

Chemical Analysis Report

NE-DIST-2016-10-20-01

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

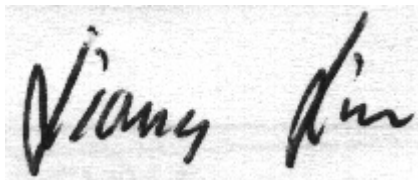
Event Description: **Alachua Lakes**
Request ID: **RQ-2016-10-17-14**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way
Suite 100
Jacksonville, FL 32256
Attn: Nicole Frederick

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-NOV-2016 17:07

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 SAMPSON E. SHORE

Collection Date/Time: 10/19/2016 09:30

Field ID: G1NE0511 10192016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842505	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P313582	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P314615	
		Sulfate	6.6		mg SO4/L	P314617	
	SM 2120 B	Color (true)	39		PCU	P313600	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P313684	
	SM 2540 C-97	TDS	105		mg/L	P314589	
	SM 2540 D-97	TSS	2	I	mg/L	P314021	
	SM 4500 F-C-97	Fluoride	0.075	I	mg F/L	P313686	
1842510	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P314643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P314565	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313797	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P313761	
1842515	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313594	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 10/25/2016.

SM 2120 B: The result was confirmed on 10/20/2016.

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

Sample Location: LAKE SAMPSON E. SHORE DUP

Collection Date/Time: 10/19/2016 09:25

Field ID: G1NE0511 10192016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842506	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P313582	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P314615	
		Sulfate	6.6		mg SO4/L	P314617	
	SM 2120 B	Color (true)	57		PCU	P313600	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P313684	
	SM 2540 C-97	TDS	103		mg/L	P314589	
	SM 2540 D-97	TSS	2	I	mg/L	P314021	
	SM 4500 F-C-97	Fluoride	0.075	I	mg F/L	P313686	
1842511	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P314643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P314566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313797	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P314225	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P313761	
1842516	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313594	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 10/25/2016.

SM 2120 B: The result was confirmed on 10/20/2016.

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

Sample Location: HOLDEN POND CENTER

Collection Date/Time: 10/19/2016 12:45

Field ID: G1NE0199 10192016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
-----------	-------------	-----------	--------	------	-------	----------	----------

Field ID: G1NE0199 10192016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842507	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P313582	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P314615	
		Sulfate	0.34	I	mg SO4/L	P314617	
	SM 2120 B	Color (true)	280		PCU	P313600	
	SM 2320 B-97	Total Alkalinity	4.4		mg CaCO3/L	P313684	
	SM 2540 C-97	TDS	74		mg/L	P314589	
	SM 2540 D-97	TSS	2	U	mg/L	P314021	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P313686	
1842512	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P314643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P314566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P313797	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P314226	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P313761	
1842517	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P313594	

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: LITTLE ORANGE CENTER

Collection Date/Time: 10/19/2016 12:30

Field ID: G1NE0143 10192016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842508	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P313582	
	EPA 300.0 Rev. 2.1	Chloride	8.5		mg Cl/L	P314615	
		Sulfate	0.87		mg SO4/L	P314617	
	SM 2120 B	Color (true)	290		PCU	P313600	
	SM 2320 B-97	Total Alkalinity	3.5		mg CaCO3/L	P313684	
	SM 2540 C-97	TDS	70		mg/L	P314589	
	SM 2540 D-97	TSS	2	U	mg/L	P314021	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P313686	
1842513	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P314643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P314566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P313797	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P314226	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P313761	
1842518	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P313594	

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: FIELD BLANK

Collection Date/Time: 10/19/2016 12:50

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842509	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P313582	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P314615	
		Sulfate	0.20	U	mg SO4/L	P314617	
	SM 2120 B	Color (true)	2.5	U	PCU	P313600	

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1842509	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P313684	
	SM 2540 C-97	TDS	15	U	mg/L	P314589	
	SM 2540 D-97	TSS	2	U	mg/L	P314021	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P313686	
1842514	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P314643	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P314566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313797	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P314226	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P313761	
1842519	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313594	

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: P313582

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314615

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314617

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314643

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314566

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313797

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314225

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314226

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313594

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

Reference Method: SM 2120 B
Batch ID: P313600

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313684

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

Reference Method: SM 2540 C-97
Batch ID: P314589

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P314021

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P313686

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P313761

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: P314615

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314617

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314643

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314566

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313797

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314225

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313594

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

Reference Method: SM 2320 B-97
Batch ID: P313684

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

Reference Method: SM 4500 F-C-97
Batch ID: P313686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P313761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842506	Chloride	99.9		P	90 - 110
1842615	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842506	Sulfate	96.5		P	90 - 110
1842615	Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842524	Ammonia-N	100	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842424	Kjeldahl Nitrogen	115	112	F/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842702	Kjeldahl Nitrogen	93.0	91.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842510	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842510	Total-P	101	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842525	Total-P	96.4	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842619	O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P313686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842589	Fluoride	96.0	96.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P313761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1842419	Organic Carbon	100	98.0	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842448	Turbidity	4.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842615	Chloride	1.21	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P314617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842615	Sulfate	1.06	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842524	Ammonia-N	2.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842424	Kjeldahl Nitrogen	1.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842702	Kjeldahl Nitrogen	1.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842510	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842510	Total-P	2.69	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842525	Total-P	6.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842619	O-Phosphate-P	0.447	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842520	Color (true)	10.3	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P313684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842589	Total Alkalinity	0.121	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P314589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842447	TDS	0.823	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P313686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842589	Fluoride	0.487	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P313761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1842419	Organic Carbon	1.12	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72346

Included Lab Sample IDs: 1842505, 1842506, 1842507, 1842508, 1842509

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A72349

Included Lab Sample IDs: 1842515, 1842516, 1842517, 1842518, 1842519

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	99.5	P/P	90 - 110
O-Phosphate-P	103	102	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A72350

Included Lab Sample IDs: 1842505, 1842506, 1842509

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

Reference Method: SM 2120 B

Run ID: A72352

Included Lab Sample IDs: 1842507, 1842508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	102	P/P	85 - 115

Reference Method: SM 2320 B-97

Run ID: A72377

Included Lab Sample IDs: 1842505, 1842506, 1842507, 1842508, 1842509

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

Reference Method: SM 4500 F-C-97

Run ID: A72377

Included Lab Sample IDs: 1842505, 1842506, 1842507, 1842508, 1842509

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

Reference Method: SM 5310 B-00

Run ID: A72401

Included Lab Sample IDs: 1842510, 1842511, 1842512, 1842513, 1842514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	101	P/P	90 - 110
Organic Carbon	98.7	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72410

Included Lab Sample IDs: 1842510, 1842511, 1842512, 1842513, 1842514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A72410

Included Lab Sample IDs: 1842510, 1842511, 1842512, 1842513, 1842514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72548

Included Lab Sample IDs: 1842512, 1842513

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A72588

Included Lab Sample IDs: 1842510, 1842511, 1842514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A72589

Included Lab Sample IDs: 1842505, 1842506, 1842507, 1842508, 1842509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	98.8	98.5	P/P	90 - 110
Sulfate	99.5	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A72636

Included Lab Sample IDs: 1842510, 1842511, 1842512, 1842513, 1842514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.8	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72672

Included Lab Sample IDs: 1842510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A72694

Included Lab Sample IDs: 1842511, 1842512, 1842513, 1842514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	97.2	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	MS
EPA 180.1 Rev. 2.0	Turbidity				4.34	
EPA 300.0 Rev. 2.1	Chloride	98.4	99.4	99.9	1.21	
	Sulfate	96.0	96.5	96.5	1.06	
EPA 350.1 Rev. 2.0	Ammonia-N	103	100	103		2.27
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.3	115	112		1.52
	Kjeldahl Nitrogen	98.4	93.0	91.0		1.36
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	105	103	104		1.45
EPA 365.1 Rev. 2.0	Total-P	97.8	101	98.0		2.69
	Total-P	99.4	96.4	103		6.41
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	99.9	100		0.447
SM 2120 B	Color (true)				10.3	
SM 2320 B-97	Total Alkalinity	103			0.121	
SM 2540 C-97	TDS				0.823	
SM 4500 F-C-97	Fluoride	97.6	96.0	96.5		0.487
SM 5310 B-00	Organic Carbon	103	100	98.0		1.12

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1842505, 1842506, 1842507, 1842508, 1842509
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1842505, 1842506, 1842507, 1842508, 1842509
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1842505, 1842506, 1842507, 1842508, 1842509
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1842510, 1842511, 1842512, 1842513, 1842514
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1842510, 1842511, 1842512, 1842513, 1842514
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1842510, 1842511, 1842512, 1842513, 1842514
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1842510, 1842511, 1842512, 1842513, 1842514
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1842515, 1842516, 1842517, 1842518, 1842519
SM 2120 B / E31780	True Color measured at 450 nm	1842505, 1842506, 1842507, 1842508, 1842509
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1842505, 1842506, 1842507, 1842508, 1842509
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1842505, 1842506, 1842507, 1842508, 1842509
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1842505, 1842506, 1842507, 1842508, 1842509
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1842505, 1842506, 1842507, 1842508, 1842509
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1842510, 1842511, 1842512, 1842513, 1842514

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	10/20/2016			10/20/2016 15:29	Sima Feizi	1842505, 1842506, 1842507, 1842508, 1842509
EPA 300.0 Rev. 2.1	10/20/2016			11/03/2016	Elisa J Lutz	1842505, 1842506, 1842507, 1842508, 1842509
EPA 350.1 Rev. 2.0	10/20/2016			11/04/2016	Sofia Elnemr	1842510, 1842511, 1842512, 1842513, 1842514
EPA 351.2 Rev. 2.0	10/20/2016	11/04/2016	Adrian Shelby	11/07/2016	Joseph Suarez	1842510
	10/20/2016	11/04/2016	Adrian Shelby	11/08/2016	Joseph Suarez	1842511, 1842512, 1842513, 1842514
EPA 353.2 Rev. 2.0	10/20/2016			10/25/2016	Beverly Y. Sanders	1842510, 1842511, 1842512, 1842513, 1842514
EPA 365.1 Rev. 2.0	10/20/2016	10/31/2016	Vijayalakshmi Reddy	11/01/2016	Lipi Saha	1842510, 1842511, 1842512, 1842513, 1842514
EPA 365.1 Rev. 2.0 dissolved	10/20/2016			10/20/2016 15:38	Julia Storbeck	1842519
	10/20/2016			10/20/2016 15:40	Julia Storbeck	1842515
	10/20/2016			10/20/2016 15:41	Julia Storbeck	1842516
	10/20/2016			10/20/2016 15:55	Julia Storbeck	1842517
	10/20/2016			10/20/2016 15:56	Julia Storbeck	1842518
SM 2120 B	10/20/2016			10/20/2016 16:07	Julie Michelle Frank	1842505, 1842506
	10/20/2016			10/20/2016 16:10	Julie Michelle Frank	1842509
	10/20/2016			10/20/2016 17:22	Jared I. Manley	1842507
	10/20/2016			10/20/2016 17:23	Jared I. Manley	1842508
SM 2320 B-97	10/20/2016			10/21/2016	Dale L. Simmons	1842505, 1842506, 1842507, 1842508
	10/20/2016			10/22/2016	Dale L. Simmons	1842509
SM 2540 C-97	10/20/2016			10/24/2016	Sima Feizi	1842505, 1842506, 1842507, 1842508, 1842509
SM 2540 D-97	10/20/2016			10/24/2016	Sima Feizi	1842505, 1842506, 1842507, 1842508, 1842509
SM 4500 F-C-97	10/20/2016			10/21/2016	Dale L. Simmons	1842505, 1842506, 1842507, 1842508
	10/20/2016			10/22/2016	Dale L. Simmons	1842509
SM 5310 B-00	10/20/2016			10/24/2016	Julie Michelle Frank	1842510, 1842511, 1842512, 1842513, 1842514