

Chemical Analysis Report

SO-DIST-2017-11-08-01

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

Event Description: **SMP: Highlands Canoe Lakes**
Request ID: **RQ-2017-08-14-05**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 01-DEC-2017 14:01



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 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 Rachard @ Center

Collection Date/Time: 11/07/2017 11:05

Field ID: G4SD110717-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1944029	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P335007	
	EPA 300.0 Rev. 2.1	Chloride	6.1	A	mg Cl/L	P335092	
		Sulfate	15	A	mg SO4/L	P335095	
	SM 2120 B	Color (true)	11		PCU	P334926	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P335376	
	SM 2540 C-97	TDS	41		mg/L	P335603	
	SM 2540 D-97	TSS	2	I	mg/L	P335583	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P335380	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P335680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P335519	
1944033	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P335537	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P335126	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P335511	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.006	I	mg P/L	P335000	
	dissolved						

Ref. Method and Comment:

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

Sample Location: Blue Lake @ Center

Collection Date/Time: 11/07/2017 10:30

Field ID: G4SD110717-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1944030	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P335007	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P335092	
		Sulfate	23		mg SO4/L	P335095	
	SM 2120 B	Color (true)	18	A	PCU	P334926	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P335376	
	SM 2540 C-97	TDS	100		mg/L	P335603	
	SM 2540 D-97	TSS	2	I	mg/L	P335583	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P335380	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P335680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P335519	
1944034	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P335537	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P335126	
	SM 5310 B-00	Organic Carbon	7.2		mg C/L	P335427	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P335000	
	dissolved						

Ref. Method and Comment:

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

Sample Location: Buck Lake @ Middle

Collection Date/Time: 11/07/2017 09:45

Field ID: G4SD110717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1944031	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P335007	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P335092	
		Sulfate	60		mg SO4/L	P335095	

Field ID: G4SD110717-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1944031	SM 2120 B	Color (true)	11		PCU	P334926	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P335376	
	SM 2540 C-97	TDS	197		mg/L	P335603	
	SM 2540 D-97	TSS	2	I	mg/L	P335583	
	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P335380	
1944035	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P335891	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P335519	
	EPA 353.2 Rev. 2.0	NO2NO3-N	12		mg N/L	P335537	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P335126	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P335427	
1944039	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335000	

Ref. Method and Comment:

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

Sample Location: Silver Lake @ Center

Collection Date/Time: 11/07/2017 12:15

Field ID: G4SD110717-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1944032	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P335007	
	EPA 300.0 Rev. 2.1	Chloride	6.3		mg Cl/L	P335092	
		Sulfate	5.3		mg SO4/L	P335095	
		Color (true)	25		PCU	P334926	
	SM 2320 B-97	Total Alkalinity	0.99	I	mg CaCO3/L	P335376	
	SM 2540 C-97	TDS	24	I	mg/L	P335603	
	SM 2540 D-97	TSS	2	I	mg/L	P335583	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P335380	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P335680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P335519	
1944036	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P335537	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P335238	
	SM 5310 B-00	Organic Carbon	7.1		mg C/L	P335427	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P335000	
1944040							

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: P335007

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335092

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335092

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335095

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335680

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335891

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335519

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335537

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335126

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335238

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335000

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: P334926

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335376

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

Reference Method: SM 2540 C-97
Batch ID: P335603

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335583

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335380

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P335427

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

Reference Method: SM 5310 B-00
Batch ID: P335511

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: P335092

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335095

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335095

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335680

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335891

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335519

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335537

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335238

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335000

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

Reference Method: SM 2320 B-97
Batch ID: P335376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P335380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335427

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

Reference Method: SM 5310 B-00
Batch ID: P335511

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944029	Chloride	100		P	90 - 110
1944032	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944029	Sulfate	98.8		P	90 - 110
1944032	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944035	Ammonia-N	98.7	94.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943022	Ammonia-N	101	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943995	Kjeldahl Nitrogen	101	98.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944033	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943994	Total-P	95.0	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944169	Total-P	96.8	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944039	O-Phosphate-P	92.7	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P335380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944925	Fluoride	102	103	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P335427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943997	Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P335511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943619	Organic Carbon	96.3	97.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943991	Turbidity	4.65	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944029	Chloride	1.61	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944029	Sulfate	0.104	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944035	Ammonia-N	3.59	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943022	Ammonia-N	2.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943995	Kjeldahl Nitrogen	1.17	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944033	NO2NO3-N	0.580	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943994	Total-P	0.734	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944169	Total-P	6.34	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944039	O-Phosphate-P	4.02	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P334926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944030	Color (true)	14.9	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P335376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944925	Total Alkalinity	0.705	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944167	TDS	3.92	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944925	Fluoride	1.01	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943997	Organic Carbon	0.329	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P335511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943619	Organic Carbon	0.605	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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A80126

Included Lab Sample IDs: 1944029, 1944030, 1944031, 1944032

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80134

Included Lab Sample IDs: 1944029, 1944030, 1944031, 1944032

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A80149

Included Lab Sample IDs: 1944037, 1944038, 1944039, 1944040

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A80151

Included Lab Sample IDs: 1944029, 1944030, 1944031, 1944032

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

Reference Method: SM 2320 B-97

Run ID: A80294

Included Lab Sample IDs: 1944029, 1944030, 1944031, 1944032

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

Reference Method: SM 4500 F-C-97

Run ID: A80294

Included Lab Sample IDs: 1944029, 1944030, 1944031, 1944032

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	101	P/P	90 - 110
Fluoride	99.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80311

Included Lab Sample IDs: 1944033, 1944034, 1944035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110
Total-P	102	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A80314

Included Lab Sample IDs: 1944034, 1944035, 1944036

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

Reference Method: SM 5310 B-00

Run ID: A80341

Included Lab Sample IDs: 1944033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.9	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80343

Included Lab Sample IDs: 1944036

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80358

Included Lab Sample IDs: 1944033, 1944034, 1944035, 1944036

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80415

Included Lab Sample IDs: 1944033, 1944034, 1944036

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80453

Included Lab Sample IDs: 1944033, 1944034, 1944035, 1944036

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80513

Included Lab Sample IDs: 1944035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	102	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					4.65	
EPA 300.0 Rev. 2.1	Chloride	100	100	99.3		1.61	
	Sulfate	99.8	98.8	98.5		0.104	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	98.7	94.6			3.59
	Ammonia-N	105	101	96.8			2.92
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101	98.6			1.17
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	106	106			0.580
EPA 365.1 Rev. 2.0	Total-P	96.6	95.0	95.7			0.734
	Total-P	98.6	96.8	103			6.34
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	92.7	96.5			4.02
SM 2120 B	Color (true)					14.9	
SM 2320 B-97	Total Alkalinity	103				0.705	
SM 2540 C-97	TDS					3.92	
SM 4500 F-C-97	Fluoride	97.1	102	103			1.01
SM 5310 B-00	Organic Carbon	100	103				0.329
	Organic Carbon	96.8	96.3	97.3			0.605

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1944029, 1944030, 1944031, 1944032
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1944029, 1944030, 1944031, 1944032
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1944029, 1944030, 1944031, 1944032
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1944033, 1944034, 1944035, 1944036
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1944033, 1944034, 1944035, 1944036
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1944033, 1944034, 1944035, 1944036
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1944033, 1944034, 1944035, 1944036
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1944037, 1944038, 1944039, 1944040
SM 2120 B / E31780	True Color measured at 450 nm	1944029, 1944030, 1944031, 1944032
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1944029, 1944030, 1944031, 1944032
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1944029, 1944030, 1944031, 1944032
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1944029, 1944030, 1944031, 1944032
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1944029, 1944030, 1944031, 1944032
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1944033, 1944034, 1944035, 1944036

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	11/08/2017			11/08/2017 17:35	DeAsia Armster	1944029, 1944030, 1944031, 1944032
EPA 300.0 Rev. 2.1	11/08/2017			11/10/2017	Julia Storbeck	1944029, 1944030, 1944031, 1944032
EPA 350.1 Rev. 2.0	11/08/2017			11/20/2017	Sofia Elnemr	1944033, 1944034, 1944036
	11/08/2017			11/22/2017	Sofia Elnemr	1944035
EPA 351.2 Rev. 2.0	11/08/2017	11/17/2017	Adrian Shelby	11/21/2017	Joseph Suarez	1944033, 1944034, 1944035, 1944036
EPA 353.2 Rev. 2.0	11/08/2017			11/17/2017	Beverly Y. Sanders	1944033, 1944034, 1944035, 1944036
EPA 365.1 Rev. 2.0	11/08/2017	11/13/2017	Sima Feizi	11/14/2017	Lipi Saha	1944033, 1944034, 1944035
	11/08/2017	11/14/2017	Sima Feizi	11/16/2017	Lipi Saha	1944036
EPA 365.1 Rev. 2.0 dissolved	11/08/2017			11/08/2017 14:51	Megan Treadwell	1944039
	11/08/2017			11/08/2017 14:54	Megan Treadwell	1944037
	11/08/2017			11/08/2017 14:55	Megan Treadwell	1944038, 1944040
SM 2120 B	11/08/2017			11/08/2017 12:29	Tanya Welborn	1944029
	11/08/2017			11/08/2017 12:30	Tanya Welborn	1944030
	11/08/2017			11/08/2017 12:31	Tanya Welborn	1944031
	11/08/2017			11/08/2017 12:32	Tanya Welborn	1944032
SM 2320 B-97	11/08/2017			11/15/2017	Dale L. Simmons	1944029, 1944030, 1944031, 1944032
SM 2540 C-97	11/08/2017			11/09/2017	Yijie Li	1944029, 1944030, 1944031, 1944032
SM 2540 D-97	11/08/2017			11/09/2017	Yijie Li	1944029, 1944030, 1944031, 1944032
SM 4500 F-C-97	11/08/2017			11/15/2017	Dale L. Simmons	1944029, 1944030, 1944031, 1944032
SM 5310 B-00	11/08/2017			11/16/2017	Ping Hua	1944033, 1944034, 1944035, 1944036