

Chemical Analysis Report

CEN-DIST-2019-06-12-01

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

Event Description: **LVI / Ellen / Concord**
Request ID: **RQ-2019-06-03-44**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 01-JUL-2019 15:59

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 CONCORD AT CENTER

Collection Date/Time: 06/11/2019 11:36

Field ID: G2CE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094556	EPA 180.1 Rev. 2.0	Turbidity	8.6	A	NTU	P365509	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P365709	
		Sulfate	6.9		mg SO4/L	P365713	
	SM 2120 B	Color (true)	14	A	PCU	P365544	
	SM 2320 B-97	Total Alkalinity	73		mg CaCO3/L	P366007	
	SM 2540 C-97	TDS	106		mg/L	P365853	
	SM 2540 D-97	TSS	14	I	mg/L	P365841	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P366010	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P365766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P366188	
2094557	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365755	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P365685	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P365741	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P365515	
	dissolved						

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

Sample Location: LAKE CONCORD AT CENTER

Collection Date/Time: 06/11/2019 11:41

Field ID: G2CE0059_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094559	EPA 180.1 Rev. 2.0	Turbidity	8.6		NTU	P365509	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P365709	
		Sulfate	7.0		mg SO4/L	P365713	
	SM 2120 B	Color (true)	15		PCU	P365544	
	SM 2320 B-97	Total Alkalinity	73		mg CaCO3/L	P366007	
	SM 2540 C-97	TDS	102		mg/L	P365853	
	SM 2540 D-97	TSS	13	I	mg/L	P365841	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P366010	
2094561	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P365766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P366188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365755	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P365685	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P365741	
2094563	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365515	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

Sample Location: FB_06112019

Collection Date/Time: 06/11/2019 11:55

Field ID: FB_06112019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094560	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P365509	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P365709	
		Sulfate	0.20	U	mg SO4/L	P365713	
	SM 2120 B	Color (true)	2.5	U	PCU	P365544	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P366007	
	SM 2540 C-97	TDS	15	U	mg/L	P365849	
	SM 2540 D-97	TSS	2	U	mg/L	P365837	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P366010	
2094562	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P365953	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P366188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365755	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P365685	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P365741	
2094564	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365515	

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 BUCHANAN @ CENTER

Collection Date/Time: 06/11/2019 10:18

Field ID: G4CE0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094597	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P365509	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P365709	
		Sulfate	4.0		mg SO4/L	P365713	
	SM 2120 B	Color (true)	35		PCU	P365544	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P366105	
	SM 2540 C-97	TDS	90	A	mg/L	P365854	
	SM 2540 D-97	TSS	2	UA	mg/L	P365842	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P366011	
2094599	EPA 350.1 Rev. 2.0	Ammonia-N	0.61		mg N/L	P366166	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P365718	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P365756	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P365737	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P365734	
2094601	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P365515	

Ref. Method and Comment:

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

Sample Location: LAKE ELLEN @ CENTER

Collection Date/Time: 06/11/2019 11:10

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094598	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P365509	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P365709	
		Sulfate	13		mg SO4/L	P365713	
	SM 2120 B	Color (true)	27		PCU	P365544	
	SM 2320 B-97	Total Alkalinity	9.5		mg CaCO3/L	P366105	
	SM 2540 C-97	TDS	65		mg/L	P365854	
	SM 2540 D-97	TSS	2	I	mg/L	P365842	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P366011	
2094600	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P366166	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P366188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365756	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P365737	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P365744	
2094602	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365517	

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: P365509

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365709

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365713

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365766

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365953

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/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 351.2 Rev. 2.0
Batch ID: P365718

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366188

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365755

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365756

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365685

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365737

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365515

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365517

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

Reference Method: SM 2120 B
Batch ID: P365544

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P366007

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

Reference Method: SM 2320 B-97
Batch ID: P366105

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

Reference Method: SM 2540 C-97
Batch ID: P365849

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P365853

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P365854

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365837

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365841

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365842

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P366010

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P366011

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P365734

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

Reference Method: SM 5310 B-00
Batch ID: P365741

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P365744

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: P365709

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365713

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365766

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365953

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	103		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 351.2 Rev. 2.0
Batch ID: P365718

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366188

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365756

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365685

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365737

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: P365515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.1		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P365544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.8		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P366007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P366105

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

Reference Method: SM 4500 F-C-97
Batch ID: P366010

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

Reference Method: SM 4500 F-C-97
Batch ID: P366011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P365734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365741

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

Reference Method: SM 5310 B-00
Batch ID: P365744

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094491	Chloride	102		P	90 - 110
2094569	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094491	Sulfate	102		P	90 - 110
2094569	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094536	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094576	Ammonia-N	106	107	P/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 351.2 Rev. 2.0
Batch ID: P365718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094631	Kjeldahl Nitrogen	97.4	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094561	Kjeldahl Nitrogen	97.1	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094535	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094594	NO2NO3-N	101	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094502	Total-P	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094631	Total-P	99.3	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094580	O-Phosphate-P	97.9	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094602	O-Phosphate-P	94.9	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P366010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094495	Fluoride	99.5	98.8	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P366011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094779	Fluoride	105	106	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P365734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094599	Organic Carbon	99.2	99.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094497	Organic Carbon	102	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094631	Organic Carbon	95.1	96.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094556	Turbidity	1.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094491	Chloride	0.0914	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094491	Sulfate	0.212	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094536	Ammonia-N	0.951	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094576	Ammonia-N	0.764	Spike	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 351.2 Rev. 2.0
Batch ID: P365718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094631	Kjeldahl Nitrogen	2.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094561	Kjeldahl Nitrogen	3.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094535	NO2NO3-N	0.781	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094594	NO2NO3-N	0.995	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094502	Total-P	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094631	Total-P	0.467	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094580	O-Phosphate-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094602	O-Phosphate-P	0.944	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P365544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094556	Color (true)	0.941	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P366007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094495	Total Alkalinity	0.644	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P366105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094779	Total Alkalinity	0.824	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P365849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094166	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P365853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094495	TDS	7.12	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P365854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094597	TDS	5.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P366010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094495	Fluoride	0.470	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P366011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094779	Fluoride	0.479	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P365734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094599	Organic Carbon	0.319	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P365741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094497	Organic Carbon	0.0981	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P365744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094631	Organic Carbon	0.823	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: A92026

Included Lab Sample IDs: 2094556, 2094559, 2094560, 2094597, 2094598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A92052

Included Lab Sample IDs: 2094556, 2094559, 2094560, 2094597, 2094598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92053

Included Lab Sample IDs: 2094558, 2094563, 2094564, 2094601, 2094602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.8	P/P	90 - 110
O-Phosphate-P	93.5	96.2	P/P	90 - 110
O-Phosphate-P	95.8	96.0	P/P	90 - 110
O-Phosphate-P	96.2	97.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A92065

Included Lab Sample IDs: 2094556, 2094559, 2094560, 2094597, 2094598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	99.5	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A92134

Included Lab Sample IDs: 2094599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.7	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A92136

Included Lab Sample IDs: 2094557, 2094561, 2094562

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

Reference Method: SM 5310 B-00

Run ID: A92138

Included Lab Sample IDs: 2094600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92141

Included Lab Sample IDs: 2094557, 2094561, 2094562, 2094599, 2094600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	103	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92142

Included Lab Sample IDs: 2094557, 2094561

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92150

Included Lab Sample IDs: 2094557, 2094561

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92151

Included Lab Sample IDs: 2094562

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92174

Included Lab Sample IDs: 2094599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92182

Included Lab Sample IDs: 2094599

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92185

Included Lab Sample IDs: 2094600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92212

Included Lab Sample IDs: 2094562

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A92228

Included Lab Sample IDs: 2094556, 2094559, 2094560

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

Reference Method: SM 4500 F-C-97

Run ID: A92228

Included Lab Sample IDs: 2094556, 2094559, 2094560, 2094597, 2094598

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

Reference Method: SM 2320 B-97

Run ID: A92273

Included Lab Sample IDs: 2094597, 2094598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92295

Included Lab Sample IDs: 2094599, 2094600

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92376

Included Lab Sample IDs: 2094557, 2094561, 2094562, 2094600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	109	P/P	90 - 110
Kjeldahl Nitrogen	107	104	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				1.52	
EPA 300.0 Rev. 2.1	Chloride	92.7	102	103	0.0914	
	Sulfate	93.5	102	103	0.212	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	104		0.951
	Ammonia-N	103	106	107		0.764
	Ammonia-N	104	103	103		0.0044
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.3	97.4	101		2.37
	Kjeldahl Nitrogen	109	97.1	103		3.25
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101	102		0.781
	NO2NO3-N	100	101	100		0.995
EPA 365.1 Rev. 2.0	Total-P	102	102	105		1.88
	Total-P	104	99.3	98.8		0.467
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	97.9	98.9		1.02
	O-Phosphate-P	99.1	94.9	95.8		0.944
SM 2120 B	Color (true)	98.8			0.941	
SM 2320 B-97	Total Alkalinity	102			0.644	
	Total Alkalinity	103			0.824	
SM 2540 C-97	TDS				0.0	
	TDS				7.12	
	TDS				5.59	
SM 4500 F-C-97	Fluoride	97.5	99.5	98.8		0.470
	Fluoride	98.9	105	106		0.479
SM 5310 B-00	Organic Carbon	99.6	99.2	99.6		0.319
	Organic Carbon	102	102	102		0.0981
	Organic Carbon	97.6	96.1	95.1		0.823

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2094556, 2094559, 2094560, 2094597, 2094598
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2094556, 2094559, 2094560, 2094597, 2094598
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2094556, 2094559, 2094560, 2094597, 2094598
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2094557, 2094561, 2094562, 2094599, 2094600
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2094557, 2094561, 2094562, 2094599, 2094600
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2094557, 2094561, 2094562, 2094599, 2094600
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2094557, 2094561, 2094562, 2094599, 2094600
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2094558, 2094563, 2094564, 2094601, 2094602
SM 2120 B / E31780	True Color measured at 450 nm	2094556, 2094559, 2094560, 2094597, 2094598
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2094556, 2094559, 2094560, 2094597, 2094598
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2094556, 2094559, 2094560, 2094597, 2094598
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2094556, 2094559, 2094560, 2094597, 2094598
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2094556, 2094559, 2094560, 2094597, 2094598

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2094557, 2094561, 2094562, 2094599, 2094600

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	06/12/2019			06/12/2019 17:23	Julia Storbeck	2094556, 2094559, 2094560, 2094597, 2094598
EPA 300.0 Rev. 2.1	06/12/2019			06/15/2019 05:26	Lipi Saha	2094556
	06/12/2019			06/15/2019 05:38	Lipi Saha	2094559
	06/12/2019			06/15/2019 05:50	Lipi Saha	2094560
	06/12/2019			06/15/2019 07:15	Lipi Saha	2094597
	06/12/2019			06/15/2019 07:28	Lipi Saha	2094598
EPA 350.1 Rev. 2.0	06/12/2019			06/14/2019 17:33	Ping Hua	2094557
	06/12/2019			06/14/2019 17:35	Ping Hua	2094561
	06/12/2019			06/19/2019 11:43	Ping Hua	2094562
	06/12/2019			06/21/2019 13:22	Ping Hua	2094599
	06/12/2019			06/21/2019 13:24	Ping Hua	2094600
EPA 351.2 Rev. 2.0	06/12/2019	06/17/2019 10:35	Sima Feizi	06/18/2019 11:43	Joseph Suarez	2094599
	06/12/2019	06/24/2019 10:45	Adrian Shelby	06/25/2019 15:53	Joseph Suarez	2094557
	06/12/2019	06/24/2019 10:45	Adrian Shelby	06/25/2019 15:55	Joseph Suarez	2094561
	06/12/2019	06/24/2019 10:45	Adrian Shelby	06/25/2019 16:02	Joseph Suarez	2094562
	06/12/2019	06/24/2019 10:45	Adrian Shelby	06/25/2019 16:10	Joseph Suarez	2094600
EPA 353.2 Rev. 2.0	06/12/2019			06/17/2019 11:03	Beverly Y. Sanders	2094557
	06/12/2019			06/17/2019 11:04	Beverly Y. Sanders	2094561
	06/12/2019			06/17/2019 11:06	Beverly Y. Sanders	2094562
	06/12/2019			06/17/2019 11:24	Beverly Y. Sanders	2094599
	06/12/2019			06/17/2019 11:26	Beverly Y. Sanders	2094600
EPA 365.1 Rev. 2.0	06/12/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 13:51	Julia Storbeck	2094557
	06/12/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 13:52	Julia Storbeck	2094561
	06/12/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 18:22	Julia Storbeck	2094562
	06/12/2019	06/17/2019 12:20	Sima Feizi	06/18/2019 13:40	Rosalyn Ballman	2094599
	06/12/2019	06/17/2019 12:20	Sima Feizi	06/18/2019 16:10	Rosalyn Ballman	2094600
EPA 365.1 Rev. 2.0 dissolved	06/12/2019			06/12/2019 16:33	Jhamieka S. Greenwood	2094602
	06/12/2019			06/12/2019 17:12	Jhamieka S. Greenwood	2094558
	06/12/2019			06/12/2019 17:13	Jhamieka S. Greenwood	2094563
	06/12/2019			06/12/2019 17:22	Jhamieka S. Greenwood	2094564
	06/12/2019			06/12/2019 18:01	Jhamieka S. Greenwood	2094601
SM 2120 B	06/12/2019			06/12/2019 16:02	Mariam Hanna	2094556
	06/12/2019			06/12/2019 16:03	Mariam Hanna	2094559
	06/12/2019			06/12/2019 16:04	Mariam Hanna	2094560
	06/12/2019			06/12/2019 16:08	Mariam Hanna	2094597
	06/12/2019			06/12/2019 16:09	Mariam Hanna	2094598
SM 2320 B-97	06/12/2019			06/18/2019 23:55	Dale L. Simmons	2094556
	06/12/2019			06/19/2019 00:07	Dale L. Simmons	2094559
	06/12/2019			06/19/2019 00:22	Dale L. Simmons	2094560

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	06/12/2019			06/21/2019 04:37	Dale L. Simmons	2094597
	06/12/2019			06/21/2019 04:46	Dale L. Simmons	2094598
SM 2540 C-97	06/12/2019			06/13/2019 15:55	Yijie Li	2094556, 2094559, 2094560, 2094597, 2094598
SM 2540 D-97	06/12/2019			06/13/2019 15:55	Yijie Li	2094556, 2094559, 2094560, 2094597, 2094598
SM 4500 F-C-97	06/12/2019			06/18/2019 23:55	Dale L. Simmons	2094556
	06/12/2019			06/19/2019 00:07	Dale L. Simmons	2094559
	06/12/2019			06/19/2019 00:22	Dale L. Simmons	2094560
	06/12/2019			06/19/2019 03:55	Dale L. Simmons	2094597
	06/12/2019			06/19/2019 04:05	Dale L. Simmons	2094598
SM 5310 B-00	06/12/2019			06/14/2019 02:19	Julia Storbeck	2094600
	06/12/2019			06/14/2019 05:06	Madeline Funaro	2094557
	06/12/2019			06/14/2019 05:19	Madeline Funaro	2094561
	06/12/2019			06/14/2019 05:31	Madeline Funaro	2094562
	06/12/2019			06/14/2019 16:47	Madeline Funaro	2094599