

Chemical Analysis Report

CEN-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: **Lk Ellen / Lk Concord**
Request ID: **RQ-2017-02-20-42**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 20-MAR-2017 11:21



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 Ellen @ Center

Collection Date/Time: 02/22/2017 09:30

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875042	EPA 180.1 Rev. 2.0	Turbidity	1.1	A	NTU	P320425	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P321442	
		Sulfate	13		mg SO4/L	P321445	
	SM 2120 B	Color (true)	25		PCU	P320414	
	SM 2320 B-97	Total Alkalinity	8.3		mg CaCO3/L	P320703	
	SM 2540 C-97	TDS	69		mg/L	P321108	
	SM 2540 D-97	TSS	2	I	mg/L	P320937	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P320895	
1875044	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P320519	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P320631	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320685	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P320474	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P320510	
1875046	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 Concord @ Center

Collection Date/Time: 02/22/2017 09:00

Field ID: G2CE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1875043	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P320425	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P321442	
		Sulfate	7.7		mg SO4/L	P321445	
	SM 2120 B	Color (true)	11	A	PCU	P320414	
	SM 2320 B-97	Total Alkalinity	79	A	mg CaCO3/L	P320592	
	SM 2540 C-97	TDS	119		mg/L	P321109	
	SM 2540 D-97	TSS	6	I	mg/L	P320938	
	SM 4500 F-C-97	Fluoride	0.066	I	mg F/L	P320600	
1875045	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P320519	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P320631	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320685	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P320474	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P320510	
1875047	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320406	

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: P320425

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

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: P320631

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	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: 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: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320406

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

Quality Assurance Report

Method Blank Results

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

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

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

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

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

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P321109

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 2540 D-97
Batch ID: P320938

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: P320631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	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: 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: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320406

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

Quality Assurance Report Laboratory Control Sample Accuracy

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

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: P320631

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875045	Kjeldahl Nitrogen	101	107	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

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

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: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1875063	O-Phosphate-P	96.6	97.9	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: P320425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875042	Turbidity	9.17	Sample	P	0 - 20

Quality Assurance Report Precision

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

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: P320631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875045	Kjeldahl Nitrogen	4.25	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: 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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875063	O-Phosphate-P	1.34	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: P321109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1875341	TDS	2.08	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: 1875046, 1875047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A74691

Included Lab Sample IDs: 1875042, 1875043

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: 1875042, 1875043

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

Reference Method: SM 5310 B-00

Run ID: A74725

Included Lab Sample IDs: 1875044, 1875045

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: 1875044, 1875045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.4	P/P	90 - 110
Ammonia-N	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74743

Included Lab Sample IDs: 1875044, 1875045

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

Reference Method: SM 2320 B-97

Run ID: A74752

Included Lab Sample IDs: 1875043

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A74752
Included Lab Sample IDs: 1875043

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

Reference Method: SM 4500 F-C-97
Run ID: A74752
Included Lab Sample IDs: 1875043

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74762
Included Lab Sample IDs: 1875044, 1875045

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: 1875044, 1875045

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

Reference Method: SM 2320 B-97
Run ID: A74795
Included Lab Sample IDs: 1875042

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: 1875042

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: 1875042, 1875043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	101	P/P	90 - 110
Chloride	99.4	102	P/P	90 - 110
Sulfate	92.4	97.4	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		Precision SMP	MS
					LCS	
EPA 180.1 Rev. 2.0	Turbidity				9.17	
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	104	101	107		4.25
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	106	104	107		2.84
EPA 365.1 Rev. 2.0	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
	O-Phosphate-P	100	96.6	97.9		1.34
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				2.08	
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	1875042, 1875043
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1875042, 1875043
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1875042, 1875043
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1875044, 1875045
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1875044, 1875045
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1875044, 1875045
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1875044, 1875045
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1875046, 1875047
SM 2120 B / E31780	True Color measured at 450 nm	1875042, 1875043
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1875042, 1875043
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1875042, 1875043
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1875042, 1875043
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1875042, 1875043
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1875044, 1875045

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	1875042, 1875043
EPA 300.0 Rev. 2.1	02/23/2017			03/10/2017	Elisa J Lutz	1875042, 1875043
EPA 350.1 Rev. 2.0	02/23/2017			02/24/2017	Sofia Elnemr	1875044, 1875045
EPA 351.2 Rev. 2.0	02/23/2017	02/24/2017	Adrian Shelby	02/28/2017	Joseph Suarez	1875044, 1875045
EPA 353.2 Rev. 2.0	02/23/2017			02/28/2017	Beverly Y. Sanders	1875044, 1875045
EPA 365.1 Rev. 2.0	02/23/2017	02/24/2017	Vijayalakshmi Reddy	02/27/2017	Lipi Saha	1875044, 1875045
EPA 365.1 Rev. 2.0 dissolved	02/23/2017			02/23/2017 15:01	Julia Storbeck	1875046
	02/23/2017			02/23/2017 15:06	Julia Storbeck	1875047
SM 2120 B	02/23/2017			02/23/2017 15:45	Julie Michelle Frank	1875042
	02/23/2017			02/23/2017 15:47	Julie Michelle Frank	1875043
SM 2320 B-97	02/23/2017			02/25/2017	Dale L. Simmons	1875043
	02/23/2017			03/01/2017	Dale L. Simmons	1875042
SM 2540 C-97	02/23/2017			02/27/2017	Sima Feizi	1875042, 1875043
SM 2540 D-97	02/23/2017			02/27/2017	Sima Feizi	1875042, 1875043
SM 4500 F-C-97	02/23/2017			02/25/2017	Dale L. Simmons	1875043
	02/23/2017			03/03/2017	Dale L. Simmons	1875042
SM 5310 B-00	02/23/2017			02/25/2017	Julie Michelle Frank	1875044, 1875045