Chemical Analysis Report

SO-DIST-2017-04-25-01

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-2017-04-03-10**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 19-MAY-2017 11:04

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: 04/24/2017 10:25**

Field ID: G4HL042017-3 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891962	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P324478	
		Sulfate	21		mg SO4/L	P324476	
	SM 2120 B	Color (true)	16		PCU	P324080	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P324651	
	SM 2540 C-97	TDS	94		mg/L	P324361	
	SM 2540 D-97	TSS	6	I	mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P324653	
1891965	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P324256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P323989	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P324057	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P323997	
1891968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323981	

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: HILL LAKE @ CENTER **Collection Date/Time: 04/24/2017 09:55**

Field ID: G4HL042017-5 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891963	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P324478	
		Sulfate	5.1		mg SO4/L	P324476	
	SM 2120 B	Color (true)	50	A	PCU	P324080	
	SM 2320 B-97	Total Alkalinity	4.2		mg CaCO3/L	P324651	
	SM 2540 C-97	TDS	50		mg/L	P324361	
	SM 2540 D-97	TSS	3	I	mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P324653	
1891966	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P324256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P323989	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P324057	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P323997	
1891969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323981	

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: HUCKLEBERRY LAKE @ CENTER **Collection Date/Time: 04/24/2017 09:07**

Field ID: G4HL042017-6 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891964	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P323977	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P324478	
		Sulfate	3.4		mg SO4/L	P324476	

Field ID: G4HL042017-6 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1891964	SM 2120 B	Color (true)	88		PCU	P324080	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P324651	
	SM 2540 C-97	TDS	85		mg/L	P324361	
	SM 2540 D-97	TSS	12		mg/L	P324367	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P324653	
1891967	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P324256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P323989	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324128	
	EPA 365.1 Rev. 2.0	Total-P	0.097		mg P/L	P324057	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P323997	
1891970	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323981	

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: P323977

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324256

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

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: P324057

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

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

Reference Method: SM 2120 B
Batch ID: P324080

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P324651

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

Reference Method: SM 2540 C-97
Batch ID: P324361

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324367

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P324653

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P323997

Component	Result	Code	Units
Organic Carbon	0.5	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324256

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324057

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

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

Reference Method: SM 2320 B-97
Batch ID: P324651

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P324653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P323997

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: P324476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891993	Sulfate	99.6		P	90 - 110
1892005	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891993	Chloride	98.7		P	90 - 110
1892005	Chloride	94.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891965	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891998	Kjeldahl Nitrogen	84.0	87.7	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891952	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891998	Total-P	96.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891957	O-Phosphate-P	92.5	95.7	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P324653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1892103	Fluoride	98.9	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P323997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891862	Organic Carbon	101	99.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891947	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891993	Sulfate	0.841	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891993	Chloride	0.138	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891965	Ammonia-N	0.349	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891998	Kjeldahl Nitrogen	3.28	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

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

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891952	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891998	Total-P	3.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891957	O-Phosphate-P	3.40	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P324080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891963	Color (true)	1.56	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P324651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892103	Total Alkalinity	1.73	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P324361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891920	TDS	3.98	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P324653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892103	Fluoride	2.56	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P323997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891862	Organic Carbon	1.59	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A75986
Included Lab Sample IDs: 1891968, 1891969, 1891970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.6	P/P	90 - 110
O-Phosphate-P	99.3	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75987
Included Lab Sample IDs: 1891962, 1891963, 1891964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A75992
Included Lab Sample IDs: 1891965, 1891966, 1891967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.0	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A76021
Included Lab Sample IDs: 1891962, 1891963, 1891964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	104	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76029
Included Lab Sample IDs: 1891965, 1891966, 1891967

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76033
Included Lab Sample IDs: 1891967

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76038
Included Lab Sample IDs: 1891965, 1891966, 1891967

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76038
Included Lab Sample IDs: 1891965, 1891966, 1891967

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76052
Included Lab Sample IDs: 1891965, 1891966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76071
Included Lab Sample IDs: 1891965, 1891966, 1891967

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A76148
Included Lab Sample IDs: 1891962, 1891963, 1891964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	100	93.4	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A76196
Included Lab Sample IDs: 1891962, 1891963, 1891964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110
Total Alkalinity	99.1	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A76196
Included Lab Sample IDs: 1891962, 1891963, 1891964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	109	98.0	P/P	90 - 110
Fluoride	98.0	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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.0	
EPA 300.0 Rev. 2.1	Chloride	99.2	98.7	94.7		0.138	
	Sulfate	100	99.6	100		0.841	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	101			0.349
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1	84.0	87.7			3.28
EPA 353.2 Rev. 2.0	NO2NO3-N	106	106	106			0.471
EPA 365.1 Rev. 2.0	Total-P	96.6	96.9	100			3.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	92.5	95.7			3.40
SM 2120 B	Color (true)					1.56	
SM 2320 B-97	Total Alkalinity	102				1.73	
SM 2540 C-97	TDS					3.98	
SM 4500 F-C-97	Fluoride	95.3	98.9	96.1			2.56
SM 5310 B-00	Organic Carbon	97.6	101	99.6			1.59

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1891962, 1891963, 1891964
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1891962, 1891963, 1891964
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1891962, 1891963, 1891964
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1891965, 1891966, 1891967
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1891965, 1891966, 1891967
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1891965, 1891966, 1891967
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1891965, 1891966, 1891967
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1891968, 1891969, 1891970
SM 2120 B / E31780	True Color measured at 450 nm	1891962, 1891963, 1891964
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1891962, 1891963, 1891964
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1891962, 1891963, 1891964
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1891962, 1891963, 1891964
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1891962, 1891963, 1891964
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1891965, 1891966, 1891967

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	04/25/2017			04/25/2017 15:41	Sima Feizi	1891962, 1891963, 1891964
EPA 300.0 Rev. 2.1	04/25/2017			05/03/2017	Ping Hua	1891962, 1891963, 1891964
EPA 350.1 Rev. 2.0	04/25/2017			04/28/2017	Julie Michelle Frank	1891965, 1891966, 1891967
EPA 351.2 Rev. 2.0	04/25/2017	04/26/2017	Adrian Shelby	04/27/2017	Joseph Suarez	1891965, 1891966, 1891967
EPA 353.2 Rev. 2.0	04/25/2017			04/27/2017	Beverly Y. Sanders	1891965, 1891966, 1891967
EPA 365.1 Rev. 2.0	04/25/2017	04/26/2017	Vijayalakshmi Reddy	04/27/2017	Lipi Saha	1891965, 1891966, 1891967
EPA 365.1 Rev. 2.0 dissolved	04/25/2017			04/25/2017 14:16	Lipi Saha	1891968
	04/25/2017			04/25/2017 14:21	Lipi Saha	1891969
	04/25/2017			04/25/2017 14:22	Lipi Saha	1891970
SM 2120 B	04/25/2017			04/25/2017 17:16	Blanca Fach	1891963
	04/25/2017			04/25/2017 17:21	Blanca Fach	1891962
	04/25/2017			04/25/2017 17:22	Blanca Fach	1891964
SM 2320 B-97	04/25/2017			05/03/2017	Dale L. Simmons	1891962, 1891963, 1891964
SM 2540 C-97	04/25/2017			04/26/2017	Yijie Li	1891962, 1891963, 1891964
SM 2540 D-97	04/25/2017			04/26/2017	Yijie Li	1891962, 1891963, 1891964
SM 4500 F-C-97	04/25/2017			05/03/2017	Dale L. Simmons	1891962, 1891963, 1891964
SM 5310 B-00	04/25/2017			04/25/2017	Julie Michelle Frank	1891965, 1891966, 1891967