	Joseph Suarez	1880124, 1880125, 1880126, 1880127
EPA 353.2 Rev. 2.0	03/15/2017			03/20/2017	Beverly Y. Sanders	1880124, 1880125, 1880126, 1880127
EPA 365.1 Rev. 2.0	03/15/2017	03/16/2017	Adrian Shelby	03/20/2017	Lipi Saha	1880124, 1880125, 1880126, 1880127
EPA 365.1 Rev. 2.0 dissolved	03/15/2017			03/15/2017 15:48	Ping Hua	1880128
	03/15/2017			03/15/2017 15:49	Ping Hua	1880130
	03/15/2017			03/15/2017 15:50	Ping Hua	1880131
	03/15/2017			03/15/2017 15:52	Ping Hua	1880129
SM 2120 B	03/15/2017			03/15/2017 14:11	Julie Michelle Frank	1880121
	03/15/2017			03/15/2017 14:12	Julie Michelle Frank	1880122
	03/15/2017			03/15/2017 14:13	Julie Michelle Frank	1880123
	03/15/2017			03/15/2017 15:48	Julie Michelle Frank	1880120
SM 2320 B-97	03/15/2017			03/23/2017	Dale L. Simmons	1880120, 1880121, 1880122, 1880123
SM 2540 C-97	03/15/2017			03/17/2017	Yijie Li	1880120, 1880121, 1880122, 1880123
SM 2540 D-97	03/15/2017			03/17/2017	Yijie Li	1880120, 1880121, 1880122, 1880123
SM 4500 F-C-97	03/15/2017			03/17/2017	Dale L. Simmons	1880120, 1880121, 1880122, 1880123
SM 5310 B-00	03/15/2017			03/16/2017	Julia Storbeck	1880124, 1880125, 1880126, 1880127