

Chemical Analysis Report

CEN-DIST-2019-01-25-04

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

Event Description: **Hope / Park / Yvonne**
Request ID: **RQ-2019-01-28-40**
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: Liang Lin, Environmental Administrator

Date Certified: 14-FEB-2019 15:43

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: LAKE YVONNE (LAKE VONNA) @ CENTER

Collection Date/Time: 01/24/2019 10:33

Field ID: G2CE0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057076	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P357874	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P358249	
		Sulfate	8.1		mg SO4/L	P358251	
	SM 2120 B	Color (true)	39		PCU	P357867	
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P358238	
	SM 2540 C-97	TDS	92		mg/L	P358324	
	SM 2540 D-97	TSS	2	I	mg/L	P358197	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P358242	
2057079	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P358568	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P358533	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357919	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P358482	
	SM 5310 B-00	Organic Carbon	7.7		mg C/L	P358668	
2057082	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P357854	

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 HOPE @ CENTER

Collection Date/Time: 01/24/2019 11:28

Field ID: G2CE0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057077	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P357874	
	EPA 300.0 Rev. 2.1	Chloride	49		mg Cl/L	P358249	
		Sulfate	22		mg SO4/L	P358251	
	SM 2120 B	Color (true)	20		PCU	P357867	
	SM 2320 B-97	Total Alkalinity	41		mg CaCO3/L	P358238	
	SM 2540 C-97	TDS	159		mg/L	P358325	
	SM 2540 D-97	TSS	2	I	mg/L	P358198	
	SM 4500 F-C-97	Fluoride	0.071	I	mg F/L	P358242	
2057080	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P358187	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P358079	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P357919	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P358023	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P358091	
2057083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357856	

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 @ CENTER

Collection Date/Time: 01/24/2019 12:02

Field ID: G2CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2057078	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P357874	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P358249	
		Sulfate	9.7		mg SO4/L	P358251	
	SM 2120 B	Color (true)	16		PCU	P357869	
	SM 2320 B-97	Total Alkalinity	66		mg CaCO3/L	P358238	
	SM 2540 C-97	TDS	102	A	mg/L	P358325	
	SM 2540 D-97	TSS	3	IA	mg/L	P358198	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P358242	
2057081	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P358187	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P358079	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357919	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P358056	
	SM 5310 B-00	Organic Carbon	6.1		mg C/L	P358091	
2057084	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357856	

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: P357874

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358249

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358251

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358187

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358568

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358079

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358533

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357919

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358023

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358056

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358482

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357854

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357856

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

Reference Method: SM 2120 B
Batch ID: P357867

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P357869

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P358238

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

Reference Method: SM 2540 C-97
Batch ID: P358324

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P358325

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P358197

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358198

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358242

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358091

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

Reference Method: SM 5310 B-00
Batch ID: P358668

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: P358249

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358251

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: P358187

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358568

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: P358079

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358533

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357919

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358023

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358056

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358482

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357854

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357856

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

Reference Method: SM 2120 B
Batch ID: P357867

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

Reference Method: SM 2120 B
Batch ID: P357869

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

Reference Method: SM 2320 B-97
Batch ID: P358238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P358242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358091

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

Reference Method: SM 5310 B-00
Batch ID: P358668

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056976	Chloride	96.8		P	90 - 110
2057237	Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056976	Sulfate	101		P	90 - 110
2057237	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057080	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058538	Ammonia-N	98.6	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057080	Kjeldahl Nitrogen	98.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059519	Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057079	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057080	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057197	Total-P	106	107	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059596	Total-P	101	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056983	O-Phosphate-P	98.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057084	O-Phosphate-P	94.4	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P358242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2056815	Fluoride	95.4	94.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057151	Organic Carbon	104	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P358668

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057079	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057009	Turbidity	1.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057237	Chloride	0.428	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057237	Sulfate	0.325	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057080	Ammonia-N	0.355	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058538	Ammonia-N	2.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057080	Kjeldahl Nitrogen	0.961	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059519	Kjeldahl Nitrogen	1.95	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057079	NO2NO3-N	0.487	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057080	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057197	Total-P	0.880	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059596	Total-P	3.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056983	O-Phosphate-P	2.12	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057084	O-Phosphate-P	2.41	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056978	Color (true)	2.32	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057237	Color (true)	0.759	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P358238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056815	Total Alkalinity	0.921	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P358324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056942	TDS	0.820	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P358325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057078	TDS	3.92	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P358242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056815	Fluoride	0.516	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P358091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057151	Organic Carbon	0.901	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P358668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2057079	Organic Carbon	0.144	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 365.1 Rev. 2.0 dissolved

Run ID: A89025

Included Lab Sample IDs: 2057082, 2057083, 2057084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	97.4	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A89027

Included Lab Sample IDs: 2057076, 2057077, 2057078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89028

Included Lab Sample IDs: 2057076, 2057077, 2057078

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89046

Included Lab Sample IDs: 2057079, 2057080, 2057081

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: 2057080, 2057081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89112

Included Lab Sample IDs: 2057076, 2057077, 2057078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	103	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89120

Included Lab Sample IDs: 2057080, 2057081

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89123

Included Lab Sample IDs: 2057080, 2057081

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89125

Included Lab Sample IDs: 2057080, 2057081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89154

Included Lab Sample IDs: 2057076, 2057077, 2057078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89154

Included Lab Sample IDs: 2057076, 2057077, 2057078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89276

Included Lab Sample IDs: 2057079

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89283

Included Lab Sample IDs: 2057079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89297

Included Lab Sample IDs: 2057079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	97.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89320

Included Lab Sample IDs: 2057079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.3	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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				1.01	
EPA 300.0 Rev. 2.1	Chloride	99.8	96.3	96.8	0.428	
	Sulfate	99.7	99.5	101	0.325	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	100	100		0.355
	Ammonia-N	100	98.6	95.2		2.67
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	98.7	100		0.961
	Kjeldahl Nitrogen	99.5	107	104		1.95
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	102		0.487
EPA 365.1 Rev. 2.0	Total-P	103	102	103		1.05
	Total-P	103	106	107		0.880
	Total-P	104	101	105		3.86
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.0	100		2.12
	O-Phosphate-P	99.5	94.4	96.7		2.41
SM 2120 B	Color (true)	102			2.32	
	Color (true)	103			0.759	
SM 2320 B-97	Total Alkalinity	101			0.921	
SM 2540 C-97	TDS				0.820	
	TDS				3.92	
SM 4500 F-C-97	Fluoride	96.7	95.4	94.9		0.516
SM 5310 B-00	Organic Carbon	100	104	102		0.901
	Organic Carbon	99.8	100	100		0.144

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2057076, 2057077, 2057078
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2057076, 2057077, 2057078
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2057076, 2057077, 2057078
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2057079, 2057080, 2057081
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2057079, 2057080, 2057081
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2057079, 2057080, 2057081
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2057079, 2057080, 2057081
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2057082, 2057083, 2057084
SM 2120 B / E31780	True Color measured at 450 nm	2057076, 2057077, 2057078
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2057076, 2057077, 2057078
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2057076, 2057077, 2057078
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2057076, 2057077, 2057078
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2057076, 2057077, 2057078
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2057079, 2057080, 2057081

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	01/25/2019			01/25/2019 16:40	Megan Treadwell	2057076, 2057077, 2057078
EPA 300.0 Rev. 2.1	01/25/2019			02/01/2019 03:01	Lipi Saha	2057076
	01/25/2019			02/01/2019 03:16	Lipi Saha	2057077
	01/25/2019			02/01/2019 04:00	Lipi Saha	2057078
EPA 350.1 Rev. 2.0	01/25/2019			01/31/2019 11:57	Ping Hua	2057080
	01/25/2019			01/31/2019 12:09	Ping Hua	2057081
	01/25/2019			02/07/2019 13:36	Ping Hua	2057079
EPA 351.2 Rev. 2.0	01/25/2019	01/30/2019 12:30	Adrian Shelby	01/31/2019 13:01	Joseph Suarez	2057080
	01/25/2019	01/30/2019 12:30	Adrian Shelby	01/31/2019 13:06	Joseph Suarez	2057081
	01/25/2019	02/07/2019 10:50	Adrian Shelby	02/08/2019 09:47	Joseph Suarez	2057079
EPA 353.2 Rev. 2.0	01/25/2019			01/28/2019 11:10	Beverly Y. Sanders	2057079
	01/25/2019			01/28/2019 11:19	Beverly Y. Sanders	2057080
	01/25/2019			01/28/2019 11:20	Beverly Y. Sanders	2057081
EPA 365.1 Rev. 2.0	01/25/2019	01/30/2019 13:50	Sima Feizi	01/31/2019 14:28	Rosalyn Ballman	2057080
	01/25/2019	01/30/2019 13:50	Sima Feizi	01/31/2019 14:30	Rosalyn Ballman	2057081
	01/25/2019	02/07/2019 13:25	Sima Feizi	02/08/2019 12:38	Rosalyn Ballman	2057079
EPA 365.1 Rev. 2.0 dissolved	01/25/2019			01/25/2019 13:41	Jhamieka S. Greenwood	2057082
	01/25/2019			01/25/2019 13:43	Jhamieka S. Greenwood	2057084
	01/25/2019			01/25/2019 13:46	Jhamieka S. Greenwood	2057083
SM 2120 B	01/25/2019			01/25/2019 15:25	Chelsea Hernandez	2057076
	01/25/2019			01/25/2019 15:26	Chelsea Hernandez	2057077
	01/25/2019			01/25/2019 15:30	Chelsea Hernandez	2057078
SM 2320 B-97	01/25/2019			02/02/2019 21:02	Dale L. Simmons	2057076
	01/25/2019			02/02/2019 21:15	Dale L. Simmons	2057077
	01/25/2019			02/02/2019 21:27	Dale L. Simmons	2057078
SM 2540 C-97	01/25/2019			01/28/2019 14:20	Yijie Li	2057076, 2057077, 2057078
SM 2540 D-97	01/25/2019			01/28/2019 14:20	Yijie Li	2057076, 2057077, 2057078
SM 4500 F-C-97	01/25/2019			02/02/2019 21:02	Dale L. Simmons	2057076
	01/25/2019			02/02/2019 21:15	Dale L. Simmons	2057077
	01/25/2019			02/02/2019 21:27	Dale L. Simmons	2057078
SM 5310 B-00	01/25/2019			01/30/2019 16:18	Chelsea Hernandez	2057080
	01/25/2019			01/30/2019 16:43	Chelsea Hernandez	2057081
	01/25/2019			02/07/2019 16:25	Chelsea Hernandez	2057079