

Chemical Analysis Report

SO-DIST-2017-06-27-01

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

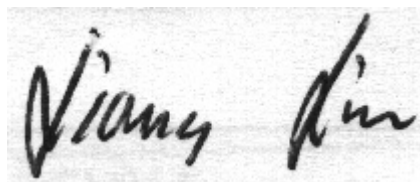
Event Description: **SMP: Highlands Lakes**
Request ID: **RQ-2017-06-05-01**
Customer: **SO-DIST**
Project ID: **SMP**

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
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-JUL-2017 14:24

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: HILL LAKE @ CENTER

Collection Date/Time: 06/26/2017 09:15

Field ID: G4HL062017-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908907	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P327591	
	EPA 300.0 Rev. 2.1	Chloride	9.3		mg Cl/L	P327716	
		Sulfate	5.0		mg SO4/L	P327718	
	SM 2120 B	Color (true)	54		PCU	P327578	
	SM 2320 B-97	Total Alkalinity	4.2		mg CaCO3/L	P327664	
	SM 2540 C-97	TDS	66		mg/L	P327835	
	SM 2540 D-97	TSS	3	I	mg/L	P327877	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327666	
1908910	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P327674	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P327559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327606	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P327627	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P327760	
1908913	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327568	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LAKE SIRENA @ MIDDLE

Collection Date/Time: 06/26/2017 10:45

Field ID: G4HL062017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908908	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P327591	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P327716	
		Sulfate	25		mg SO4/L	P327718	
	SM 2120 B	Color (true)	7.4		PCU	P327578	
	SM 2320 B-97	Total Alkalinity	8.5		mg CaCO3/L	P327664	
	SM 2540 C-97	TDS	102		mg/L	P327835	
	SM 2540 D-97	TSS	2	I	mg/L	P327877	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P327666	
1908911	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P327674	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P327559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327606	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P327627	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P327760	
1908914	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327568	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PEARL LAKE @ CENTER

Collection Date/Time: 06/26/2017 10:15

Field ID: G4HL062017-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908909	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P327591	

Field ID: G4HL062017-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908909	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P327716	
		Sulfate	16		mg SO4/L	P327718	
	SM 2120 B	Color (true)	9.7		PCU	P327578	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P327664	
	SM 2540 C-97	TDS	85		mg/L	P327836	
	SM 2540 D-97	TSS	2	I	mg/L	P327878	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P327666	
1908912	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P327674	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P327559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327606	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P327627	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P327760	
1908915	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327570	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 SM 4500 F-C-97: 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: P327591

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327716

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327718

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327674

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P327559

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: P327606

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327627

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327568

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327570

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

Reference Method: SM 2120 B
Batch ID: P327578

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P327664

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

Reference Method: SM 2540 C-97
Batch ID: P327835

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P327836

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327877

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P327878

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P327666

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P327760

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: P327716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327718

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327674

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P327559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327606

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P327627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327627

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327568

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327570

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

Reference Method: SM 2320 B-97
Batch ID: P327664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P327666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327760

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: P327716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908525	Chloride	96.7		P	90 - 110
1908634	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908525	Sulfate	99.2		P	90 - 110
1908634	Sulfate	99.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908875	Ammonia-N	95.6	92.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908875	Kjeldahl Nitrogen	102	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327606

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908877	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908889	Total-P	105	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908798	O-Phosphate-P	95.2	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908915	O-Phosphate-P	96.1	96.8	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P327760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908888	Organic Carbon	94.3	94.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908923	Turbidity	4.15	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908525	Chloride	0.168	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908525	Sulfate	0.661	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908875	Ammonia-N	2.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908875	Kjeldahl Nitrogen	3.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908877	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908889	Total-P	7.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908798	O-Phosphate-P	0.835	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908915	O-Phosphate-P	0.726	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P327578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908923	Color (true)	1.76	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P327664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908954	Total Alkalinity	0.626	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P327835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908792	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P327836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908972	TDS	2.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P327666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908954	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P327760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908888	Organic Carbon	0.281	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: A77352
 Included Lab Sample IDs: 1908907, 1908908, 1908909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	99.2	P/P	90 - 110
Sulfate	99.0	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77374

Included Lab Sample IDs: 1908913, 1908914, 1908915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	98.8	98.3	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A77377

Included Lab Sample IDs: 1908907, 1908908, 1908909

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77382

Included Lab Sample IDs: 1908907, 1908908, 1908909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77384

Included Lab Sample IDs: 1908910, 1908911, 1908912

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

Reference Method: SM 2320 B-97

Run ID: A77409

Included Lab Sample IDs: 1908907, 1908908, 1908909

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

Reference Method: SM 4500 F-C-97

Run ID: A77409

Included Lab Sample IDs: 1908907, 1908908, 1908909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.6	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77410

Included Lab Sample IDs: 1908910, 1908911, 1908912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.0	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77422

Included Lab Sample IDs: 1908910, 1908911, 1908912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A77437

Included Lab Sample IDs: 1908910, 1908911, 1908912

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	94.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77472

Included Lab Sample IDs: 1908910, 1908911, 1908912

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				4.15	
EPA 300.0 Rev. 2.1	Chloride	98.1	96.7 98.6		0.168	
	Sulfate	97.3	99.2 99.2		0.661	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	95.6 92.6			2.64
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.9	102 96.9			3.41
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102 102			0.0
EPA 365.1 Rev. 2.0	Total-P	102	105 97.8			7.38
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	95.2 96.6			0.835
	O-Phosphate-P	100	96.1 96.8			0.726
SM 2120 B	Color (true)				1.76	
SM 2320 B-97	Total Alkalinity	104			0.626	
SM 2540 C-97	TDS				6.74	
	TDS				2.41	
SM 4500 F-C-97	Fluoride	94.3				0.0
SM 5310 B-00	Organic Carbon	97.6	94.3 94.0			0.281

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1908907, 1908908, 1908909
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1908907, 1908908, 1908909
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1908907, 1908908, 1908909
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1908910, 1908911, 1908912
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1908910, 1908911, 1908912
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1908910, 1908911, 1908912
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1908910, 1908911, 1908912

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1908913, 1908914, 1908915
SM 2120 B / E31780	True Color measured at 450 nm	1908907, 1908908, 1908909
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1908907, 1908908, 1908909
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1908907, 1908908, 1908909
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1908907, 1908908, 1908909
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1908907, 1908908, 1908909
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1908910, 1908911, 1908912

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	06/27/2017			06/27/2017 17:22	DeAsia Armster	1908907, 1908908, 1908909
EPA 300.0 Rev. 2.1	06/27/2017			06/28/2017	Ping Hua	1908907, 1908908, 1908909
EPA 350.1 Rev. 2.0	06/27/2017			06/28/2017	Sofia Elnemr	1908910, 1908911, 1908912
EPA 351.2 Rev. 2.0	06/27/2017	06/28/2017	Adrian Shelby	06/30/2017	Joseph Suarez	1908910, 1908911, 1908912
EPA 353.2 Rev. 2.0	06/27/2017			06/28/2017	Beverly Y. Sanders	1908910, 1908911, 1908912
EPA 365.1 Rev. 2.0	06/27/2017	06/28/2017	Vijayalakshmi Reddy	06/29/2017	Lipi Saha	1908910, 1908911, 1908912
EPA 365.1 Rev. 2.0 dissolved	06/27/2017			06/27/2017 14:16	Anthony C. Onicha	1908915
	06/27/2017			06/27/2017 14:39	Anthony C. Onicha	1908913
	06/27/2017			06/27/2017 14:40	Anthony C. Onicha	1908914
SM 2120 B	06/27/2017			06/27/2017 15:24	Tanya Welborn	1908907
	06/27/2017			06/27/2017 15:25	Tanya Welborn	1908908, 1908909
SM 2320 B-97	06/27/2017			06/28/2017	Dale L. Simmons	1908907, 1908908, 1908909
SM 2540 C-97	06/27/2017			06/28/2017	Yijie Li	1908907, 1908908, 1908909
SM 2540 D-97	06/27/2017			06/28/2017	Yijie Li	1908907, 1908908, 1908909
SM 4500 F-C-97	06/27/2017			06/28/2017	Dale L. Simmons	1908907, 1908908, 1908909
SM 5310 B-00	06/27/2017			06/28/2017	Sofia Elnemr	1908910, 1908911, 1908912