

Chemical Analysis Report

SO-DIST-2017-06-28-02

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

Event Description: **SMP: Highlands Lakes**

Request ID: **RQ-2017-06-05-01**

Customer: **SO-DIST**

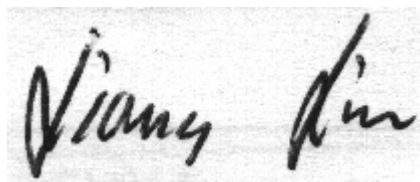
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-JUL-2017 17:34

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

Case Narrative

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

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

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

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

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

Collection Date/Time: 06/27/2017 11:40

Field ID: G4HL062017-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909498	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P327670	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P327936	
		Sulfate	20		mg SO4/L	P327939	
	SM 2120 B	Color (true)	17		PCU	P327650	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P327908	
	SM 2540 C-97	TDS	104		mg/L	P328012	
	SM 2540 D-97	TSS	4	I	mg/L	P328282	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P327982	
1909501	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P327784	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P327772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327702	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P327794	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P327801	
1909504	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327643	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: LAKE PYTHIAS @ MIDDLE

Collection Date/Time: 06/27/2017 09:40

Field ID: G4HL062017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909499	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P327670	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P327936	
		Sulfate	37		mg SO4/L	P327939	
	SM 2120 B	Color (true)	12		PCU	P327651	
	SM 2320 B-97	Total Alkalinity	1.7	I	mg CaCO3/L	P327908	
	SM 2540 C-97	TDS	133		mg/L	P328012	
	SM 2540 D-97	TSS	4	I	mg/L	P328282	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P327913	
1909502	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P327784	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P327772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.083		mg N/L	P327702	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P327794	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P327801	
1909505	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P327643	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: HUCKLEBERRY LAKE @ CENTER

Collection Date/Time: 06/27/2017 10:50

Field ID: G4HL062017-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909500	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P327670	

Field ID: G4HL062017-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909500	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P327936	
		Sulfate	3.5		mg SO4/L	P327939	
	SM 2120 B	Color (true)	78		PCU	P327651	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P327908	
	SM 2540 C-97	TDS	79		mg/L	P328012	
	SM 2540 D-97	TSS	8	I	mg/L	P328282	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P327913	
1909503	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P327784	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P327772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327702	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P327794	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P327801	
1909506	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P327643	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327670

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327936

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327939

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P327784

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P327772

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327702

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327794

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327643

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

Reference Method: SM 2120 B
Batch ID: P327650

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P327651

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P327908

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

Reference Method: SM 2540 C-97
Batch ID: P328012

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P328282

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327913

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P327982

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327801

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: P327936

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327939

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327784

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327702

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: P327794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327643

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P327908

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

Reference Method: SM 4500 F-C-97
Batch ID: P327913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P327982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909448	Chloride	102		P	90 - 110
1909517	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909448	Sulfate	99.3		P	90 - 110
1909517	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909483	Ammonia-N	95.6	96.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909501	Kjeldahl Nitrogen	106	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909503	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909501	Total-P	98.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909461	O-Phosphate-P	96.2	95.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P327913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909394	Fluoride	100	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P327982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909452	Fluoride	102	103	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P327801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909372	Organic Carbon	98.4	98.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909479	Turbidity	1.75	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909448	Chloride	1.57	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909483	Ammonia-N	0.409	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909501	Kjeldahl Nitrogen	3.99	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909503	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909501	Total-P	1.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909461	O-Phosphate-P	0.739	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P327650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909490	Color (true)	2.62	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P327651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909517	Color (true)	3.78	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P327908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909394	Total Alkalinity	0.0689	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P328012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909480	TDS	5.82	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P327913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909394	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P327982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909452	Fluoride	0.953	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P327801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909372	Organic Carbon	0.356	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: A77396
Included Lab Sample IDs: 1909504, 1909505, 1909506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.6	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A77400
Included Lab Sample IDs: 1909498, 1909499, 1909500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	99.6	P/P	85 - 115
Color (true)	99.6	103	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77411

Included Lab Sample IDs: 1909498, 1909499, 1909500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77418

Included Lab Sample IDs: 1909501, 1909502, 1909503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77454

Included Lab Sample IDs: 1909501, 1909502, 1909503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77463

Included Lab Sample IDs: 1909501, 1909502, 1909503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	97.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77508

Included Lab Sample IDs: 1909498, 1909499, 1909500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	104	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77508

Included Lab Sample IDs: 1909499, 1909500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77511

Included Lab Sample IDs: 1909501, 1909502, 1909503

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77520

Included Lab Sample IDs: 1909503

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77522

Included Lab Sample IDs: 1909498, 1909499, 1909500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	91.7	95.8	P/P	90 - 110
Chloride	97.2	91.7	P/P	90 - 110
Sulfate	101	96.1	P/P	90 - 110
Sulfate	96.1	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77523

Included Lab Sample IDs: 1909501, 1909502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.2	P/P	90 - 110
Total-P	99.2	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77532

Included Lab Sample IDs: 1909498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.5	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.75	
EPA 300.0 Rev. 2.1	Chloride	99.0	102	104		1.57	
	Sulfate	101	99.3	98.5			
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	95.6	96.2			0.409
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.8	106	99.6			3.99
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.0	100			1.50
EPA 365.1 Rev. 2.0	Total-P	95.4	98.7	100			1.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	96.2	95.2			0.739
SM 2120 B	Color (true)					2.62	
	Color (true)					3.78	
SM 2320 B-97	Total Alkalinity	103				0.0689	
SM 2540 C-97	TDS					5.82	
SM 4500 F-C-97	Fluoride	96.3	100	100			0.0
	Fluoride	102	102	103			0.953
SM 5310 B-00	Organic Carbon	94.7	98.4	98.0			0.356

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1909498, 1909499, 1909500
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1909498, 1909499, 1909500
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1909498, 1909499, 1909500
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1909501, 1909502, 1909503
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1909501, 1909502, 1909503
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1909501, 1909502, 1909503
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1909501, 1909502, 1909503
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1909504, 1909505, 1909506
SM 2120 B / E31780	True Color measured at 450 nm	1909498, 1909499, 1909500
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1909498, 1909499, 1909500
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1909498, 1909499, 1909500
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1909498, 1909499, 1909500
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1909498, 1909499, 1909500
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1909501, 1909502, 1909503

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	06/28/2017			06/28/2017 17:52	DeAsia Armster	1909498, 1909499, 1909500
EPA 300.0 Rev. 2.1	06/28/2017			06/30/2017	Julia Storbeck	1909498, 1909499, 1909500
EPA 350.1 Rev. 2.0	06/28/2017			06/29/2017	Sofia Elnemr	1909501, 1909502, 1909503
EPA 351.2 Rev. 2.0	06/28/2017	06/30/2017	Adrian Shelby	07/05/2017	Joseph Suarez	1909501, 1909502, 1909503
EPA 353.2 Rev. 2.0	06/28/2017			06/29/2017	Beverly Y. Sanders	1909501, 1909502, 1909503
EPA 365.1 Rev. 2.0	06/28/2017	06/30/2017	Vijayalakshmi Reddy	07/05/2017	Lipi Saha	1909501, 1909502, 1909503
EPA 365.1 Rev. 2.0 dissolved	06/28/2017			06/28/2017 12:38	Lipi Saha	1909504
	06/28/2017			06/28/2017 12:39	Lipi Saha	1909505
	06/28/2017			06/28/2017 12:40	Lipi Saha	1909506
SM 2120 B	06/28/2017			06/28/2017 15:52	Tanya Welborn	1909498
	06/28/2017			06/28/2017 15:56	Tanya Welborn	1909499, 1909500
	06/28/2017			07/01/2017	Dale L. Simmons	1909498, 1909499, 1909500
SM 2320 B-97	06/28/2017			06/30/2017	Yijie Li	1909498, 1909499, 1909500
SM 2540 C-97	06/28/2017			06/30/2017	Yijie Li	1909498, 1909499, 1909500
SM 2540 D-97	06/28/2017			07/01/2017	Dale L. Simmons	1909499, 1909500
SM 4500 F-C-97	06/28/2017			07/05/2017	Dale L. Simmons	1909498
	06/28/2017			06/29/2017	Sofia Elnemr	1909501
SM 5310 B-00	06/28/2017			06/30/2017	Sofia Elnemr	1909502, 1909503