

Chemical Analysis Report

CEN-DIST-2019-06-14-01

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

Event Description: **Gem / Park / Hope / Yvonne / Charm**
Request ID: **RQ-2019-06-03-46**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 02-JUL-2019 10:27

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

Case Narrative

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

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

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

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

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

Collection Date/Time: 06/13/2019 10:54

Field ID: G2CE0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095728	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P365694	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P365889	
		Sulfate	16		mg SO4/L	P365891	
	SM 2120 B	Color (true)	31	A	PCU	P366194	
	SM 2320 B-97	Total Alkalinity	59		mg CaCO3/L	P366104	
	SM 2540 C-97	TDS	177		mg/L	P366243	
	SM 2540 D-97	TSS	4	I	mg/L	P366202	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P366107	
2095731	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P366166	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P365946	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365823	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P365939	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P366066	
2095734	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365699	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Lake Yvonne at Center

Collection Date/Time: 06/13/2019 11:54

Field ID: G2CE0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095729	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P365694	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P365889	
		Sulfate	7.2		mg SO4/L	P365891	
	SM 2120 B	Color (true)	29		PCU	P366194	
	SM 2320 B-97	Total Alkalinity	43		mg CaCO3/L	P366363	
	SM 2540 C-97	TDS	108	A	mg/L	P366243	
	SM 2540 D-97	TSS	5	IA	mg/L	P366202	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P366159	
2095732	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P366166	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P365946	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365823	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P365939	
	SM 5310 B-00	Organic Carbon	8.3		mg C/L	P366066	
2095735	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365699	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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: 06/13/2019 12:48

Field ID: G2CE0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2095730	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P365694	
	EPA 300.0 Rev. 2.1	Chloride	51		mg Cl/L	P365889	
		Sulfate	23		mg SO4/L	P365891	
	SM 2120 B	Color (true)	22	A	PCU	P366195	
	SM 2320 B-97	Total Alkalinity	42	A	mg CaCO3/L	P366363	
	SM 2540 C-97	TDS	173	A	mg/L	P366246	
	SM 2540 D-97	TSS	3	IA	mg/L	P366205	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P366159	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P366169	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P365946	
2095733	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365823	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P365939	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P366066	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P365699	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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: P365694

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365889

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365891

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366166

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366169

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365946

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365939

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365699

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P366194

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P366195

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P366104

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

Reference Method: SM 2320 B-97
Batch ID: P366363

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

Reference Method: SM 2540 C-97
Batch ID: P366243

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P366246

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P366202

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P366205

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P366107

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P366159

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P366066

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: P365889

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365891

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366166

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366169

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365946

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365823

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: P365939

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: P365699

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.2		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P366194

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P366195

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

Reference Method: SM 2320 B-97
Batch ID: P366104

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P366363

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

Reference Method: SM 4500 F-C-97
Batch ID: P366107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P366159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P366066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095555	Chloride	99.4		P	90 - 110
2095694	Chloride	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095694	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094681	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095733	Ammonia-N	99.4	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095733	Kjeldahl Nitrogen	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095673	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095733	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095735	O-Phosphate-P	93.1	94.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P366107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095552	Fluoride	98.1	98.1	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P366159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095730	Fluoride	98.0	98.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P366066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2095732	Organic Carbon	93.6	92.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095668	Turbidity	0.889	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095555	Chloride	1.10	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095555	Sulfate	1.15	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094681	Ammonia-N	0.00443	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095733	Ammonia-N	0.116	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095733	Kjeldahl Nitrogen	0.862	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095673	NO2NO3-N	0.995	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095733	Total-P	0.578	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095735	O-Phosphate-P	1.70	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P366194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095728	Color (true)	3.27	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P366195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095730	Color (true)	1.68	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P366104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095552	Total Alkalinity	0.658	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P366363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095730	Total Alkalinity	0.437	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P366243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095729	TDS	6.45	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P366246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095730	TDS	2.31	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P366107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095552	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P366159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095730	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P366066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2095732	Organic Carbon	0.780	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: A92117

Included Lab Sample IDs: 2095728, 2095729, 2095730

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92120

Included Lab Sample IDs: 2095734, 2095735, 2095736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.7	96.7	P/P	90 - 110
O-Phosphate-P	97.2	96.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A92171

Included Lab Sample IDs: 2095728, 2095729, 2095730

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92173

Included Lab Sample IDs: 2095731, 2095732, 2095733

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: A92253

Included Lab Sample IDs: 2095731, 2095732, 2095733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.9	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92267

Included Lab Sample IDs: 2095731, 2095732, 2095733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92273

Included Lab Sample IDs: 2095728

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A92273

Included Lab Sample IDs: 2095728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92276

Included Lab Sample IDs: 2095731, 2095732, 2095733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A92292

Included Lab Sample IDs: 2095729, 2095730

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92295

Included Lab Sample IDs: 2095731, 2095732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92297

Included Lab Sample IDs: 2095733

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

Reference Method: SM 2120 B

Run ID: A92306

Included Lab Sample IDs: 2095728, 2095729, 2095730

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

Reference Method: SM 2320 B-97

Run ID: A92380

Included Lab Sample IDs: 2095729, 2095730

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.889	
EPA 300.0 Rev. 2.1	Chloride	101	99.4	96.2	1.10	
	Sulfate	100	98.1		1.15	
EPA 350.1 Rev. 2.0	Ammonia-N	104	103	103		0.0044
	Ammonia-N	102	99.4	99.6		0.116
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	100	102		0.862
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101	100		0.995
EPA 365.1 Rev. 2.0	Total-P	101	104	104		0.578
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.2	93.1	94.7		1.70
SM 2120 B	Color (true)	101			3.27	
	Color (true)	102			1.68	
SM 2320 B-97	Total Alkalinity	103			0.658	
	Total Alkalinity	104			0.437	
SM 2540 C-97	TDS				6.45	
	TDS				2.31	
SM 4500 F-C-97	Fluoride	97.5	98.1	98.1		0.0
	Fluoride	97.6	98.0	98.0		0.0
SM 5310 B-00	Organic Carbon	94.8	93.6	92.5		0.780

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2095728, 2095729, 2095730
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2095728, 2095729, 2095730
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2095728, 2095729, 2095730
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2095731, 2095732, 2095733
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2095731, 2095732, 2095733
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2095731, 2095732, 2095733
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2095731, 2095732, 2095733
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2095734, 2095735, 2095736
SM 2120 B / E31780	True Color measured at 450 nm	2095728, 2095729, 2095730
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2095728, 2095729, 2095730
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2095728, 2095729, 2095730
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2095728, 2095729, 2095730
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2095728, 2095729, 2095730
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2095731, 2095732, 2095733

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	06/14/2019			06/14/2019 16:39	Adrian Shelby	2095728, 2095729, 2095730
EPA 300.0 Rev. 2.1	06/14/2019			06/19/2019 00:00	Lipi Saha	2095728
	06/14/2019			06/19/2019 00:36	Lipi Saha	2095729
	06/14/2019			06/19/2019 00:48	Lipi Saha	2095730
EPA 350.1 Rev. 2.0	06/14/2019			06/21/2019 11:45	Ping Hua	2095733
	06/14/2019			06/21/2019 13:37	Ping Hua	2095731
	06/14/2019			06/21/2019 13:39	Ping Hua	2095732
EPA 351.2 Rev. 2.0	06/14/2019	06/19/2019 10:47	Sima Feizi	06/21/2019 10:11	Joseph Suarez	2095731
	06/14/2019	06/19/2019 10:47	Sima Feizi	06/21/2019 10:12	Joseph Suarez	2095732
	06/14/2019	06/19/2019 10:47	Sima Feizi	06/21/2019 10:14	Joseph Suarez	2095733
EPA 353.2 Rev. 2.0	06/14/2019			06/18/2019 11:20	Beverly Y. Sanders	2095731
	06/14/2019			06/18/2019 11:21	Beverly Y. Sanders	2095732
	06/14/2019			06/18/2019 11:22	Beverly Y. Sanders	2095733
EPA 365.1 Rev. 2.0	06/14/2019	06/19/2019 12:35	Sima Feizi	06/21/2019 10:32	Lipi Saha	2095733
	06/14/2019	06/19/2019 12:35	Sima Feizi	06/21/2019 10:36	Lipi Saha	2095731
	06/14/2019	06/19/2019 12:35	Sima Feizi	06/21/2019 10:37	Lipi Saha	2095732
EPA 365.1 Rev. 2.0 dissolved	06/14/2019			06/14/2019 16:29	Jhamieka S. Greenwood	2095735
	06/14/2019			06/14/2019 17:11	Jhamieka S. Greenwood	2095736
	06/14/2019			06/14/2019 17:13	Jhamieka S. Greenwood	2095734
SM 2120 B	06/14/2019			06/14/2019 17:07	Madeline Funaro	2095728
	06/14/2019			06/14/2019 17:10	Madeline Funaro	2095729
	06/14/2019			06/14/2019 17:17	Madeline Funaro	2095730
SM 2320 B-97	06/14/2019			06/21/2019 01:59	Dale L. Simmons	2095728
	06/14/2019			06/26/2019 08:25	Dale L. Simmons	2095730
	06/14/2019			06/26/2019 09:17	Dale L. Simmons	2095729
SM 2540 C-97	06/14/2019			06/19/2019 15:22	Yijie Li	2095728, 2095729, 2095730
SM 2540 D-97	06/14/2019			06/19/2019 15:22	Yijie Li	2095728, 2095729, 2095730
SM 4500 F-C-97	06/14/2019			06/21/2019 01:59	Dale L. Simmons	2095728
	06/14/2019			06/22/2019 01:54	Dale L. Simmons	2095730
	06/14/2019			06/22/2019 05:43	Dale L. Simmons	2095729
SM 5310 B-00	06/14/2019			06/18/2019 03:00	Madeline Funaro	2095732
	06/14/2019			06/18/2019 03:55	Madeline Funaro	2095733
	06/14/2019			06/18/2019 04:34	Madeline Funaro	2095731