

Chemical Analysis Report

CEN-DIST-2019-04-04-02

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

Event Description: **Ellen / Concord / Searcy / Noname / Gem / Park**

Request ID: **RQ-2019-03-25-30**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

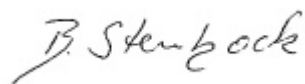
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 23-APR-2019 18:56



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: NONAME LAKE @ CENTER

Collection Date/Time: 04/03/2019 09:18

Field ID: G2CE0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075556	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P361617	
	EPA 300.0 Rev. 2.1	Chloride	18	A	mg Cl/L	P362021	
		Sulfate	9.4	A	mg SO4/L	P362023	
	SM 2120 B	Color (true)	16	A	PCU	P361595	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P362175	RPD
	SM 2540 C-97	TDS	79		mg/L	P362092	
	SM 2540 D-97	TSS	3	I	mg/L	P361870	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P362181	
2075562	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P361961	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P362007	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P362052	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P361928	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P361778	
2075568	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361608	

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 ELLEN @ CENTER

Collection Date/Time: 04/03/2019 09:59

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075557	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P361617	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P362021	
		Sulfate	13		mg SO4/L	P362023	
	SM 2120 B	Color (true)	27		PCU	P361595	
	SM 2320 B-97	Total Alkalinity	8.8		mg CaCO3/L	P362175	RPD
	SM 2540 C-97	TDS	67		mg/L	P362092	
	SM 2540 D-97	TSS	2	U	mg/L	P361870	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P362181	
2075563	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P361961	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P362007	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362052	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P361928	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P361778	
2075569	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361608	

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 CONCORD @ CENTER

Collection Date/Time: 04/03/2019 10:23

Field ID: G2CE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075558	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P361618	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P362021	
		Sulfate	7.6		mg SO4/L	P362023	
	SM 2120 B	Color (true)	12		PCU	P361595	
	SM 2320 B-97	Total Alkalinity	71		mg CaCO3/L	P361985	
	SM 2540 C-97	TDS	117		mg/L	P362092	
	SM 2540 D-97	TSS	5	I	mg/L	P361870	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P361988	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P361961	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P362007	
2075564	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362052	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P361928	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P361778	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P361608	
	dissolved						

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 SEARCY @ CENTER

Collection Date/Time: 04/03/2019 11:00

Field ID: G2CE0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075559	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P361618	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P362021	
		Sulfate	4.2		mg SO4/L	P362023	
	SM 2120 B	Color (true)	41		PCU	P361595	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P361985	
	SM 2540 C-97	TDS	102		mg/L	P362092	
	SM 2540 D-97	TSS	12		mg/L	P361870	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P361988	
2075565	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P361961	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P362010	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362052	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P361928	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P361778	
2075571	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361608	

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 GEM @ CENTER

Collection Date/Time: 04/03/2019 11:52

Field ID: G2CE0204

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075560	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P361618	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P362021	
		Sulfate	12		mg SO4/L	P362023	
	SM 2120 B	Color (true)	18		PCU	P361595	
	SM 2320 B-97	Total Alkalinity	84		mg CaCO3/L	P361985	
	SM 2540 C-97	TDS	142	A	mg/L	P362093	
	SM 2540 D-97	TSS	7	IA	mg/L	P361871	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P361988	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P361962	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P362010	
2075566	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362052	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P361928	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P361778	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	I	mg P/L	P361610	
	dissolved						

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 PARK AT CENTER

Collection Date/Time: 04/03/2019 12:03

Field ID: G2CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2075561	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P361618	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P362021	
		Sulfate	11		mg SO4/L	P362023	
	SM 2120 B	Color (true)	14		PCU	P361595	
	SM 2320 B-97	Total Alkalinity	59		mg CaCO3/L	P361985	
	SM 2540 C-97	TDS	121		mg/L	P362093	
	SM 2540 D-97	TSS	3	I	mg/L	P361871	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P361988	
2075567	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P361962	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P362010	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362052	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P361928	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P361778	
2075573	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361610	

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: P361617

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361618

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362021

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362023

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361961

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361962

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362007

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362010

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362052

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361928

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361608

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361610

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

Reference Method: SM 2120 B
Batch ID: P361595

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P361985

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

Reference Method: SM 2320 B-97
Batch ID: P362175

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

Reference Method: SM 2540 C-97
Batch ID: P362092

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P362093

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361870

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P361871

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P361988

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P362181

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P361778

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: P362021

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362023

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361961

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361962

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362007

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362052

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: P361928

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361608

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361610

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

Reference Method: SM 2120 B
Batch ID: P361595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P361985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P362175

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P361988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P362181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P361778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P362021

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075556	Chloride	97.1		P	90 - 110
2075613	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P362023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075556	Sulfate	96.0		P	90 - 110
2075613	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P361961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075515	Ammonia-N	98.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P361962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075617	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P362007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075546	Kjeldahl Nitrogen	98.4	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P362010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075566	Kjeldahl Nitrogen	102	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P362052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075342	NO2NO3-N	98.2	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P361928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075564	Total-P	103	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P361608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075569	O-Phosphate-P	93.5	94.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361610

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075622	O-Phosphate-P	96.8	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P361988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075689	Fluoride	97.8	97.8	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076325	Fluoride	104	103	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P361778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2075564	Organic Carbon	101	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075539	Turbidity	0.533	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075613	Turbidity	1.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075556	Chloride	1.17	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075556	Sulfate	1.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075515	Ammonia-N	2.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075617	Ammonia-N	1.42	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075546	Kjeldahl Nitrogen	0.343	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075566	Kjeldahl Nitrogen	4.45	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075342	NO2NO3-N	1.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075564	Total-P	5.59	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075569	O-Phosphate-P	0.640	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075622	O-Phosphate-P	0.823	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P361595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075556	Color (true)	0.623	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P361985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075689	Total Alkalinity	0.159	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P362175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076325	Total Alkalinity	9.84	Sample	F	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P362092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075341	TDS	0.577	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P362093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075560	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P361988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075689	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P362181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076325	Fluoride	1.45	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P361778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2075564	Organic Carbon	1.41	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: A90452

Included Lab Sample IDs: 2075556, 2075557, 2075558, 2075559, 2075560, 2075561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90461

Included Lab Sample IDs: 2075568, 2075569, 2075570, 2075571, 2075572, 2075573

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	98.6	P/P	90 - 110
O-Phosphate-P	98.6	96.7	P/P	90 - 110
O-Phosphate-P	99.2	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90465

Included Lab Sample IDs: 2075556, 2075557, 2075558, 2075559, 2075560, 2075561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90538

Included Lab Sample IDs: 2075556, 2075557, 2075558, 2075559, 2075560, 2075561

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

Reference Method: SM 5310 B-00

Run ID: A90539

Included Lab Sample IDs: 2075562, 2075563, 2075564, 2075565, 2075566, 2075567

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90603

Included Lab Sample IDs: 2075562, 2075563, 2075564, 2075565, 2075566, 2075567

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.9	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	101	98.9	P/P	90 - 110
Ammonia-N	98.9	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A90626

Included Lab Sample IDs: 2075558, 2075559, 2075560, 2075561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90626

Included Lab Sample IDs: 2075558, 2075559, 2075560, 2075561

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90667

Included Lab Sample IDs: 2075562, 2075563, 2075564, 2075565, 2075566, 2075567

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90681

Included Lab Sample IDs: 2075562, 2075563, 2075564

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.2	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90691

Included Lab Sample IDs: 2075562, 2075563, 2075564, 2075567

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

Reference Method: SM 2320 B-97

Run ID: A90703

Included Lab Sample IDs: 2075556, 2075557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90703

Included Lab Sample IDs: 2075556, 2075557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90718

Included Lab Sample IDs: 2075565, 2075566, 2075567

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.9	94.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90718

Included Lab Sample IDs: 2075565, 2075566, 2075567

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.0	91.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90721

Included Lab Sample IDs: 2075565, 2075566

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.533	
	Turbidity				1.55	
EPA 300.0 Rev. 2.1	Chloride	101	97.1	100	1.17	
	Sulfate	99.9	96.0	98.7	1.18	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	98.8	101		2.01
	Ammonia-N	100	100	103		1.42
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	98.4	99.2		0.343
	Kjeldahl Nitrogen	95.3	102	94.8		4.45
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.2	96.8		1.39
EPA 365.1 Rev. 2.0	Total-P	106	103	97.0		5.59
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	93.5	94.1		0.640
	O-Phosphate-P	99.2	96.8	97.6		0.823
SM 2120 B	Color (true)	99.8			0.623	
SM 2320 B-97	Total Alkalinity	99.9			0.159	
	Total Alkalinity	101			9.84	
SM 2540 C-97	TDS				0.577	
	TDS				0.0	
SM 4500 F-C-97	Fluoride	98.0	97.8	97.8		0.0
	Fluoride	102	104	103		1.45
SM 5310 B-00	Organic Carbon	102	101	102		1.41

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2075562, 2075563, 2075564, 2075565, 2075566, 2075567
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2075562, 2075563, 2075564, 2075565, 2075566, 2075567
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2075562, 2075563, 2075564, 2075565, 2075566, 2075567
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2075562, 2075563, 2075564, 2075565, 2075566, 2075567
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2075568, 2075569, 2075570, 2075571, 2075572, 2075573
SM 2120 B / E31780	True Color measured at 450 nm	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2075562, 2075563, 2075564, 2075565, 2075566, 2075567

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	04/04/2019			04/04/2019 15:03	Adrian Shelby	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
EPA 300.0 Rev. 2.1	04/04/2019			04/11/2019 15:09	Lipi Saha	2075556
	04/04/2019			04/11/2019 17:47	Lipi Saha	2075557
	04/04/2019			04/11/2019 17:59	Lipi Saha	2075558
	04/04/2019			04/11/2019 18:11	Lipi Saha	2075559
	04/04/2019			04/11/2019 18:23	Lipi Saha	2075560
	04/04/2019			04/11/2019 18:35	Lipi Saha	2075561
EPA 350.1 Rev. 2.0	04/04/2019			04/10/2019 11:09	Ping Hua	2075562
	04/04/2019			04/10/2019 11:27	Ping Hua	2075563
	04/04/2019			04/10/2019 11:29	Ping Hua	2075564
	04/04/2019			04/10/2019 11:30	Ping Hua	2075565
	04/04/2019			04/10/2019 11:48	Ping Hua	2075567
	04/04/2019			04/10/2019 13:02	Ping Hua	2075566
EPA 351.2 Rev. 2.0	04/04/2019	04/11/2019 14:30	Adrian Shelby	04/12/2019 15:20	Joseph Suarez	2075562
	04/04/2019	04/11/2019 14:30	Adrian Shelby	04/12/2019 15:21	Joseph Suarez	2075563
	04/04/2019	04/11/2019 14:30	Adrian Shelby	04/12/2019 15:23	Joseph Suarez	2075564
	04/04/2019	04/11/2019 18:00	Adrian Shelby	04/15/2019 12:07	Joseph Suarez	2075565
	04/04/2019	04/11/2019 18:00	Adrian Shelby	04/15/2019 12:09	Joseph Suarez	2075566
	04/04/2019	04/11/2019 18:00	Adrian Shelby	04/15/2019 12:16	Joseph Suarez	2075567
EPA 353.2 Rev. 2.0	04/04/2019			04/12/2019 11:00	Beverly Y. Sanders	2075562
	04/04/2019			04/12/2019 11:01	Beverly Y. Sanders	2075563
	04/04/2019			04/12/2019 11:02	Beverly Y. Sanders	2075564
	04/04/2019			04/12/2019 11:04	Beverly Y. Sanders	2075565
	04/04/2019			04/12/2019 11:05	Beverly Y. Sanders	2075566
	04/04/2019			04/12/2019 11:06	Beverly Y. Sanders	2075567
EPA 365.1 Rev. 2.0	04/04/2019	04/10/2019 15:35	Sima Feizi	04/12/2019 17:44	Rosalyn Ballman	2075562
	04/04/2019	04/10/2019 15:35	Sima Feizi	04/12/2019 17:45	Rosalyn Ballman	2075563
	04/04/2019	04/10/2019 15:35	Sima Feizi	04/12/2019 17:46	Rosalyn Ballman	2075564
	04/04/2019	04/10/2019 15:35	Sima Feizi	04/12/2019 17:54	Rosalyn Ballman	2075567
	04/04/2019	04/10/2019 15:35	Sima Feizi	04/15/2019 12:07	Rosalyn Ballman	2075565
	04/04/2019	04/10/2019 15:35	Sima Feizi	04/15/2019 12:08	Rosalyn Ballman	2075566
EPA 365.1 Rev. 2.0 dissolved	04/04/2019			04/04/2019 15:04	Jhamieka S. Greenwood	2075569
	04/04/2019			04/04/2019 15:54	Jhamieka S. Greenwood	2075568
	04/04/2019			04/04/2019 15:55	Jhamieka S. Greenwood	2075570
	04/04/2019			04/04/2019 16:08	Jhamieka S. Greenwood	2075571
	04/04/2019			04/04/2019 16:09	Jhamieka S. Greenwood	2075572
	04/04/2019			04/04/2019 16:10	Jhamieka S. Greenwood	2075573
SM 2120 B	04/04/2019			04/04/2019 15:17	Blanca Fach	2075556
	04/04/2019			04/04/2019 15:18	Blanca Fach	2075557

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	04/04/2019			04/04/2019 15:19	Blanca Fach	2075558
	04/04/2019			04/04/2019 15:20	Blanca Fach	2075559, 2075560
	04/04/2019			04/04/2019 15:21	Blanca Fach	2075561
SM 2320 B-97	04/04/2019			04/11/2019 08:06	Dale L. Simmons	2075558
	04/04/2019			04/11/2019 08:18	Dale L. Simmons	2075559
	04/04/2019			04/11/2019 08:32	Dale L. Simmons	2075560
	04/04/2019			04/11/2019 08:44	Dale L. Simmons	2075561
	04/04/2019			04/14/2019 00:08	Dale L. Simmons	2075556
	04/04/2019			04/14/2019 00:21	Dale L. Simmons	2075557
SM 2540 C-97	04/04/2019			04/05/2019 17:22	Mariam Hanna	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
SM 2540 D-97	04/04/2019			04/05/2019 15:54	Mariam Hanna	2075556, 2075557, 2075558, 2075559, 2075560, 2075561
SM 4500 F-C-97	04/04/2019			04/11/2019 08:06	Dale L. Simmons	2075558
	04/04/2019			04/11/2019 08:18	Dale L. Simmons	2075559
	04/04/2019			04/11/2019 08:32	Dale L. Simmons	2075560
	04/04/2019			04/11/2019 08:44	Dale L. Simmons	2075561
	04/04/2019			04/14/2019 00:08	Dale L. Simmons	2075556
	04/04/2019			04/14/2019 00:21	Dale L. Simmons	2075557
SM 5310 B-00	04/04/2019			04/08/2019 14:08	Julia Storbeck	2075564
	04/04/2019			04/08/2019 16:12	Julia Storbeck	2075562
	04/04/2019			04/08/2019 16:25	Julia Storbeck	2075563
	04/04/2019			04/08/2019 16:37	Julia Storbeck	2075565
	04/04/2019			04/08/2019 16:49	Julia Storbeck	2075566
	04/04/2019			04/08/2019 17:01	Julia Storbeck	2075567