

Chemical Analysis Report

CEN-DIST-2020-02-12-01

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

Event Description: **OCS Lakes**
Request ID: **RQ-2020-02-10-52**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 05-MAR-2020 15:54



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 by the Florida Department of Health Environmental Laboratory Certification Program 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 Center @ Center

Collection Date/Time: 02/11/2020 10:06

Field ID: G4CE0163

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156960	EPA 180.1 Rev. 2.0	Turbidity	6.3	A	NTU	P378805	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P379510	
		Sulfate	13		mg SO4/L	P379512	
	SM 2120 B-2011	Color (true)	270		PCU	P378809	
	SM 2320 B-2011	Total Alkalinity	2.3	I	mg CaCO3/L	P379405	
	SM 2540 C-2011	TDS	127		mg/L	P379593	
	SM 2540 D-2011	TSS	4	I	mg/L	P379194	
	SM 4500 F-C-2011	Fluoride	0.048	I	mg F/L	P379408	
2156962	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P379068	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P379034	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.096		mg N/L	P379536	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P379386	
	SM 5310 B-2011	Organic Carbon	26		mg C/L	P378987	
2156964	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P378775	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Coon Lake @ Center

Collection Date/Time: 02/11/2020 09:52

Field ID: G4CE0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156961	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P378805	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P379510	
		Sulfate	9.5		mg SO4/L	P379512	
	SM 2120 B-2011	Color (true)	170		PCU	P378809	
	SM 2320 B-2011	Total Alkalinity	3.8		mg CaCO3/L	P379405	
	SM 2540 C-2011	TDS	110		mg/L	P379593	
	SM 2540 D-2011	TSS	4	I	mg/L	P379194	
	SM 4500 F-C-2011	Fluoride	0.046	I	mg F/L	P379408	
2156963	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P379068	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P379034	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P379536	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P379386	
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P378987	
2156965	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P378775	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Gentry Outlet @ 350m N of Lake Gentry Collection Date/Time: 02/11/2020 11:01

Field ID: G4CE0182

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2156966	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P378805	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P379510	
		Sulfate	15		mg SO4/L	P379512	
	SM 2120 B-2011	Color (true)	64		PCU	P378809	
	SM 2320 B-2011	Total Alkalinity	8.5		mg CaCO3/L	P379405	
	SM 2540 C-2011	TDS	132	A	mg/L	P379593	
	SM 2540 D-2011	TSS	2	IA	mg/L	P379194	
	SM 4500 F-C-2011	Fluoride	0.063	I	mg F/L	P379408	
2156967	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P379351	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P379113	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P379536	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P379386	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P378987	
2156968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P378775	

Ref. Method and Comment:

SM 2540 D-2011: 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: P378805

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379510

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379512

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379068

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379351

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379034

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379113

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379536

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379386

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378775

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

Reference Method: SM 2120 B-2011
Batch ID: P378809

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P379405

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

Reference Method: SM 2540 C-2011
Batch ID: P379593

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P379194

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P379408

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P378987

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: P379510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379512

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379068

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379351

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379034

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379113

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379536

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379386

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378775

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P378809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P379405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P379408

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P378987

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156692	Chloride	99.8		P	90 - 110
2157030	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156692	Sulfate	100		P	90 - 110
2157030	Sulfate	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156693	Ammonia-N	99.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156995	Ammonia-N	98.6	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156672	Kjeldahl Nitrogen	94.5	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156995	Kjeldahl Nitrogen	98.6	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156967	NO2NO3-N	98.2	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156672	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P378775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156673	O-Phosphate-P	91.7	92.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P379408

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2157223	Fluoride	98.1	99.9	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P378987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2156962	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P378805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156960	Turbidity	2.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2157030	Chloride	0.433	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P379512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2157030	Sulfate	0.0216	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156693	Ammonia-N	1.25	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156995	Ammonia-N	0.512	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156672	Kjeldahl Nitrogen	1.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156995	Kjeldahl Nitrogen	0.195	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P379536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156967	NO2NO3-N	0.990	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P379386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156672	Total-P	0.162	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P378775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156673	O-Phosphate-P	0.673	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
 Batch ID: P378809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156644	Color (true)	6.34	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P379405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2157223	Total Alkalinity	0.373	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
 Batch ID: P379593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156966	TDS	1.52	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P379408

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2157223	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
 Batch ID: P378987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2156962	Organic Carbon	0.955	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97481

Included Lab Sample IDs: 2156964, 2156965, 2156968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.9	95.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97488

Included Lab Sample IDs: 2156960, 2156961, 2156966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A97489

Included Lab Sample IDs: 2156960, 2156961, 2156966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	100	100	P/P	90 - 115

Reference Method: SM 5310 B-2011

Run ID: A97559

Included Lab Sample IDs: 2156962, 2156963, 2156967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	99.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97588

Included Lab Sample IDs: 2156962, 2156963

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97615

Included Lab Sample IDs: 2156962, 2156963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97690

Included Lab Sample IDs: 2156967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	109	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97714

Included Lab Sample IDs: 2156967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97714

Included Lab Sample IDs: 2156967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A97738

Included Lab Sample IDs: 2156960, 2156961, 2156966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A97738

Included Lab Sample IDs: 2156960, 2156961, 2156966

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97764

Included Lab Sample IDs: 2156962, 2156963, 2156967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97771

Included Lab Sample IDs: 2156960, 2156961, 2156966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	98.8	P/P	90 - 110
Chloride	98.8	99.4	P/P	90 - 110
Sulfate	98.7	99.2	P/P	90 - 110
Sulfate	98.9	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97820

Included Lab Sample IDs: 2156962

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97846

Included Lab Sample IDs: 2156963, 2156967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.8	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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					2.08	
EPA 300.0 Rev. 2.1	Chloride	99.9	97.6	99.8		0.433	
	Sulfate	100	97.2	100		0.0216	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.0	100			1.25
	Ammonia-N	96.0	98.6	99.2			0.512
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	94.5	97.8			1.92
	Kjeldahl Nitrogen	99.0	98.6	98.4			0.195
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.2	97.2			0.990
EPA 365.1 Rev. 2.0	Total-P	105	105	105			0.162
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.2	91.7	92.5			0.673
SM 2120 B-2011	Color (true)	98.6				6.34	
SM 2320 B-2011	Total Alkalinity	104				0.373	
SM 2540 C-2011	TDS					1.52	
SM 4500 F-C-2011	Fluoride	97.9	98.1	99.9			1.48
SM 5310 B-2011	Organic Carbon	98.1	103				0.955

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2156960, 2156961, 2156966
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2156960, 2156961, 2156966
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2156960, 2156961, 2156966
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2156962, 2156963, 2156967
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2156962, 2156963, 2156967
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2156962, 2156963, 2156967
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2156962, 2156963, 2156967
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2156964, 2156965, 2156968
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2156960, 2156961, 2156966
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2156960, 2156961, 2156966
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2156960, 2156961, 2156966
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2156960, 2156961, 2156966
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2156960, 2156961, 2156966
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2156962, 2156963, 2156967

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	02/12/2020			02/12/2020 16:39	Yen Ta	2156960, 2156961, 2156966
EPA 300.0 Rev. 2.1	02/12/2020			02/24/2020 20:36	Lipi Saha	2156960
	02/12/2020			02/24/2020 20:48	Lipi Saha	2156961
	02/12/2020			02/24/2020 21:24	Lipi Saha	2156966
EPA 350.1 Rev. 2.0	02/12/2020			02/17/2020 10:06	Ping Hua	2156962
	02/12/2020			02/17/2020 10:08	Ping Hua	2156963
	02/12/2020			02/19/2020 11:20	Ping Hua	2156967
EPA 351.2 Rev. 2.0	02/12/2020	02/17/2020 14:52	Sima Feizi	02/18/2020 11:30	Jhamieka S. Greenwood	2156962
	02/12/2020	02/17/2020 14:52	Sima Feizi	02/18/2020 11:32	Jhamieka S. Greenwood	2156963
	02/12/2020	02/18/2020 11:25	Sima Feizi	02/20/2020 16:50	Jhamieka S. Greenwood	2156967
EPA 353.2 Rev. 2.0	02/12/2020			02/21/2020 10:20	Beverly Y. Sanders	2156967
	02/12/2020			02/21/2020 10:26	Beverly Y. Sanders	2156962
	02/12/2020			02/21/2020 10:27	Beverly Y. Sanders	2156963
EPA 365.1 Rev. 2.0	02/12/2020	02/21/2020 14:16	Yen Ta	02/24/2020 15:49	Benjamin T. Nordmann	2156962
	02/12/2020	02/21/2020 14:16	Yen Ta	02/26/2020 15:25	Benjamin T. Nordmann	2156963
	02/12/2020	02/21/2020 14:16	Yen Ta	02/26/2020 15:26	Benjamin T. Nordmann	2156967
EPA 365.1 Rev. 2.0 dissolved	02/12/2020			02/12/2020 14:06	Lipi Saha	2156964
	02/12/2020			02/12/2020 14:07	Lipi Saha	2156965
	02/12/2020			02/12/2020 14:08	Lipi Saha	2156968
SM 2120 B-2011	02/12/2020			02/12/2020 14:49	Madeline Funaro	2156966
	02/12/2020			02/12/2020 14:58	Madeline Funaro	2156960
	02/12/2020			02/12/2020 14:59	Madeline Funaro	2156961
SM 2320 B-2011	02/12/2020			02/21/2020 01:20	Dale L. Simmons	2156960
	02/12/2020			02/21/2020 02:02	Dale L. Simmons	2156961
	02/12/2020			02/21/2020 02:12	Dale L. Simmons	2156966
SM 2540 C-2011	02/12/2020			02/14/2020 13:00	Sima Feizi	2156960, 2156961, 2156966
SM 2540 D-2011	02/12/2020			02/14/2020 13:00	Sima Feizi	2156960, 2156961, 2156966
SM 4500 F-C-2011	02/12/2020			02/21/2020 01:20	Dale L. Simmons	2156960
	02/12/2020			02/21/2020 02:02	Dale L. Simmons	2156961
	02/12/2020			02/21/2020 02:12	Dale L. Simmons	2156966
SM 5310 B-2011	02/12/2020			02/14/2020 18:09	Lauren Lees	2156962
	02/12/2020			02/14/2020 20:45	Lauren Lees	2156963
	02/12/2020			02/14/2020 20:57	Lauren Lees	2156967