

Chemical Analysis Report

SO-DIST-2021-04-15-01

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

Event Description: **2021 SMP : Sebring Lakes**

Request ID: **RQ-2021-04-12-61**

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: Chris Hormuth

For additional information please contact
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Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 07-MAY-2021 10:47



NON-CONFORMANCE REPORT INCLUDED

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 Glenada

Collection Date/Time: 04/14/2021 11:25

Field ID: G4SD0179

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240077	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P396644	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P396883	
		Sulfate	13		mg SO4/L	P396885	
	SM 2120 B-2011	Color (true)	36		PCU	P396636	
	SM 2320 B-2011	Total Alkalinity	40		mg CaCO3/L	P396837	
	SM 2540 C-2011	TDS	125		mg/L	P397227	
	SM 2540 D-2011	TSS	11		mg/L	P397224	
	SM 4500 F-C-2011	Fluoride	0.086	I	mg F/L	P396838	
2240081	EPA 350.1 Rev. 2.0	Ammonia-N	0.010	Y	mg N/L	P397361	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen		O	mg N/L	P397067	
	EPA 353.2 Rev. 2.0	NO2NO3-N		O	mg N/L	P396899	
	EPA 365.1 Rev. 2.0	Total-P	0.046	Y	mg P/L	P396702	
	SM 5310 B-2011	Organic Carbon	15	Y	mg C/L	P397238	
2240085	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P396624	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 350.1 Rev. 2.0: Sample appears to have been preserved with nitric acid.

EPA 351.2 Rev. 2.0: Sample appears to have been preserved with nitric acid.

EPA 353.2 Rev. 2.0: Sample appears to have been preserved with nitric acid.

EPA 365.1 Rev. 2.0: Total-P: Sample appears to have been preserved with nitric acid.

SM 5310 B-2011: Sample appears to have been preserved with nitric acid.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Red Water Lake @ Middle

Collection Date/Time: 04/14/2021 12:40

Field ID: G4SD0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240078	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P396644	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P396883	
		Sulfate	10		mg SO4/L	P396885	
	SM 2120 B-2011	Color (true)	77		PCU	P396634	
	SM 2320 B-2011	Total Alkalinity	9.1		mg CaCO3/L	P396837	
	SM 2540 C-2011	TDS	74		mg/L	P397227	
	SM 2540 D-2011	TSS	2	I	mg/L	P397224	
	SM 4500 F-C-2011	Fluoride	0.054	I	mg F/L	P396838	
2240082	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P397361	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P397067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P396899	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P396702	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P397238	
2240086	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P396624	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Bonnet Lake @ Middle

Collection Date/Time: 04/14/2021 13:30

Field ID: G4SD0170

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240079	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P396644	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P396883	
		Sulfate	42		mg SO4/L	P396885	
	SM 2120 B-2011	Color (true)	17		PCU	P396634	
	SM 2320 B-2011	Total Alkalinity	31		mg CaCO3/L	P396837	
	SM 2540 C-2011	TDS	145		mg/L	P397227	
	SM 2540 D-2011	TSS	29		mg/L	P397224	
2240083	SM 4500 F-C-2011	Fluoride	0.085	I	mg F/L	P396838	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P397361	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P397067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P396959	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P396702	
2240087	SM 5310 B-2011	Organic Carbon	7.8		mg C/L	P397238	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P396624	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Lake Jackson

Collection Date/Time: 04/14/2021 14:35

Field ID: G4SD0183

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240080	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P396644	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P397039	
		Sulfate	15	A	mg SO4/L	P397041	
	SM 2120 B-2011	Color (true)	25		PCU	P396634	
	SM 2320 B-2011	Total Alkalinity	9.6		mg CaCO3/L	P396837	
	SM 2540 C-2011	TDS	73		mg/L	P397227	
	SM 2540 D-2011	TSS	5	I	mg/L	P397224	
	SM 4500 F-C-2011	Fluoride	0.075	I	mg F/L	P396838	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P397361	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P397067	
2240084	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P396959	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P396702	
	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P397238	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P396624	
	dissolved						

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 8783

Event(s)

SO-DIST-2021-04-15-01

Job(s)

TLH-2021-04-15-53

Sample(s)

2240081

Test(s)

NCR Type: SAMPLING

NCR Category: General

Observation: Sample appears to be preserved with nitric acid. It has a nitrite/nitrate concentration of 430 mg /L and there is approximately 0.05 mg N/L in the unpreserved aliquot (laboratory ID 2240077).

Resolution: Results for the NO₂NO₃-N and Kjeldahl Nitrogen components were reported as the non numeric qualifier O. Results for the other affected components were qualified with a Y qualifier for incorrect preservation.

Authorized by/Date: Irina Carbone 5/6/2021

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396644

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396883

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396885

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397039

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397041

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397361

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396899

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396959

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: P396702

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396624

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

Reference Method: SM 2120 B-2011
Batch ID: P396634

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P396636

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P396837

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

Reference Method: SM 2540 C-2011
Batch ID: P397227

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P397224

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P396838

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P397238

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: P396883

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396885

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397361

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396702

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396624

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

Reference Method: SM 2120 B-2011
Batch ID: P396634

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

Reference Method: SM 2120 B-2011
Batch ID: P396636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P396837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.3		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P396838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P397238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2239965	Chloride	101		P	90 - 110
2240079	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2239965	Sulfate	99.6		P	90 - 110
2240079	Sulfate	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240080	Chloride	97.3		P	90 - 110
2240210	Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240080	Sulfate	93.9		P	90 - 110
2240210	Sulfate	94.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240067	Ammonia-N	94.8	94.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240068	Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240101	NO2NO3-N	95.1	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240084	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2239969	Total-P	105	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P396838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2239838	Fluoride	100	101	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P397238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240082	Organic Carbon	99.4	99.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240035	Turbidity	7.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P396883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2239965	Chloride	0.778	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240080	Chloride	0.0408	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240080	Sulfate	0.310	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240067	Ammonia-N	0.462	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240068	Kjeldahl Nitrogen	2.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240101	NO2NO3-N	0.434	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240084	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P396702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2239969	Total-P	0.785	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P396624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2239970	O-Phosphate-P	0.236	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P396634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240065	Color (true)	0.315	Sample	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P396636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2239965	Color (true)	0.259	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P396837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2239838	Total Alkalinity	0.903	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011

Batch ID: P397227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240035	TDS	4.05	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P396838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2239838	Fluoride	0.508	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011

Batch ID: P397238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240082	Organic Carbon	0.197	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A104762

Included Lab Sample IDs: 2240085, 2240086, 2240087, 2240088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	99.7	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A104764

Included Lab Sample IDs: 2240077, 2240078, 2240079, 2240080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104768

Included Lab Sample IDs: 2240077, 2240078, 2240079, 2240080

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104820

Included Lab Sample IDs: 2240081, 2240082, 2240083, 2240084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.0	P/P	90 - 110
Total-P	98.0	99.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A104842

Included Lab Sample IDs: 2240077, 2240078, 2240079, 2240080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	96.3	P/P	90 - 110
Total Alkalinity	97.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104842

Included Lab Sample IDs: 2240077, 2240078, 2240079, 2240080

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104851

Included Lab Sample IDs: 2240081, 2240082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.0	P/P	90 - 110
NO2NO3-N	101	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104869

Included Lab Sample IDs: 2240077, 2240078, 2240079, 2240080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.0	98.8	P/P	90 - 110
Chloride	99.7	99.8	P/P	90 - 110
Sulfate	97.6	97.9	P/P	90 - 110
Sulfate	99.1	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104879

Included Lab Sample IDs: 2240083, 2240084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104990

Included Lab Sample IDs: 2240081, 2240082, 2240083, 2240084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A105018

Included Lab Sample IDs: 2240081, 2240082, 2240083, 2240084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105064

Included Lab Sample IDs: 2240081, 2240082, 2240083, 2240084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	97.4	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					7.55	
EPA 300.0 Rev. 2.1	Chloride	102	101	101		0.778	
	Chloride	98.3	97.3	97.3		0.0408	
	Sulfate	101	99.6	104			
	Sulfate	96.3	93.9	94.4		0.310	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	94.8	94.2			0.462
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	109	106			2.27
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	95.1	94.6			0.434
	NO ₂ NO ₃ -N	99.5	98.5	98.5			0.0
EPA 365.1 Rev. 2.0	Total-P	102	105	104			0.785
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3					0.236
SM 2120 B-2011	Color (true)	101				0.315	
	Color (true)	103				0.259	
SM 2320 B-2011	Total Alkalinity	97.3				0.903	
SM 2540 C-2011	TDS					4.05	
SM 4500 F-C-2011	Fluoride	99.4	100	101			0.508
SM 5310 B-2011	Organic Carbon	96.3	99.4	99.1			0.197

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2240077, 2240078, 2240079, 2240080
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2240077, 2240078, 2240079, 2240080
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2240077, 2240078, 2240079, 2240080
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2240081, 2240082, 2240083, 2240084
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2240081, 2240082, 2240083, 2240084
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2240081, 2240082, 2240083, 2240084
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2240081, 2240082, 2240083, 2240084
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2240085, 2240086, 2240087, 2240088
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2240077, 2240078, 2240079, 2240080
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2240077, 2240078, 2240079, 2240080
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2240077, 2240078, 2240079, 2240080
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2240077, 2240078, 2240079, 2240080
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2240077, 2240078, 2240079, 2240080
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2240081, 2240082, 2240083, 2240084

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	04/15/2021			04/15/2021 16:12	Yen Ta	2240077, 2240078, 2240079, 2240080
EPA 300.0 Rev. 2.1	04/15/2021			04/20/2021 03:02	Lipi Saha	2240079
	04/15/2021			04/20/2021 04:39	Lipi Saha	2240077
	04/15/2021			04/20/2021 04:51	Lipi Saha	2240078
	04/15/2021			04/22/2021 15:07	Lipi Saha	2240080
EPA 350.1 Rev. 2.0	04/15/2021			04/28/2021 17:04	Ping Hua	2240081
	04/15/2021			04/28/2021 17:05	Ping Hua	2240082
	04/15/2021			04/28/2021 17:06	Ping Hua	2240083
	04/15/2021			04/28/2021 17:08	Ping Hua	2240084
EPA 351.2 Rev. 2.0	04/15/2021	04/23/2021 13:54	Benjamin T. Nordmann	04/26/2021 14:33	Virginia P. Brown	2240081
	04/15/2021	04/23/2021 13:54	Benjamin T. Nordmann	04/26/2021 14:35	Virginia P. Brown	2240082
	04/15/2021	04/23/2021 13:54	Benjamin T. Nordmann	04/26/2021 14:36	Virginia P. Brown	2240083
	04/15/2021	04/23/2021 13:54	Benjamin T. Nordmann	04/26/2021 14:38	Virginia P. Brown	2240084
EPA 353.2 Rev. 2.0	04/15/2021			04/20/2021 12:14	Beverly Y. Sanders	2240082
	04/15/2021			04/20/2021 12:23	Beverly Y. Sanders	2240081
	04/15/2021			04/21/2021 11:15	Beverly Y. Sanders	2240084
	04/15/2021			04/21/2021 11:19	Beverly Y. Sanders	2240083
EPA 365.1 Rev. 2.0	04/15/2021	04/16/2021 13:47	Yen Ta	04/19/2021 12:11	Shengyu Ding	2240081
	04/15/2021	04/16/2021 13:47	Yen Ta	04/19/2021 12:12	Shengyu Ding	2240082
	04/15/2021	04/16/2021 13:47	Yen Ta	04/19/2021 12:13	Shengyu Ding	2240083
	04/15/2021	04/16/2021 13:47	Yen Ta	04/19/2021 12:21	Shengyu Ding	2240084
EPA 365.1 Rev. 2.0 dissolved	04/15/2021			04/15/2021 13:57	Lipi Saha	2240085, 2240086
	04/15/2021			04/15/2021 13:58	Lipi Saha	2240087
	04/15/2021			04/15/2021 13:59	Lipi Saha	2240088
SM 2120 B-2011	04/15/2021			04/15/2021 15:31	Blanca Fach	2240078
	04/15/2021			04/15/2021 15:32	Blanca Fach	2240079
	04/15/2021			04/15/2021 15:33	Blanca Fach	2240080
	04/15/2021			04/15/2021 15:51	Blanca Fach	2240077
SM 2320 B-2011	04/15/2021			04/19/2021 20:23	Samantha Davila	2240077
	04/15/2021			04/19/2021 21:10	Samantha Davila	2240078
	04/15/2021			04/19/2021 21:23	Samantha Davila	2240079
	04/15/2021			04/19/2021 21:34	Samantha Davila	2240080
SM 2540 C-2011	04/15/2021			04/20/2021 15:21	Yijie Li	2240077, 2240078, 2240079, 2240080
SM 2540 D-2011	04/15/2021			04/20/2021 15:21	Yijie Li	2240077, 2240078, 2240079, 2240080
SM 4500 F-C-2011	04/15/2021			04/19/2021 20:23	Samantha Davila	2240077
	04/15/2021			04/19/2021 21:10	Samantha Davila	2240078
	04/15/2021			04/19/2021 21:23	Samantha Davila	2240079
	04/15/2021			04/19/2021 21:34	Samantha Davila	2240080
SM 5310 B-2011	04/15/2021			04/23/2021 15:27	Lauren Lees	2240082
	04/15/2021			04/23/2021 16:10	Lauren Lees	2240083

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	04/15/2021			04/23/2021 16:32	Lauren Lees	2240081
	04/15/2021			04/23/2021 16:42	Lauren Lees	2240084