

Chemical Analysis Report

CEN-DIST-2018-02-14-02

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

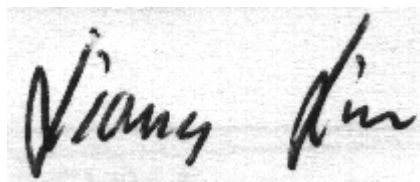
Event Description: **Lou / Weir / Blue Cove**
Request ID: **RQ-2018-02-12-57**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Liang Lin, Environmental Administrator

Date Certified: 07-MAR-2018 16:45

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 BLUE COVE @ 150M SW OF CENTER

Collection Date/Time: 02/13/2018 10:25

Field ID: G4CE0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967225	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P339986	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P340131	
		Sulfate	0.20	U	mg SO4/L	P340136	
	SM 2120 B	Color (true)	12		PCU	P339976	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P340527	
	SM 2540 C-97	TDS	57		mg/L	P340573	
	SM 2540 D-97	TSS	7	I	mg/L	P340231	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P340769	
1967228	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P340466	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P339997	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P340371	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P340100	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P340336	
1967231	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P339923	

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: LAKE LOU-CENTER OF LAKE

Collection Date/Time: 02/13/2018 12:03

Field ID: G1CE0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967226	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P339987	
	EPA 300.0 Rev. 2.1	Chloride	8.7		mg Cl/L	P340131	
		Sulfate	4.1		mg SO4/L	P340136	
	SM 2120 B	Color (true)	290		PCU	P339976	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P340527	
	SM 2540 C-97	TDS	98		mg/L	P340573	
	SM 2540 D-97	TSS	2	UA	mg/L	P340231	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P340769	
1967229	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P340466	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P339997	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.092		mg N/L	P340372	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P340100	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P340336	
1967232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339923	

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 LAKE WEIR @ CENTER

Collection Date/Time: 02/13/2018 13:15

Field ID: G1CE0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967227	EPA 180.1 Rev. 2.0	Turbidity	5.5	A	NTU	P339984	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P340131	
		Sulfate	8.4		mg SO4/L	P340136	

Field ID: G1CE0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967227	SM 2120 B	Color (true)	22	A	PCU	P339976	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P340527	
	SM 2540 C-97	TDS	132		mg/L	P340573	
	SM 2540 D-97	TSS	6	I	mg/L	P340231	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P340769	
1967230	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P340624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P340194	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P340372	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P340100	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P340336	
1967233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339923	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P339984

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P339986

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P339987

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P340131

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P340136

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P340466

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340624

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339997

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340194

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340371

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340372

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340100

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339923

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

Reference Method: SM 2120 B
Batch ID: P339976

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340527

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P340573

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P340231

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340769

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340336

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: P340131

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340136

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340466

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339997

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: P339997

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340194

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340371

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340372

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: P340100

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339923

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

Reference Method: SM 2320 B-97
Batch ID: P340527

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P340336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340131

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967119	Chloride	102		P	90 - 110
1967125	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967119	Sulfate	104		P	90 - 110
1967125	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967121	Ammonia-N	98.7	98.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967755	Ammonia-N	99.4	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967122	Kjeldahl Nitrogen	97.6	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967122	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967229	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967228	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339923

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967248	O-Phosphate-P	96.4	99.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P340769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967700	Fluoride	92.7	92.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967228	Organic Carbon	97.3	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967227	Turbidity	0.182	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967417	Turbidity	2.15	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967018	Turbidity	1.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967119	Chloride	0.0798	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967119	Sulfate	0.0468	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967121	Ammonia-N	0.389	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967755	Ammonia-N	1.50	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967122	Kjeldahl Nitrogen	1.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967230	Kjeldahl Nitrogen	4.77	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967122	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967229	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967228	Total-P	0.117	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967248	O-Phosphate-P	2.41	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P339976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967227	Color (true)	0.558	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P340527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967700	Total Alkalinity	0.112	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P340573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967499	TDS	1.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P340769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967700	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P340336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967228	Organic Carbon	1.00	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: A82003
Included Lab Sample IDs: 1967225, 1967226, 1967227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	105	105	P/P	90 - 110
Sulfate	103	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82052
Included Lab Sample IDs: 1967231, 1967232, 1967233

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A82072

Included Lab Sample IDs: 1967225, 1967226, 1967227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	101	P/P	85 - 115
Color (true)	105	105	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82076

Included Lab Sample IDs: 1967225, 1967226, 1967227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82125

Included Lab Sample IDs: 1967228, 1967229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82133

Included Lab Sample IDs: 1967228

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82141

Included Lab Sample IDs: 1967230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82159

Included Lab Sample IDs: 1967229

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82193

Included Lab Sample IDs: 1967230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A82196

Included Lab Sample IDs: 1967228, 1967229, 1967230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.5	95.6	P/P	90 - 110
Organic Carbon	95.0	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82217

Included Lab Sample IDs: 1967228, 1967229, 1967230

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82241

Included Lab Sample IDs: 1967228, 1967229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	105	105	P/P	90 - 110
Ammonia-N	105	108	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82266

Included Lab Sample IDs: 1967225, 1967226, 1967227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	97.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82297

Included Lab Sample IDs: 1967230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82351

Included Lab Sample IDs: 1967225, 1967226, 1967227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	97.6	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				0.182	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.15	
	Turbidity					1.44	
EPA 300.0 Rev. 2.1	Chloride	102	102	103		0.0798	
	Sulfate	102	104	104		0.0468	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.7	98.3			0.389
	Ammonia-N	93.8	99.4	97.8			1.50
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.6	96.0			1.07
	Kjeldahl Nitrogen	93.8					4.77
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	104			0.0
	NO2NO3-N	102	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	99.3	101	101			0.117
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.4	99.9			2.41
SM 2120 B	Color (true)					0.558	
SM 2320 B-97	Total Alkalinity	100				0.112	
SM 2540 C-97	TDS					1.45	
SM 4500 F-C-97	Fluoride	94.2	92.7	92.7			0.0
SM 5310 B-00	Organic Carbon	96.4	97.3	96.0			1.00

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1967225, 1967226, 1967227
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1967225, 1967226, 1967227
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1967225, 1967226, 1967227
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1967228, 1967229, 1967230
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1967228, 1967229, 1967230
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1967228, 1967229, 1967230
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1967228, 1967229, 1967230
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1967231, 1967232, 1967233
SM 2120 B / E31780	True Color measured at 450 nm	1967225, 1967226, 1967227
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1967225, 1967226, 1967227
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1967225, 1967226, 1967227
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1967225, 1967226, 1967227
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1967225, 1967226, 1967227
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1967228, 1967229, 1967230

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	02/14/2018			02/14/2018 17:19	Sima Feizi	1967225, 1967226, 1967227
EPA 300.0 Rev. 2.1	02/14/2018			02/16/2018	Julia Storbeck	1967225, 1967226, 1967227
EPA 350.1 Rev. 2.0	02/14/2018			02/22/2018	Ping Hua	1967228, 1967229
	02/14/2018			02/26/2018	Julia Storbeck	1967230
EPA 351.2 Rev. 2.0	02/14/2018	02/15/2018	Adrian Shelby	02/16/2018	Joseph Suarez	1967228, 1967229
	02/14/2018	02/19/2018	Adrian Shelby	02/21/2018	Joseph Suarez	1967230
EPA 353.2 Rev. 2.0	02/14/2018			02/21/2018	Lauren Bottorf	1967228, 1967229, 1967230
EPA 365.1 Rev. 2.0	02/14/2018	02/16/2018	Sima Feizi	02/19/2018	Beverly Y. Sanders	1967228, 1967230
	02/14/2018	02/16/2018	Sima Feizi	02/19/2018	Lipi Saha	1967229
EPA 365.1 Rev. 2.0 dissolved	02/14/2018			02/14/2018 13:25	Megan Treadwell	1967233
	02/14/2018			02/14/2018 13:26	Megan Treadwell	1967232
	02/14/2018			02/14/2018 13:27	Megan Treadwell	1967231
SM 2120 B	02/14/2018			02/14/2018 15:28	Tanya Welborn	1967225
	02/14/2018			02/14/2018 15:30	Tanya Welborn	1967227
	02/14/2018			02/14/2018 15:50	Tanya Welborn	1967226
SM 2320 B-97	02/14/2018			02/24/2018	Dale L. Simmons	1967225, 1967226, 1967227
SM 2540 C-97	02/14/2018			02/16/2018	DeAsia Armster	1967225, 1967226, 1967227
SM 2540 D-97	02/14/2018			02/16/2018	DeAsia Armster	1967225, 1967226, 1967227
SM 4500 F-C-97	02/14/2018			02/28/2018	Dale L. Simmons	1967225, 1967226, 1967227
SM 5310 B-00	02/14/2018			02/20/2018	Megan Treadwell	1967228, 1967229, 1967230