

Chemical Analysis Report

SO-DIST-2017-02-23-01

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-2017-02-06-30**
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: Corey Anderson

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-MAR-2017 10:27

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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 Pythias @ Middle

Collection Date/Time: 02/22/2017 08:45

Field ID: G4HL022017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875017	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P320424	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P321442	
		Sulfate	31		mg SO4/L	P321445	
	SM 2120 B	Color (true)	15		PCU	P320414	
	SM 2320 B-97	Total Alkalinity	2.1	I	mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	106	Q	mg/L	P321394	
	SM 2540 D-97	TSS	4	I	mg/L	P320937	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P320600	
1875020	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P320519	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P320630	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P320684	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P320473	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P320510	
1875023	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320405	

Ref. Method and Comment:

SM 2540 C-97: Sample reanalyzed out of holding time due to analytical difficulties.

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

Sample Location: Pearl Lake @ Center

Collection Date/Time: 02/22/2017 10:15

Field ID: G4HL022017-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875018	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P320424	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P321442	
		Sulfate	16	A	mg SO4/L	P321445	
	SM 2120 B	Color (true)	9.6		PCU	P320414	
	SM 2320 B-97	Total Alkalinity	4.2		mg CaCO3/L	P320703	
	SM 2540 C-97	TDS	79		mg/L	P321108	
	SM 2540 D-97	TSS	2	U	mg/L	P320937	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P320895	
1875021	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P320519	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P320630	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P320685	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P320473	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P320510	
1875024	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320405	

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: Lake Sirena @ Middle

Collection Date/Time: 02/22/2017 10:40

Field ID: G4HL022017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875019	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P320424	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P321442	

Field ID: G4HL022017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875019	EPA 300.0 Rev. 2.1	Sulfate	25		mg SO4/L	P321445	
	SM 2120 B	Color (true)	4.6	I	PCU	P320414	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P320703	
	SM 2540 C-97	TDS	88		mg/L	P321108	
	SM 2540 D-97	TSS	2	U	mg/L	P320937	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P320895	
1875022	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P320519	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P320630	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P320685	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P320474	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P320510	
1875025	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320405	

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: P320424

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321442

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P321445

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320519

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320630

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P320684

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320684

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320685

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320473

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320474

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320405

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

Reference Method: SM 2120 B
Batch ID: P320414

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P320592

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

Reference Method: SM 2320 B-97
Batch ID: P320703

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

Reference Method: SM 2540 C-97
Batch ID: P321108

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P321394

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P320937

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P320895

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320510

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: P321442

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321445

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320519

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320630

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320630

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320684

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320685

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: P320473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320474

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P320592

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

Reference Method: SM 2320 B-97
Batch ID: P320703

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

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P320895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875018	Chloride	100		P	90 - 110
1875042	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321445

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875018	Sulfate	101		P	90 - 110
1875042	Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320519

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875020	Ammonia-N	97.5	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875021	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875020	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875044	NO2NO3-N	104	107	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874975	Total-P	101	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875036	Total-P	101	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874845	O-Phosphate-P	96.7	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875043	Fluoride	98.3	99.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P320895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875369	Fluoride	97.0	98.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1874839	Organic Carbon	94.1	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875017	Turbidity	3.86	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875018	Chloride	0.0271	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875018	Sulfate	0.412	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875020	Ammonia-N	1.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875021	Kjeldahl Nitrogen	1.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875020	NO2NO3-N	0.930	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875044	NO2NO3-N	2.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874975	Total-P	4.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875036	Total-P	1.52	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874845	O-Phosphate-P	1.27	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P320414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875043	Color (true)	5.31	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P320592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875043	Total Alkalinity	0.132	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P320703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875369	Total Alkalinity	0.108	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P321108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875086	TDS	0.387	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P321394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877702	TDS	2.65	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P320600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875043	Fluoride	0.996	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P320895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875369	Fluoride	1.57	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1874839	Organic Carbon	0.235	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: A74685
Included Lab Sample IDs: 1875023, 1875024, 1875025

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

Reference Method: SM 2120 B
Run ID: A74691
Included Lab Sample IDs: 1875017, 1875018, 1875019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.0	95.7	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74692
Included Lab Sample IDs: 1875017, 1875018, 1875019

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

Reference Method: SM 5310 B-00
Run ID: A74725
Included Lab Sample IDs: 1875020, 1875021, 1875022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74728
Included Lab Sample IDs: 1875020, 1875021, 1875022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74743
Included Lab Sample IDs: 1875020, 1875021, 1875022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A74752
Included Lab Sample IDs: 1875017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A74752

Included Lab Sample IDs: 1875017

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74762

Included Lab Sample IDs: 1875020, 1875021, 1875022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	98.0	P/P	90 - 110
Kjeldahl Nitrogen	99.9	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74784

Included Lab Sample IDs: 1875020, 1875021, 1875022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74795

Included Lab Sample IDs: 1875018, 1875019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	107	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74865

Included Lab Sample IDs: 1875018, 1875019

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74977

Included Lab Sample IDs: 1875017, 1875018, 1875019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	99.4	P/P	90 - 110
Chloride	99.4	102	P/P	90 - 110
Sulfate	94.3	99.5	P/P	90 - 110
Sulfate	99.5	92.4	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					3.86	
EPA 300.0 Rev. 2.1	Chloride	100	100	98.3		0.0271	
	Sulfate	100	101	97.5		0.412	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	97.5	95.5			1.92
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	105	103			1.57
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	103				0.930
	NO ₂ NO ₃ -N	106	104	107			2.84
EPA 365.1 Rev. 2.0	Total-P	92.6	101	96.0			4.57
	Total-P	96.5	101	99.2			1.52
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	96.7	95.4			1.27
SM 2120 B	Color (true)					5.31	
SM 2320 B-97	Total Alkalinity	104				0.132	
	Total Alkalinity	103				0.108	
SM 2540 C-97	TDS					0.387	
	TDS					2.65	
SM 4500 F-C-97	Fluoride	98.0	98.3	99.4			0.996
	Fluoride	97.0	97.0	98.9			1.57
SM 5310 B-00	Organic Carbon	97.1	94.1	94.4			0.235

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1875017, 1875018, 1875019
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1875017, 1875018, 1875019
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1875017, 1875018, 1875019
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1875020, 1875021, 1875022
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1875020, 1875021, 1875022
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1875020, 1875021, 1875022
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1875020, 1875021, 1875022
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1875023, 1875024, 1875025
SM 2120 B / E31780	True Color measured at 450 nm	1875017, 1875018, 1875019
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1875017, 1875018, 1875019
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1875017, 1875018, 1875019
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1875017, 1875018, 1875019
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1875017, 1875018, 1875019
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1875020, 1875021, 1875022

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	02/23/2017			02/23/2017 15:13	Sima Feizi	1875017, 1875018, 1875019
EPA 300.0 Rev. 2.1	02/23/2017			03/10/2017	Elisa J Lutz	1875017, 1875018, 1875019
EPA 350.1 Rev. 2.0	02/23/2017			02/24/2017	Sofia Elnemr	1875020, 1875021, 1875022
EPA 351.2 Rev. 2.0	02/23/2017	02/24/2017	Adrian Shelby	02/28/2017	Joseph Suarez	1875020, 1875021, 1875022
EPA 353.2 Rev. 2.0	02/23/2017			02/28/2017	Beverly Y. Sanders	1875020, 1875021, 1875022
EPA 365.1 Rev. 2.0	02/23/2017	02/24/2017	Vijayalakshmi Reddy	02/27/2017	Lipi Saha	1875020, 1875021, 1875022
EPA 365.1 Rev. 2.0 dissolved	02/23/2017			02/23/2017 14:59	Julia Storbeck	1875023, 1875024
	02/23/2017			02/23/2017 15:00	Julia Storbeck	1875025
SM 2120 B	02/23/2017			02/23/2017 15:41	Julie Michelle Frank	1875017
	02/23/2017			02/23/2017 15:42	Julie Michelle Frank	1875018, 1875019
SM 2320 B-97	02/23/2017			02/25/2017	Dale L. Simmons	1875017
	02/23/2017			03/01/2017	Dale L. Simmons	1875018, 1875019
SM 2540 C-97	02/23/2017			02/27/2017	Sima Feizi	1875018, 1875019
	02/23/2017			03/08/2017	Yijie Li	1875017
SM 2540 D-97	02/23/2017			02/27/2017	Sima Feizi	1875017, 1875018, 1875019
SM 4500 F-C-97	02/23/2017			02/25/2017	Dale L. Simmons	1875017
	02/23/2017			03/03/2017	Dale L. Simmons	1875018, 1875019
SM 5310 B-00	02/23/2017			02/24/2017	Julie Michelle Frank	1875020, 1875021, 1875022