

Chemical Analysis Report

NW-DIST-2021-04-22-01

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

Event Description: **Twin Lakes Run**
Request ID: **RQ-2021-04-19-33**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 17-MAY-2021 09:15



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: Twin Lake

Collection Date/Time: 04/21/2021 11:10

Field ID: G3NW0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2241786	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P397008	
	EPA 300.0 Rev. 2.1	Chloride	39	A	mg Cl/L	P398117	
		Sulfate	14	A	mg SO4/L	P398118	
	SM 2120 B-2011	Color (true)	66		PCU	P397004	
	SM 2320 B-2011	Total Alkalinity	73		mg CaCO3/L	P397394	
	SM 2540 C-2011	TDS	180		mg/L	P397695	
	SM 2540 D-2011	TSS	3	I	mg/L	P397330	
	SM 4500 F-C-2011	Fluoride	0.25		mg F/L	P397396	
2241791	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P397869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P397316	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.47		mg N/L	P397216	
	EPA 365.1 Rev. 2.0	Total-P	1.1		mg P/L	P397103	
	SM 5310 B-2011	Organic Carbon	7.6		mg C/L	P397242	
2241796	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.93		mg P/L	P397000	

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: Twin Lake south Lobe

Collection Date/Time: 04/21/2021 11:25

Field ID: G3NW0448

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2241787	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P397009	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P398117	
		Sulfate	7.4		mg SO4/L	P398118	
	SM 2120 B-2011	Color (true)	88		PCU	P397004	
	SM 2320 B-2011	Total Alkalinity	73		mg CaCO3/L	P397394	
	SM 2540 C-2011	TDS	155		mg/L	P397695	
	SM 2540 D-2011	TSS	2	I	mg/L	P397330	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P397396	
2241792	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P397869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P397316	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P397216	
	EPA 365.1 Rev. 2.0	Total-P	0.48		mg P/L	P397103	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P397242	
2241797	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.39		mg P/L	P397000	

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: Twin Lake eastern lake

Collection Date/Time: 04/21/2021 11:50

Field ID: G3NW0449

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2241788	EPA 180.1 Rev. 2.0	Turbidity	7.2	A	NTU	P397009	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P398117	
		Sulfate	6.8		mg SO4/L	P398118	
	SM 2120 B-2011	Color (true)	32		PCU	P397004	
	SM 2320 B-2011	Total Alkalinity	43		mg CaCO3/L	P397394	
	SM 2540 C-2011	TDS	94		mg/L	P397695	
	SM 2540 D-2011	TSS	12		mg/L	P397330	
	SM 4500 F-C-2011	Fluoride	0.052	I	mg F/L	P397396	
2241793	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P397981	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P397316	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P397216	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P397103	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P397242	
2241798	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P397000	

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: Coleman Lake

Collection Date/Time: 04/21/2021 12:25

Field ID: G3NW0216

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2241789	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P397009	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P398117	
		Sulfate	10		mg SO4/L	P398118	
	SM 2120 B-2011	Color (true)	59	A	PCU	P397004	
	SM 2320 B-2011	Total Alkalinity	62		mg CaCO3/L	P397394	
	SM 2540 C-2011	TDS	134		mg/L	P397697	
	SM 2540 D-2011	TSS	3	I	mg/L	P397331	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P397396	
2241794	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P397981	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P397316	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P397216	
	EPA 365.1 Rev. 2.0	Total-P	0.52		mg P/L	P397103	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P397242	
2241799	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.42		mg P/L	P397000	

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: Kell-Aire Lake

Collection Date/Time: 04/21/2021 12:35

Field ID: G3NW0217

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2241790	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P397009	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P398117	
		Sulfate	9.5		mg SO4/L	P398118	
	SM 2120 B-2011	Color (true)	55		PCU	P397004	
	SM 2320 B-2011	Total Alkalinity	57		mg CaCO3/L	P397394	
	SM 2540 C-2011	TDS	134	A	mg/L	P397697	
	SM 2540 D-2011	TSS	4	IA	mg/L	P397331	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P397396	
2241795	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P397981	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P397316	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P397216	
	EPA 365.1 Rev. 2.0	Total-P	0.50		mg P/L	P397103	
	SM 5310 B-2011	Organic Carbon	6.6		mg C/L	P397242	
2241800	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.41		mg P/L	P397000	

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: P397008

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P397009

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398117

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397869

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397981

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397316

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397216

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397103

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: P397000

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

Reference Method: SM 2120 B-2011
Batch ID: P397004

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P397394

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

Reference Method: SM 2540 C-2011
Batch ID: P397695

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P397697

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P397330

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P397331

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P397396

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P397242

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: P398117

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397869

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397316

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: P397216

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397103

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397000

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P397004

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P397394

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P397396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P397242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241786	Chloride	98.7		P	90 - 110
2242025	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241786	Sulfate	102		P	90 - 110
2242025	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241725	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241955	Ammonia-N	96.8	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241726	Kjeldahl Nitrogen	108	110	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241724	NO2NO3-N	96.3	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241724	Total-P	108	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241798	O-Phosphate-P	95.8	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P397396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2242201	Fluoride	98.5	98.5	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P397242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2241724	Organic Carbon	97.0	98.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P397008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241666	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P397009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241788	Turbidity	1.39	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241786	Chloride	1.07	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P398118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241786	Sulfate	1.16	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241725	Ammonia-N	0.224	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241955	Ammonia-N	0.558	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241726	Kjeldahl Nitrogen	0.631	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241724	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P397103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241724	Total-P	1.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P397000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241798	O-Phosphate-P	0.511	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P397004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241789	Color (true)	2.28	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P397394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242201	Total Alkalinity	0.610	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011

Batch ID: P397695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241723	TDS	5.48	Sample	P	0 - 10

Reference Method: SM 2540 C-2011

Batch ID: P397697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241790	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P397396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2242201	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011

Batch ID: P397242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2241724	Organic Carbon	0.600	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: A104915

Included Lab Sample IDs: 2241796, 2241797, 2241798, 2241799, 2241800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.3	P/P	90 - 110
O-Phosphate-P	99.3	98.1	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A104916

Included Lab Sample IDs: 2241786, 2241787, 2241788, 2241789, 2241790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104918

Included Lab Sample IDs: 2241786, 2241787, 2241788, 2241789, 2241790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105
Turbidity	99.5	98.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104981

Included Lab Sample IDs: 2241791, 2241792, 2241793, 2241794, 2241795

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105008

Included Lab Sample IDs: 2241791, 2241792, 2241793, 2241794, 2241795

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

Reference Method: SM 5310 B-2011

Run ID: A105019

Included Lab Sample IDs: 2241791, 2241792, 2241793, 2241794, 2241795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	96.2	P/P	90 - 110
Organic Carbon	96.2	95.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A105080

Included Lab Sample IDs: 2241786, 2241787, 2241788, 2241789, 2241790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.7	P/P	90 - 110
Total Alkalinity	98.0	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A105080

Included Lab Sample IDs: 2241786, 2241787, 2241788, 2241789, 2241790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	99.0	P/P	90 - 110
Fluoride	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A105085

Included Lab Sample IDs: 2241791, 2241792, 2241793, 2241794, 2241795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	90.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105267

Included Lab Sample IDs: 2241791, 2241792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105337

Included Lab Sample IDs: 2241793, 2241794, 2241795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A105392

Included Lab Sample IDs: 2241786, 2241787, 2241788, 2241789, 2241790

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.0	
	Turbidity				1.39	
EPA 300.0 Rev. 2.1	Chloride	101	98.7	98.4	1.07	
	Sulfate	102	102	98.9	1.16	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	100	100		0.224
	Ammonia-N	98.0	96.8	97.4		0.558
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	108	110		0.631
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	96.3	96.3		0.0
EPA 365.1 Rev. 2.0	Total-P	107	108	109		1.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	95.8	96.5		0.511
SM 2120 B-2011	Color (true)	101			2.28	
SM 2320 B-2011	Total Alkalinity	98.6			0.610	
SM 2540 C-2011	TDS				5.48	
	TDS				6.74	
SM 4500 F-C-2011	Fluoride	98.2	98.5	98.5		0.0
SM 5310 B-2011	Organic Carbon	96.2	97.0	98.0		0.600

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2241786, 2241787, 2241788, 2241789, 2241790
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2241786, 2241787, 2241788, 2241789, 2241790
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2241786, 2241787, 2241788, 2241789, 2241790
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2241791, 2241792, 2241793, 2241794, 2241795
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2241791, 2241792, 2241793, 2241794, 2241795
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2241791, 2241792, 2241793, 2241794, 2241795
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2241791, 2241792, 2241793, 2241794, 2241795
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2241796, 2241797, 2241798, 2241799, 2241800
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2241786, 2241787, 2241788, 2241789, 2241790
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2241786, 2241787, 2241788, 2241789, 2241790
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2241786, 2241787, 2241788, 2241789, 2241790
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2241786, 2241787, 2241788, 2241789, 2241790
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2241786, 2241787, 2241788, 2241789, 2241790
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2241791, 2241792, 2241793, 2241794, 2241795

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	04/22/2021			04/22/2021 17:06	Yen Ta	2241786, 2241787, 2241788, 2241789, 2241790
EPA 300.0 Rev. 2.1	04/22/2021			05/13/2021 01:37	Lipi Saha	2241786
	04/22/2021			05/13/2021 02:26	Lipi Saha	2241787
	04/22/2021			05/13/2021 02:38	Lipi Saha	2241788
	04/22/2021			05/13/2021 02:50	Lipi Saha	2241789
	04/22/2021			05/13/2021 03:02	Lipi Saha	2241790
EPA 350.1 Rev. 2.0	04/22/2021			05/07/2021 14:03	Ping Hua	2241791
	04/22/2021			05/07/2021 14:05	Ping Hua	2241792
	04/22/2021			05/11/2021 14:10	Ping Hua	2241793
	04/22/2021			05/11/2021 14:11	Ping Hua	2241794
	04/22/2021			05/11/2021 14:12	Ping Hua	2241795
EPA 351.2 Rev. 2.0	04/22/2021	04/28/2021 13:28	Benjamin T. Nordmann	04/29/2021 15:14	Virginia P. Brown	2241791
	04/22/2021	04/28/2021 13:28	Benjamin T. Nordmann	04/29/2021 15:16	Virginia P. Brown	2241792
	04/22/2021	04/28/2021 13:28	Benjamin T. Nordmann	04/29/2021 15:18	Virginia P. Brown	2241793
	04/22/2021	04/28/2021 13:28	Benjamin T. Nordmann	04/29/2021 15:19	Virginia P. Brown	2241794
	04/22/2021	04/28/2021 13:28	Benjamin T. Nordmann	04/29/2021 15:21	Virginia P. Brown	2241795
EPA 353.2 Rev. 2.0	04/22/2021			04/27/2021 09:55	Beverly Y. Sanders	2241791
	04/22/2021			04/27/2021 09:56	Beverly Y. Sanders	2241792
	04/22/2021			04/27/2021 09:57	Beverly Y. Sanders	2241793
	04/22/2021			04/27/2021 09:58	Beverly Y. Sanders	2241794
	04/22/2021			04/27/2021 09:59	Beverly Y. Sanders	2241795
EPA 365.1 Rev. 2.0	04/22/2021	04/24/2021 18:49	Madeline Gruver	04/26/2021 12:42	Shengyu Ding	2241792
	04/22/2021	04/24/2021 18:49	Madeline Gruver	04/26/2021 12:43	Shengyu Ding	2241793
	04/22/2021	04/24/2021 18:49	Madeline Gruver	04/26/2021 12:44	Shengyu Ding	2241794
	04/22/2021	04/24/2021 18:49	Madeline Gruver	04/26/2021 12:45	Shengyu Ding	2241795
	04/22/2021	04/24/2021 18:49	Madeline Gruver	04/26/2021 13:18	Shengyu Ding	2241791
EPA 365.1 Rev. 2.0 dissolved	04/22/2021			04/22/2021 15:53	Patrick M. Roche	2241798
	04/22/2021			04/22/2021 15:56	Patrick M. Roche	2241796
	04/22/2021			04/22/2021 16:23	Patrick M. Roche	2241797, 2241799
	04/22/2021			04/22/2021 16:24	Patrick M. Roche	2241800
SM 2120 B-2011	04/22/2021			04/22/2021 15:26	Madeline Gruver	2241786, 2241787
	04/22/2021			04/22/2021 15:27	Madeline Gruver	2241788
	04/22/2021			04/22/2021 15:29	Madeline Gruver	2241789, 2241790
SM 2320 B-2011	04/22/2021			04/28/2021 20:27	Dale L. Simmons	2241786
	04/22/2021			04/28/2021 20:42	Dale L. Simmons	2241787
	04/22/2021			04/28/2021 21:29	Dale L. Simmons	2241788
	04/22/2021			04/28/2021 21:43	Dale L. Simmons	2241789
	04/22/2021			04/28/2021 21:56	Dale L. Simmons	2241790

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2011	04/22/2021			04/27/2021 15:21	Yijie Li	2241786, 2241787, 2241788, 2241789, 2241790
SM 2540 D-2011	04/22/2021			04/27/2021 15:21	Yijie Li	2241786, 2241787, 2241788, 2241789, 2241790
SM 4500 F-C-2011	04/22/2021			04/28/2021 20:27	Dale L. Simmons	2241786
	04/22/2021			04/28/2021 20:42	Dale L. Simmons	2241787
	04/22/2021			04/28/2021 21:29	Dale L. Simmons	2241788
	04/22/2021			04/28/2021 21:43	Dale L. Simmons	2241789
	04/22/2021			04/28/2021 21:56	Dale L. Simmons	2241790
SM 5310 B-2011	04/22/2021			04/27/2021 02:23	Lauren Lees	2241791
	04/22/2021			04/27/2021 02:40	Lauren Lees	2241792
	04/22/2021			04/27/2021 02:50	Lauren Lees	2241793
	04/22/2021			04/27/2021 03:00	Lauren Lees	2241794
	04/22/2021			04/27/2021 03:32	Lauren Lees	2241795