

Chemical Analysis Report

CEN-DIST-2019-01-29-03

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

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

Request ID: **RQ-2019-01-28-38**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

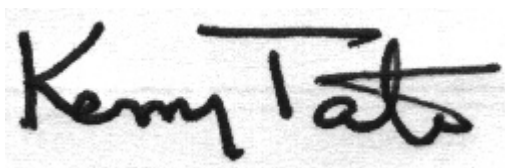
FL Dept. of Environmental Protection
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Attn: Mike Linger

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 13-FEB-2019 11:35

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first few letters.

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: 01/28/2019 09:23

Field ID: G2CE0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057665	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P357998	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P358368	
		Sulfate	9.7	A	mg SO4/L	P358370	
	SM 2120 B	Color (true)	18		PCU	P358002	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P358553	
	SM 2540 C-97	TDS	69		mg/L	P358344	
	SM 2540 D-97	TSS	2	I	mg/L	P358333	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P358556	
2057669	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P358205	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P358128	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P358041	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P358157	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P358092	
2057673	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358008	

Sample Location: LAKE SEARCY @ CENTER

Collection Date/Time: 01/28/2019 10:11

Field ID: G2CE0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057666	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P357998	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P358368	
		Sulfate	4.2		mg SO4/L	P358370	
	SM 2120 B	Color (true)	58	A	PCU	P358002	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P358553	
	SM 2540 C-97	TDS	90		mg/L	P358344	
	SM 2540 D-97	TSS	6	I	mg/L	P358333	
	SM 4500 F-C-97	Fluoride	0.069	I	mg F/L	P358556	
2057670	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P358205	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P358128	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P358041	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P358157	
	SM 5310 B-00	Organic Carbon	9.9		mg C/L	P358092	
2057674	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P358008	

Sample Location: LAKE ELLEN @ CENTER

Collection Date/Time: 01/28/2019 10:48

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057667	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P357998	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P358368	
		Sulfate	12		mg SO4/L	P358370	
		Color (true)	24		PCU	P358003	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P358553	
	SM 2540 C-97	TDS	51		mg/L	P358344	
	SM 2540 D-97	TSS	2	U	mg/L	P358333	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P358556	
2057671	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P358205	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P358182	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P358041	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P358157	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P358092	
2057675	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358008	

Sample Location: LAKE CONCORD AT CENTER

Collection Date/Time: 01/28/2019 11:21

Field ID: G2CE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057668	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P357998	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P358368	
		Sulfate	6.7		mg SO4/L	P358370	
	SM 2120 B	Color (true)	14		PCU	P358002	
	SM 2320 B-97	Total Alkalinity	69		mg CaCO3/L	P358553	
	SM 2540 C-97	TDS	106		mg/L	P358344	
	SM 2540 D-97	TSS	4	I	mg/L	P358333	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P358556	
2057672	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P358205	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P358182	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.047		mg N/L	P358041	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P358157	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P358265	
2057676	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358011	

Sample Location: LAKE CONCORD AT CENTER

Collection Date/Time: 01/28/2019 11:25

Field ID: G2CE0059_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057677	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P357997	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P358368	
		Sulfate	6.7		mg SO4/L	P358370	
		Color (true)	14		PCU	P358002	
	SM 2320 B-97	Total Alkalinity	69		mg CaCO3/L	P358553	
	SM 2540 C-97	TDS	101		mg/L	P358344	
	SM 2540 D-97	TSS	3	I	mg/L	P358333	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P358556	
2057679	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P358205	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P358182	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P358042	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P358157	
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P358265	
2057681	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358011	

Sample Location: FIELD BLANK

Collection Date/Time: 01/28/2019 11:39

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057678	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P357997	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P358368	
		Sulfate	0.20	U	mg SO4/L	P358370	
	SM 2120 B	Color (true)	2.5	U	PCU	P358003	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P358553	
	SM 2540 C-97	TDS	15	U	mg/L	P358342	
	SM 2540 D-97	TSS	2	U	mg/L	P358331	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P358556	
2057680	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P358205	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P358182	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P358042	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P358157	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P358265	
2057682	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358008	

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: P357997

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357998

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358368

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358370

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358205

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358128

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358182

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358041

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358042

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: P358157

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358008

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358011

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

Reference Method: SM 2120 B
Batch ID: P358002

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P358003

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P358553

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

Reference Method: SM 2540 C-97
Batch ID: P358342

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P358344

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358331

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P358333

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358556

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358092

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

Reference Method: SM 5310 B-00
Batch ID: P358265

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: P358368

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P358370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P358205

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P358128

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P358182

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P358041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P358042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358157

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358008

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358011

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

Reference Method: SM 2120 B
Batch ID: P358002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P358003

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

Reference Method: SM 2320 B-97
Batch ID: P358553

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P358556

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

Reference Method: SM 5310 B-00
Batch ID: P358092

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

Reference Method: SM 5310 B-00
Batch ID: P358265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057481	Chloride	99.0		P	90 - 110
2057665	Chloride	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057481	Sulfate	100		P	90 - 110
2057665	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358205

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057669	Ammonia-N	101	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057669	Kjeldahl Nitrogen	107	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057671	Kjeldahl Nitrogen	109	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057594	NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057679	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057671	Total-P	102	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057673	O-Phosphate-P	95.4	97.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057676	O-Phosphate-P	96.5	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P358556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057985	Fluoride	98.0	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057474	Organic Carbon	98.9	96.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P358265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057898	Organic Carbon	97.1	98.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057751	Turbidity	17.3	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057659	Turbidity	0.393	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057665	Chloride	0.290	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057665	Sulfate	0.0744	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057669	Ammonia-N	2.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057669	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057671	Kjeldahl Nitrogen	0.459	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057594	NO2NO3-N	1.18	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057679	NO2NO3-N	0.800	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057671	Total-P	1.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057673	O-Phosphate-P	1.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057676	O-Phosphate-P	2.46	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057666	Color (true)	0.0672	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057751	Color (true)	0.235	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P358553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057985	Total Alkalinity	0.250	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P358342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057455	TDS	1.40	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P358344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057599	TDS	6.03	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P358333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057599	TSS	7.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P358556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057985	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P358092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057474	Organic Carbon	2.17	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P358265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057898	Organic Carbon	0.836	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 180.1 Rev. 2.0

Run ID: A89074

Included Lab Sample IDs: 2057665, 2057666, 2057667, 2057668, 2057677, 2057678

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

Reference Method: SM 2120 B

Run ID: A89075

Included Lab Sample IDs: 2057665, 2057666, 2057667, 2057668, 2057677, 2057678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	102	P/P	90 - 115
Color (true)	99.9	104	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89077

Included Lab Sample IDs: 2057673, 2057674, 2057675, 2057676, 2057681, 2057682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.8	P/P	90 - 110
O-Phosphate-P	99.1	99.6	P/P	90 - 110
O-Phosphate-P	99.8	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89086

Included Lab Sample IDs: 2057669, 2057670, 2057671, 2057672, 2057679, 2057680

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

Reference Method: SM 5310 B-00

Run ID: A89107

Included Lab Sample IDs: 2057669, 2057670, 2057671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89112

Included Lab Sample IDs: 2057665, 2057666, 2057667, 2057668, 2057677, 2057678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	100	100	P/P	90 - 110
Chloride	99.5	100	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	99.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89140

Included Lab Sample IDs: 2057669, 2057670

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89140

Included Lab Sample IDs: 2057669, 2057670

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	107	P/P	90 - 110
Kjeldahl Nitrogen	107	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89145

Included Lab Sample IDs: 2057670

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89146

Included Lab Sample IDs: 2057669, 2057670, 2057671, 2057672, 2057679, 2057680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	92.9	P/P	90 - 110
Ammonia-N	98.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89161

Included Lab Sample IDs: 2057669, 2057671, 2057672, 2057679, 2057680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	99.2	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89165

Included Lab Sample IDs: 2057672, 2057679, 2057680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89169

Included Lab Sample IDs: 2057671, 2057672, 2057679, 2057680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	99.8	P/P	90 - 110
Kjeldahl Nitrogen	106	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89272

Included Lab Sample IDs: 2057665, 2057666, 2057667, 2057668, 2057677, 2057678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A89272

Included Lab Sample IDs: 2057665, 2057666, 2057667, 2057668, 2057677, 2057678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	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				17.3	
	Turbidity				0.393	
EPA 300.0 Rev. 2.1	Chloride	98.0	99.0	99.0	0.290	
	Sulfate	99.7	100	100	0.0744	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	101	97.4		2.81
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	99.8		4.75
	Kjeldahl Nitrogen	102	109	108		0.459
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	100		1.18
	NO2NO3-N	102	102	103		0.800
EPA 365.1 Rev. 2.0	Total-P	101	102	99.7		1.85
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	95.4	97.0		1.66
	O-Phosphate-P	100	96.5	98.9		2.46
SM 2120 B	Color (true)	100			0.0672	
	Color (true)	102			0.235	
SM 2320 B-97	Total Alkalinity	102			0.250	
SM 2540 C-97	TDS				1.40	
	TDS				6.03	
SM 2540 D-97	TSS				7.41	
SM 4500 F-C-97	Fluoride	96.0	98.0	98.0		0.0
SM 5310 B-00	Organic Carbon	100	98.9	96.4		2.17
	Organic Carbon	98.2	97.1	98.0		0.836

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2057669, 2057670, 2057671, 2057672, 2057679, 2057680
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2057669, 2057670, 2057671, 2057672, 2057679, 2057680
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2057669, 2057670, 2057671, 2057672, 2057679, 2057680
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2057669, 2057670, 2057671, 2057672, 2057679, 2057680
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2057673, 2057674, 2057675, 2057676, 2057681, 2057682
SM 2120 B / E31780	True Color measured at 450 nm	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2057669, 2057670, 2057671, 2057672, 2057679, 2057680

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	01/29/2019			01/29/2019 16:31	Megan Treadwell	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
EPA 300.0 Rev. 2.1	01/29/2019			02/02/2019 00:24	Lipi Saha	2057665
	01/29/2019			02/02/2019 04:35	Lipi Saha	2057666
	01/29/2019			02/02/2019 04:50	Lipi Saha	2057667
	01/29/2019			02/02/2019 05:04	Lipi Saha	2057668
	01/29/2019			02/02/2019 05:19	Lipi Saha	2057677
	01/29/2019			02/02/2019 06:04	Lipi Saha	2057678
EPA 350.1 Rev. 2.0	01/29/2019			02/01/2019 12:20	Ping Hua	2057669
	01/29/2019			02/01/2019 12:24	Ping Hua	2057670
	01/29/2019			02/01/2019 12:26	Ping Hua	2057671
	01/29/2019			02/01/2019 12:27	Ping Hua	2057672
	01/29/2019			02/01/2019 12:29	Ping Hua	2057679
	01/29/2019			02/01/2019 12:42	Ping Hua	2057680
EPA 351.2 Rev. 2.0	01/29/2019	01/31/2019 10:45	Adrian Shelby	02/01/2019 12:03	Joseph Suarez	2057669
	01/29/2019	01/31/2019 10:45	Adrian Shelby	02/01/2019 12:10	Joseph Suarez	2057670
	01/29/2019	02/01/2019 13:15	Adrian Shelby	02/04/2019 11:48	Joseph Suarez	2057671
	01/29/2019	02/01/2019 13:15	Adrian Shelby	02/04/2019 11:56	Joseph Suarez	2057672
	01/29/2019	02/01/2019 13:15	Adrian Shelby	02/04/2019 11:57	Joseph Suarez	2057679
	01/29/2019	02/01/2019 13:15	Adrian Shelby	02/04/2019 11:59	Joseph Suarez	2057680
EPA 353.2 Rev. 2.0	01/29/2019			01/30/2019 11:04	Beverly Y. Sanders	2057669
	01/29/2019			01/30/2019 11:05	Beverly Y. Sanders	2057670
	01/29/2019			01/30/2019 11:07	Beverly Y. Sanders	2057671
	01/29/2019			01/30/2019 11:08	Beverly Y. Sanders	2057672
	01/29/2019			01/30/2019 11:15	Beverly Y. Sanders	2057679
	01/29/2019			01/30/2019 11:21	Beverly Y. Sanders	2057680
EPA 365.1 Rev. 2.0	01/29/2019	01/31/2019 14:30	Sima Feizi	02/01/2019 12:26	Rosalyn Ballman	2057670
	01/29/2019	01/31/2019 14:30	Sima Feizi	02/01/2019 14:49	Rosalyn Ballman	2057669
	01/29/2019	01/31/2019 14:30	Sima Feizi	02/01/2019 14:51	Rosalyn Ballman	2057671
	01/29/2019	01/31/2019 14:30	Sima Feizi	02/01/2019 14:59	Rosalyn Ballman	2057672
	01/29/2019	01/31/2019 14:30	Sima Feizi	02/01/2019 15:00	Rosalyn Ballman	2057679
	01/29/2019	01/31/2019 14:30	Sima Feizi	02/01/2019 15:01	Rosalyn Ballman	2057680
EPA 365.1 Rev. 2.0 dissolved	01/29/2019			01/29/2019 15:12	Jhamieka S. Greenwood	2057673
	01/29/2019			01/29/2019 15:33	Jhamieka S. Greenwood	2057676
	01/29/2019			01/29/2019 15:38	Jhamieka S. Greenwood	2057682
	01/29/2019			01/29/2019 16:00	Jhamieka S. Greenwood	2057674
	01/29/2019			01/29/2019 16:01	Jhamieka S. Greenwood	2057675
	01/29/2019			01/29/2019 16:02	Jhamieka S. Greenwood	2057681
SM 2120 B	01/29/2019			01/29/2019 16:10	Chelsea Hernandez	2057665
	01/29/2019			01/29/2019 16:12	Chelsea Hernandez	2057666

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	01/29/2019			01/29/2019 16:13	Chelsea Hernandez	2057668, 2057677
	01/29/2019			01/29/2019 16:17	Chelsea Hernandez	2057667
	01/29/2019			01/29/2019 16:18	Chelsea Hernandez	2057678
SM 2320 B-97	01/29/2019			02/07/2019 05:18	Dale L. Simmons	2057665
	01/29/2019			02/07/2019 05:29	Dale L. Simmons	2057666
	01/29/2019			02/07/2019 05:40	Dale L. Simmons	2057667
	01/29/2019			02/07/2019 05:53	Dale L. Simmons	2057668
	01/29/2019			02/07/2019 06:05	Dale L. Simmons	2057677
	01/29/2019			02/07/2019 06:20	Dale L. Simmons	2057678
SM 2540 C-97	01/29/2019			01/31/2019 14:21	Yijie Li	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
SM 2540 D-97	01/29/2019			01/31/2019 14:21	Yijie Li	2057665, 2057666, 2057667, 2057668, 2057677, 2057678
SM 4500 F-C-97	01/29/2019			02/07/2019 05:18	Dale L. Simmons	2057665
	01/29/2019			02/07/2019 05:29	Dale L. Simmons	2057666
	01/29/2019			02/07/2019 05:40	Dale L. Simmons	2057667
	01/29/2019			02/07/2019 05:53	Dale L. Simmons	2057668
	01/29/2019			02/07/2019 06:05	Dale L. Simmons	2057677
	01/29/2019			02/07/2019 06:20	Dale L. Simmons	2057678
SM 5310 B-00	01/29/2019			01/31/2019 02:15	Chelsea Hernandez	2057669
	01/29/2019			01/31/2019 02:27	Chelsea Hernandez	2057670
	01/29/2019			01/31/2019 02:40	Chelsea Hernandez	2057671
	01/29/2019			02/01/2019 16:46	Julia Storbeck	2057672
	01/29/2019			02/01/2019 16:58	Julia Storbeck	2057679
	01/29/2019			02/01/2019 17:11	Julia Storbeck	2057680