

Chemical Analysis Report

SO-DIST-2019-06-11-01

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

Event Description: **SMP: Highlands**
Request ID: **RQ-2019-05-13-23**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 02-JUL-2019 18:13



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 Damon @ Middle

Collection Date/Time: 06/10/2019 11:20

Field ID: G4SD0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094222	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P365441	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P365707	
		Sulfate	35		mg SO4/L	P365711	
	SM 2120 B	Color (true)	9.5		PCU	P365447	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P366014	
	SM 2540 C-97	TDS	96		mg/L	P365850	
	SM 2540 D-97	TSS	2	I	mg/L	P365838	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P365799	
2094226	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P365761	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P365980	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365655	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P365641	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P365734	
2094230	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365433	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Pythias @ Middle

Collection Date/Time: 06/10/2019 12:00

Field ID: G4SD0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094223	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P365441	
	EPA 300.0 Rev. 2.1	Chloride	21	A	mg Cl/L	P365708	
		Sulfate	38	A	mg SO4/L	P365712	
	SM 2120 B	Color (true)	10		PCU	P365447	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P366014	
	SM 2540 C-97	TDS	90		mg/L	P365851	
	SM 2540 D-97	TSS	3	I	mg/L	P365839	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P365799	
2094227	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365761	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P365980	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P365655	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P365681	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P365740	
2094231	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365433	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LittleRedWaterLake@Mid

Collection Date/Time: 06/10/2019 12:55

Field ID: G4SD0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094224	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P365441	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P365708	
		Sulfate	10		mg SO4/L	P365712	
	SM 2120 B	Color (true)	47		PCU	P365447	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P366014	
	SM 2540 C-97	TDS	68		mg/L	P365851	
	SM 2540 D-97	TSS	5	I	mg/L	P365839	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P365799	
2094228	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365761	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P365980	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365655	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P365681	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P365740	
2094232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365433	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Josephine Creek EofCR17

Collection Date/Time: 06/10/2019 13:40

Field ID: G4SD0104

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094225	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P365441	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P365708	
		Sulfate	27		mg SO4/L	P365712	
	SM 2120 B	Color (true)	44		PCU	P365447	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P365797	
	SM 2540 C-97	TDS	108	A	mg/L	P365851	
	SM 2540 D-97	TSS	6	IA	mg/L	P365839	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P365800	
2094229	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P365761	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P365980	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.67		mg N/L	P365655	
	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P365681	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P365740	
2094233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P365433	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Grassy Creek @CR621E

Collection Date/Time: 06/10/2019 14:15

Field ID: G4SD0165

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2094234	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P365442	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P365708	
		Sulfate	26		mg SO4/L	P365712	
	SM 2120 B	Color (true)	57	A	PCU	P365448	
	SM 2320 B-97	Total Alkalinity	5.1		mg CaCO3/L	P365797	
	SM 2540 C-97	TDS	112		mg/L	P365851	
	SM 2540 D-97	TSS	9	I	mg/L	P365839	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P365800	
2094235	EPA 350.1 Rev. 2.0	Ammonia-N	0.093		mg N/L	P365761	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P365980	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P365655	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P365681	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P365740	
2094236	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P365433	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365441

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365442

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365707

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365708

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365711

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365712

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365761

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365980

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365655

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365641

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365681

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365433

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

Reference Method: SM 2120 B
Batch ID: P365447

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P365448

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P365797

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

Reference Method: SM 2320 B-97
Batch ID: P366014

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

Reference Method: SM 2540 C-97
Batch ID: P365850

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P365851

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P365838

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365839

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P365799

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P365800

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: P365740

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: P365707

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365708

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365711

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365712

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365761

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365980

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365641

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365681

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 dissolved
Batch ID: P365433

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

Reference Method: SM 2120 B
Batch ID: P365447

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P365448

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P365797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P366014

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

Reference Method: SM 4500 F-C-97
Batch ID: P365799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P365800

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

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: P365740

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2093206	Chloride	99.4		P	90 - 110
2094167	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094223	Chloride	100		P	90 - 110
2094269	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365711

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2093206	Sulfate	99.5		P	90 - 110
2094167	Sulfate	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094223	Sulfate	102		P	90 - 110
2094269	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094229	Ammonia-N	99.2	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094207	NO2NO3-N	95.8	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094226	Total-P	97.2	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094227	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365433

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094232	O-Phosphate-P	97.1	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094167	Fluoride	97.1	96.6	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094395	Fluoride	102	103	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: P365740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094228	Organic Carbon	101	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094206	Turbidity	3.86	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094263	Turbidity	2.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093206	Chloride	0.369	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094223	Chloride	0.134	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093206	Sulfate	0.147	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094223	Sulfate	0.316	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094229	Ammonia-N	1.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094208	Kjeldahl Nitrogen	0.924	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094207	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094226	Total-P	1.92	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094227	Total-P	2.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094232	O-Phosphate-P	1.23	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P365447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094169	Color (true)	0.0967	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P365448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094234	Color (true)	1.44	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P365797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094395	Total Alkalinity	0.123	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P366014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094167	Total Alkalinity	0.811	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P365850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094167	TDS	4.51	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P365851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094225	TDS	2.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P365799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094167	Fluoride	0.479	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P365800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094395	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: P365740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094228	Organic Carbon	0.291	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: A92017

Included Lab Sample IDs: 2094230, 2094231, 2094232, 2094233, 2094236

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.8	99.3	P/P	90 - 110
O-Phosphate-P	99.8	99.7	P/P	90 - 110
O-Phosphate-P	99.8	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A92019

Included Lab Sample IDs: 2094222, 2094223, 2094224, 2094225, 2094234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105
Turbidity	99.0	98.0	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A92021

Included Lab Sample IDs: 2094222, 2094223, 2094224, 2094225, 2094234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115
Color (true)	99.8	101	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A92026

Included Lab Sample IDs: 2094222, 2094223, 2094224, 2094225, 2094234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	101	101	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: A92109

Included Lab Sample IDs: 2094226, 2094227, 2094228, 2094229, 2094235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	96.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A92134

Included Lab Sample IDs: 2094226

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

Reference Method: SM 5310 B-00

Run ID: A92136

Included Lab Sample IDs: 2094227, 2094228, 2094229, 2094235

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92142

Included Lab Sample IDs: 2094226, 2094227, 2094228, 2094229, 2094235

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92150

Included Lab Sample IDs: 2094229, 2094235

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92151

Included Lab Sample IDs: 2094226, 2094227, 2094228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110
Total-P	99.0	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92164

Included Lab Sample IDs: 2094225, 2094234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	106	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A92164

Included Lab Sample IDs: 2094222, 2094223, 2094224, 2094225, 2094234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	99.0	P/P	90 - 110
Fluoride	98.1	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92230

Included Lab Sample IDs: 2094222, 2094223, 2094224

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92328

Included Lab Sample IDs: 2094226, 2094227, 2094228, 2094229, 2094235

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				3.86	
	Turbidity				2.91	
EPA 300.0 Rev. 2.1	Chloride	101	99.4	100	0.369	
	Chloride	101	100	101	0.134	
	Sulfate	101	99.5	99.0	0.147	
	Sulfate	102	102	102	0.316	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	99.2	101		1.00
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104				0.924
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	95.8	95.3		0.509
EPA 365.1 Rev. 2.0	Total-P	98.4	97.2	99.1		1.92
	Total-P	103	103	101		2.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	98.3	97.1		1.23
SM 2120 B	Color (true)	99.8			0.0967	
	Color (true)	99.3			1.44	
SM 2320 B-97	Total Alkalinity	105			0.123	
	Total Alkalinity	103			0.811	
SM 2540 C-97	TDS				4.51	
	TDS				2.76	
SM 4500 F-C-97	Fluoride	96.1	97.1	96.6		0.479
	Fluoride	97.5	102	103		0.479
SM 5310 B-00	Organic Carbon	99.6	99.2	99.6		0.319
	Organic Carbon	100	101	102		0.291

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2094222, 2094223, 2094224, 2094225, 2094234
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2094222, 2094223, 2094224, 2094225, 2094234
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2094222, 2094223, 2094224, 2094225, 2094234
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2094226, 2094227, 2094228, 2094229, 2094235
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2094226, 2094227, 2094228, 2094229, 2094235
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2094226, 2094227, 2094228, 2094229, 2094235
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2094226, 2094227, 2094228, 2094229, 2094235
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2094230, 2094231, 2094232, 2094233, 2094236
SM 2120 B / E31780	True Color measured at 450 nm	2094222, 2094223, 2094224, 2094225, 2094234
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2094222, 2094223, 2094224, 2094225, 2094234
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2094222, 2094223, 2094224, 2094225, 2094234
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2094222, 2094223, 2094224, 2094225, 2094234
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2094222, 2094223, 2094224, 2094225, 2094234
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2094226, 2094227, 2094228, 2094229, 2094235

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	06/11/2019			06/11/2019 16:05	Julia Storbeck	2094222, 2094223, 2094224, 2094225, 2094234
EPA 300.0 Rev. 2.1	06/11/2019			06/14/2019 18:19	Lipi Saha	2094222
	06/11/2019			06/14/2019 20:08	Lipi Saha	2094223
	06/11/2019			06/14/2019 20:56	Lipi Saha	2094224
	06/11/2019			06/14/2019 21:09	Lipi Saha	2094225
	06/11/2019			06/14/2019 21:21	Lipi Saha	2094234
EPA 350.1 Rev. 2.0	06/11/2019			06/14/2019 14:55	Ping Hua	2094229
	06/11/2019			06/14/2019 15:01	Ping Hua	2094226
	06/11/2019			06/14/2019 15:03	Ping Hua	2094227
	06/11/2019			06/14/2019 15:04	Ping Hua	2094228
	06/11/2019			06/14/2019 15:06	Ping Hua	2094235
EPA 351.2 Rev. 2.0	06/11/2019	06/19/2019 12:00	Adrian Shelby	06/24/2019 15:10	Joseph Suarez	2094226
	06/11/2019	06/19/2019 12:00	Adrian Shelby	06/24/2019 15:12	Joseph Suarez	2094227
	06/11/2019	06/19/2019 12:00	Adrian Shelby	06/24/2019 15:13	Joseph Suarez	2094228
	06/11/2019	06/19/2019 12:00	Adrian Shelby	06/24/2019 15:15	Joseph Suarez	2094229
	06/11/2019	06/19/2019 12:00	Adrian Shelby	06/24/2019 15:16	Joseph Suarez	2094235
EPA 353.2 Rev. 2.0	06/11/2019			06/14/2019 11:13	Beverly Y. Sanders	2094226
	06/11/2019			06/14/2019 11:14	Beverly Y. Sanders	2094227
	06/11/2019			06/14/2019 11:16	Beverly Y. Sanders	2094228
	06/11/2019			06/14/2019 11:17	Beverly Y. Sanders	2094229
	06/11/2019			06/14/2019 11:18	Beverly Y. Sanders	2094235
EPA 365.1 Rev. 2.0	06/11/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 12:36	Julia Storbeck	2094229
	06/11/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 12:37	Julia Storbeck	2094235
	06/11/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 17:18	Julia Storbeck	2094226
	06/11/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 17:30	Julia Storbeck	2094227
	06/11/2019	06/14/2019 12:55	Sima Feizi	06/17/2019 17:33	Julia Storbeck	2094228
EPA 365.1 Rev. 2.0 dissolved	06/11/2019			06/11/2019 14:21	Jhamieka S. Greenwood	2094232
	06/11/2019			06/11/2019 14:52	Jhamieka S. Greenwood	2094230
	06/11/2019			06/11/2019 14:57	Jhamieka S. Greenwood	2094231
	06/11/2019			06/11/2019 14:58	Jhamieka S. Greenwood	2094233
	06/11/2019			06/11/2019 14:59	Jhamieka S. Greenwood	2094236
SM 2120 B	06/11/2019			06/11/2019 15:58	Madeline Funaro	2094222
	06/11/2019			06/11/2019 15:59	Madeline Funaro	2094223
	06/11/2019			06/11/2019 16:00	Madeline Funaro	2094224
	06/11/2019			06/11/2019 16:01	Madeline Funaro	2094225
	06/11/2019			06/11/2019 16:05	Madeline Funaro	2094234
SM 2320 B-97	06/11/2019			06/18/2019 04:50	Dale L. Simmons	2094225
	06/11/2019			06/18/2019 05:01	Dale L. Simmons	2094234
	06/11/2019			06/20/2019 03:21	Dale L. Simmons	2094222

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	06/11/2019			06/20/2019 03:31	Dale L. Simmons	2094223
	06/11/2019			06/20/2019 03:41	Dale L. Simmons	2094224
SM 2540 C-97	06/11/2019			06/13/2019 15:55	Yijie Li	2094222, 2094223, 2094224, 2094225, 2094234
SM 2540 D-97	06/11/2019			06/13/2019 15:55	Yijie Li	2094222, 2094223, 2094224, 2094225, 2094234
SM 4500 F-C-97	06/11/2019			06/17/2019 21:27	Dale L. Simmons	2094222
	06/11/2019			06/17/2019 21:39	Dale L. Simmons	2094223
	06/11/2019			06/17/2019 21:51	Dale L. Simmons	2094224
	06/11/2019			06/18/2019 04:50	Dale L. Simmons	2094225
	06/11/2019			06/18/2019 05:01	Dale L. Simmons	2094234
SM 5310 B-00	06/11/2019			06/13/2019 19:27	Madeline Funaro	2094228
	06/11/2019			06/13/2019 20:17	Madeline Funaro	2094229
	06/11/2019			06/13/2019 20:41	Madeline Funaro	2094227
	06/11/2019			06/13/2019 20:55	Madeline Funaro	2094235
	06/11/2019			06/14/2019 22:23	Madeline Funaro	2094226