

Chemical Analysis Report

CEN-DIST-2019-07-24-01

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

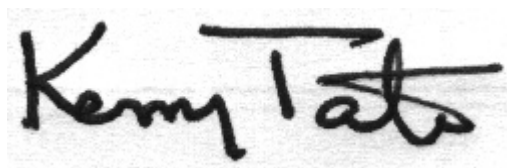
Event Description: **Silver / Chain / Charm + D&B**
Request ID: **RQ-2019-06-24-28**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 08-AUG-2019 09:36

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 name.

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: THREE ISLAND LAKE @ CENTER OF SOUTH LOBE

Collection Date/Time: 07/23/2019 11:55

Field ID: G2CE0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105681	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P367857	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P367958	
		Sulfate	6.8		mg SO4/L	P367960	
	SM 2120 B	Color (true)	90		PCU	P367908	
	SM 2320 B-97	Total Alkalinity	5.0		mg CaCO3/L	P368233	
	SM 2540 C-97	TDS	81		mg/L	P368345	
	SM 2540 D-97	TSS	2	U	mg/L	P368002	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P368236	
2105685	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P368422	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P368085	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367988	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P367984	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P368052	
2105689	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367845	

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 DRAWDY @ 150M NNE OF CENTER

Collection Date/Time: 07/23/2019 09:34

Field ID: G2CE0079

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105682	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P367857	
	EPA 300.0 Rev. 2.1	Chloride	25	A	mg Cl/L	P367959	
		Sulfate	11	A	mg SO4/L	P367961	
	SM 2120 B	Color (true)	90		PCU	P367908	
	SM 2320 B-97	Total Alkalinity	4.7		mg CaCO3/L	P368233	
	SM 2540 C-97	TDS	96		mg/L	P368345	
	SM 2540 D-97	TSS	2	U	mg/L	P368002	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P368236	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P368422	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P368085	
2105686	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367988	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P367984	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P368052	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P367845	
	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: SILVER LAKE @ CENTER

Collection Date/Time: 07/23/2019 11:01

Field ID: G2CE0122

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105683	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P367857	
	EPA 300.0 Rev. 2.1	Chloride	48		mg Cl/L	P367959	
		Sulfate	22		mg SO4/L	P367961	
	SM 2120 B	Color (true)	7.7		PCU	P367909	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P368233	
	SM 2540 C-97	TDS	128	A	mg/L	P368346	
	SM 2540 D-97	TSS	2	UA	mg/L	P368003	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P368236	
2105687	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P368422	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P368085	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367988	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P367984	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P368052	
2105691	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367845	

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 CHARM @ CENTER

Collection Date/Time: 07/23/2019 10:18

Field ID: G2CE0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105684	EPA 180.1 Rev. 2.0	Turbidity	18	A	NTU	P367858	
	EPA 300.0 Rev. 2.1	Chloride	38		mg Cl/L	P367959	
		Sulfate	13		mg SO4/L	P367961	
	SM 2120 B	Color (true)	26	A	PCU	P367910	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P368233	
	SM 2540 C-97	TDS	181		mg/L	P368346	
	SM 2540 D-97	TSS	9	I	mg/L	P368003	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P368236	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P368422	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P368085	
2105688	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367988	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P367984	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P368052	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P367846	
	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 CHARM @ CENTER

Collection Date/Time: 07/23/2019 10:22

Field ID: G2CE0080 _ DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105693	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P367858	
	EPA 300.0 Rev. 2.1	Chloride	37		mg Cl/L	P367959	
		Sulfate	13		mg SO4/L	P367961	
	SM 2120 B	Color (true)	25		PCU	P367910	
	SM 2320 B-97	Total Alkalinity	53		mg CaCO3/L	P368233	
	SM 2540 C-97	TDS	180		mg/L	P368346	
	SM 2540 D-97	TSS	8	I	mg/L	P368003	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P368236	
2105695	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P368422	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P368085	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367988	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P367984	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P368052	
2105697	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367846	

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: FB_07232019

Collection Date/Time: 07/23/2019 10:32

Field ID: FB_07232019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2105694	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P367858	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P367959	
		Sulfate	0.20	U	mg SO4/L	P367961	
	SM 2120 B	Color (true)	2.5	U	PCU	P367909	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P368233	
	SM 2540 C-97	TDS	15	U	mg/L	P368346	
	SM 2540 D-97	TSS	2	U	mg/L	P368003	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P368236	
2105696	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368422	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P368085	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367988	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P367984	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P368052	
2105698	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P367846	

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: P367857

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367858

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367958

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367959

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367961

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368422

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367988

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: P367984

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367846

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

Reference Method: SM 2120 B
Batch ID: P367908

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P367909

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P367910

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P368233

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

Reference Method: SM 2540 C-97
Batch ID: P368345

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P368346

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P368002

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368003

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368236

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368052

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: P367958

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367959

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367961

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368422

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367988

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: P367984

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367846

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

Reference Method: SM 2120 B
Batch ID: P367908

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

Reference Method: SM 2120 B
Batch ID: P367909

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

Reference Method: SM 2120 B
Batch ID: P367910

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

Reference Method: SM 2320 B-97
Batch ID: P368233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P368236

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368052

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105365	Chloride	100	99.2	P/P	90 - 110
2105582	Chloride	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105682	Chloride	101		P	90 - 110
2105815	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105365	Sulfate	101	100	P/P	90 - 110
2105582	Sulfate	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105682	Sulfate	102		P	90 - 110
2105815	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105685	Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105687	Kjeldahl Nitrogen	94.6	91.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105685	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105685	Total-P	97.8	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105594	O-Phosphate-P	97.4	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105692	O-Phosphate-P	93.0	94.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105785	Fluoride	96.6	96.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105686	Organic Carbon	98.9	97.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105628	Turbidity	3.98	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105684	Turbidity	1.63	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105365	Chloride	0.783	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105682	Chloride	0.923	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105365	Sulfate	0.825	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105682	Sulfate	1.17	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105685	Ammonia-N	0.622	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105687	Kjeldahl Nitrogen	2.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105685	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105685	Total-P	0.396	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105594	O-Phosphate-P	0.103	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105692	O-Phosphate-P	1.07	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P367908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105585	Color (true)	0.309	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P367909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105684	Color (true)	2.06	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P367910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105684	Color (true)	2.82	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105785	Total Alkalinity	0.612	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P368345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105582	TDS	3.01	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P368346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105683	TDS	0.778	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P368236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105785	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105686	Organic Carbon	0.663	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: A92954

Included Lab Sample IDs: 2105681, 2105682, 2105683, 2105684, 2105693, 2105694

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92997

Included Lab Sample IDs: 2105689, 2105690, 2105691, 2105692, 2105697, 2105698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	96.4	P/P	90 - 110
O-Phosphate-P	98.3	97.3	P/P	90 - 110
O-Phosphate-P	98.8	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93008

Included Lab Sample IDs: 2105681, 2105682, 2105683, 2105684, 2105693, 2105694

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

Reference Method: SM 2120 B

Run ID: A93029

Included Lab Sample IDs: 2105681, 2105682, 2105683, 2105684, 2105693, 2105694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	102	103	P/P	90 - 115
Color (true)	103	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93050

Included Lab Sample IDs: 2105685, 2105686, 2105687, 2105688, 2105695, 2105696

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

Reference Method: SM 5310 B-00

Run ID: A93079

Included Lab Sample IDs: 2105685, 2105686, 2105687, 2105688, 2105695, 2105696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.1	P/P	90 - 110
Organic Carbon	99.1	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93085

Included Lab Sample IDs: 2105688, 2105695

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93085

Included Lab Sample IDs: 2105688, 2105695

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93094

Included Lab Sample IDs: 2105685, 2105686, 2105687, 2105696

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93125

Included Lab Sample IDs: 2105685, 2105686, 2105687, 2105688, 2105695, 2105696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	95.6	P/P	90 - 110
Kjeldahl Nitrogen	95.6	96.3	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93171

Included Lab Sample IDs: 2105681, 2105682, 2105683, 2105684, 2105693, 2105694

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

Reference Method: SM 4500 F-C-97

Run ID: A93171

Included Lab Sample IDs: 2105681, 2105682, 2105683, 2105684, 2105693, 2105694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93243

Included Lab Sample IDs: 2105685, 2105686, 2105687, 2105688, 2105695, 2105696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	106	107	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					3.98	
	Turbidity					1.63	
EPA 300.0 Rev. 2.1	Chloride	100	100	99.2	95.4		0.783
	Chloride	101	101	103		0.923	
	Sulfate	101	101	100	98.4		0.825
	Sulfate	103	102	103		1.17	
EPA 350.1 Rev. 2.0	Ammonia-N	103	107	106			0.622
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	94.6	91.8			2.11
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	99.5	99.5			0.0
EPA 365.1 Rev. 2.0	Total-P	98.0	97.8	97.4			0.396
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	97.4	97.5			0.103
	O-Phosphate-P	99.6	93.0	94.0			1.07
SM 2120 B	Color (true)	102				0.309	
	Color (true)	103				2.06	
	Color (true)	103				2.82	
SM 2320 B-97	Total Alkalinity	104				0.612	
SM 2540 C-97	TDS					3.01	
	TDS					0.778	
SM 4500 F-C-97	Fluoride	95.5	96.6	96.6			0.0
SM 5310 B-00	Organic Carbon	100	98.9	97.8			0.663

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2105685, 2105686, 2105687, 2105688, 2105695, 2105696
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2105685, 2105686, 2105687, 2105688, 2105695, 2105696
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2105685, 2105686, 2105687, 2105688, 2105695, 2105696
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2105685, 2105686, 2105687, 2105688, 2105695, 2105696
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2105689, 2105690, 2105691, 2105692, 2105697, 2105698
SM 2120 B / E31780	True Color measured at 450 nm	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2105685, 2105686, 2105687, 2105688, 2105695, 2105696

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	07/24/2019			07/24/2019 17:04	Adrian Shelby	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
EPA 300.0 Rev. 2.1	07/24/2019			07/25/2019 20:35	Jhamieka S. Greenwood	2105681
	07/24/2019			07/25/2019 22:00	Jhamieka S. Greenwood	2105682
	07/24/2019			07/25/2019 22:48	Jhamieka S. Greenwood	2105683
	07/24/2019			07/25/2019 23:01	Jhamieka S. Greenwood	2105684
	07/24/2019			07/25/2019 23:13	Jhamieka S. Greenwood	2105693
	07/24/2019			07/25/2019 23:25	Jhamieka S. Greenwood	2105694
EPA 350.1 Rev. 2.0	07/24/2019			08/02/2019 16:14	Virginia P. Brown	2105685
	07/24/2019			08/02/2019 16:19	Virginia P. Brown	2105686
	07/24/2019			08/02/2019 16:20	Virginia P. Brown	2105687
	07/24/2019			08/02/2019 16:22	Virginia P. Brown	2105688
	07/24/2019			08/02/2019 16:23	Virginia P. Brown	2105695
	07/24/2019			08/02/2019 16:25	Virginia P. Brown	2105696
EPA 351.2 Rev. 2.0	07/24/2019	07/29/2019 13:00	Adrian Shelby	07/30/2019 10:23	Joseph Suarez	2105685
	07/24/2019	07/29/2019 13:00	Adrian Shelby	07/30/2019 10:24	Joseph Suarez	2105686
	07/24/2019	07/29/2019 13:00	Adrian Shelby	07/30/2019 10:29	Joseph Suarez	2105687
	07/24/2019	07/29/2019 13:00	Adrian Shelby	07/30/2019 10:34	Joseph Suarez	2105688
	07/24/2019	07/29/2019 13:00	Adrian Shelby	07/30/2019 10:35	Joseph Suarez	2105695
	07/24/2019	07/29/2019 13:00	Adrian Shelby	07/30/2019 10:37	Joseph Suarez	2105696
EPA 353.2 Rev. 2.0	07/24/2019			07/26/2019 10:12	Beverly Y. Sanders	2105685
	07/24/2019			07/26/2019 10:18	Beverly Y. Sanders	2105686
	07/24/2019			07/26/2019 10:19	Beverly Y. Sanders	2105687
	07/24/2019			07/26/2019 10:20	Beverly Y. Sanders	2105688
	07/24/2019			07/26/2019 10:22	Beverly Y. Sanders	2105695
	07/24/2019			07/26/2019 10:23	Beverly Y. Sanders	2105696
EPA 365.1 Rev. 2.0	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 08:51	Lipi Saha	2105688
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 08:54	Lipi Saha	2105695
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:20	Lipi Saha	2105685
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:28	Lipi Saha	2105686
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:29	Lipi Saha	2105687
	07/24/2019	07/26/2019 11:58	Vijayalakshmi Reddy	07/29/2019 11:30	Lipi Saha	2105696
EPA 365.1 Rev. 2.0 dissolved	07/24/2019			07/24/2019 16:35	Jhamieka S. Greenwood	2105692
	07/24/2019			07/24/2019 17:07	Jhamieka S. Greenwood	2105690
	07/24/2019			07/24/2019 17:08	Jhamieka S. Greenwood	2105691
	07/24/2019			07/24/2019 17:11	Jhamieka S. Greenwood	2105697
	07/24/2019			07/24/2019 17:15	Jhamieka S. Greenwood	2105698
	07/24/2019			07/24/2019 17:21	Jhamieka S. Greenwood	2105689
SM 2120 B	07/24/2019			07/24/2019 17:49	Madeline Funaro	2105681
	07/24/2019			07/24/2019 17:50	Madeline Funaro	2105682

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	07/24/2019			07/24/2019 17:54	Madeline Funaro	2105683
	07/24/2019			07/24/2019 17:57	Madeline Funaro	2105694
	07/24/2019			07/24/2019 18:06	Madeline Funaro	2105684
	07/24/2019			07/24/2019 18:07	Madeline Funaro	2105693
SM 2320 B-97	07/24/2019			07/30/2019 22:58	Dale L. Simmons	2105681
	07/24/2019			07/30/2019 23:10	Dale L. Simmons	2105682
	07/24/2019			07/30/2019 23:20	Dale L. Simmons	2105683
	07/24/2019			07/30/2019 23:33	Dale L. Simmons	2105684
	07/24/2019			07/30/2019 23:46	Dale L. Simmons	2105693
	07/24/2019			07/31/2019 00:00	Dale L. Simmons	2105694
	07/24/2019			07/25/2019 13:30	Sima Feizi	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
	07/24/2019			07/25/2019 13:30	Sima Feizi	2105681, 2105682, 2105683, 2105684, 2105693, 2105694
SM 2540 C-97	07/24/2019					
SM 2540 D-97	07/24/2019					
SM 4500 F-C-97	07/24/2019			07/30/2019 22:58	Dale L. Simmons	2105681
	07/24/2019			07/30/2019 23:10	Dale L. Simmons	2105682
	07/24/2019			07/30/2019 23:20	Dale L. Simmons	2105683
	07/24/2019			07/30/2019 23:33	Dale L. Simmons	2105684
	07/24/2019			07/30/2019 23:46	Dale L. Simmons	2105693
	07/24/2019			07/31/2019 00:00	Dale L. Simmons	2105694
	07/24/2019			07/26/2019 15:51	Madeline Funaro	2105686
	07/24/2019			07/26/2019 17:04	Madeline Funaro	2105685
SM 5310 B-00	07/24/2019			07/26/2019 17:16	Madeline Funaro	2105687
	07/24/2019			07/26/2019 17:53	Madeline Funaro	2105688
	07/24/2019			07/26/2019 18:07	Madeline Funaro	2105695
	07/24/2019			07/26/2019 18:19	Madeline Funaro	2105696