

Chemical Analysis Report

NW-DIST-2021-10-21-01

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-2021-10-04-63**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 15-NOV-2021 09:54



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: Coleman Lake

Collection Date/Time: 10/20/2021 11:00

Field ID: G3NW0216

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285224	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P405445	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P405510	
		Sulfate	9.3		mg SO4/L	P405512	
	SM 2120 B-2011	Color (true)	61		PCU	P405425	
	SM 2320 B-2011	Total Alkalinity	64		mg CaCO3/L	P405521	
	SM 2540 C-2011	TDS	144		mg/L	P406104	
	SM 2540 D-2011	TSS	5	I	mg/L	P406098	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P405524	
2285228	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P405839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P405933	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P405655	
	EPA 365.1 Rev. 2.0	Total-P	0.47		mg P/L	P405618	
	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P405737	
2285232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.37		mg P/L	P405415	

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Twin Lake eastern lake

Collection Date/Time: 10/20/2021 10:30

Field ID: G3NW0449

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285225	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P405445	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P405510	
		Sulfate	6.9		mg SO4/L	P405512	
	SM 2120 B-2011	Color (true)	53		PCU	P405425	
	SM 2320 B-2011	Total Alkalinity	41		mg CaCO3/L	P405521	
	SM 2540 C-2011	TDS	106		mg/L	P406104	
	SM 2540 D-2011	TSS	5	I	mg/L	P406098	
	SM 4500 F-C-2011	Fluoride	0.056	I	mg F/L	P405524	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P405839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P405933	
2285229	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P405655	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P405618	
	SM 5310 B-2011	Organic Carbon	8.4		mg C/L	P405737	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.073		mg P/L	P405415	
	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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Twin Lake south lobe

Collection Date/Time: 10/20/2021 10:15

Field ID: G3NW0448

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285226	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P405445	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P405510	
		Sulfate	12		mg SO4/L	P405512	
	SM 2120 B-2011	Color (true)	100		PCU	P405425	
	SM 2320 B-2011	Total Alkalinity	85		mg CaCO3/L	P405521	
	SM 2540 C-2011	TDS	181		mg/L	P406104	
	SM 2540 D-2011	TSS	9	I	mg/L	P406098	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P405524	
2285230	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P405839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P405933	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P405655	
	EPA 365.1 Rev. 2.0	Total-P	0.42		mg P/L	P405618	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P405737	
2285234	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.34		mg P/L	P405415	

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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Kell-Aire Lake

Collection Date/Time: 10/20/2021 11:15

Field ID: G3NW0217

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285227	EPA 180.1 Rev. 2.0	Turbidity	3.3	A	NTU	P405445	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P405510	
		Sulfate	9.6		mg SO4/L	P405512	
	SM 2120 B-2011	Color (true)	58		PCU	P405425	
	SM 2320 B-2011	Total Alkalinity	63		mg CaCO3/L	P405813	
	SM 2540 C-2011	TDS	148	A	mg/L	P406104	
	SM 2540 D-2011	TSS	6	IA	mg/L	P406098	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P405815	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P405839	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P405933	
2285231	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P405655	
	EPA 365.1 Rev. 2.0	Total-P	0.44		mg P/L	P405618	
	SM 5310 B-2011	Organic Carbon	8.5		mg C/L	P405737	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.36		mg P/L	P405416	
	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: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P405445

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405510

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405512

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405933

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405655

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405618

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405415

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405416

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P405425

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P405521

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

Reference Method: SM 2320 B-2011
Batch ID: P405813

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

Reference Method: SM 2540 C-2011
Batch ID: P406104

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P406098

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405524

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405815

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P405737

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: P405510

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405512

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405933

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405655

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: P405618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405415

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.2		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P405425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.9		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P405521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P405813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P405524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P405815

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P405737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285141	Chloride	101		P	90 - 110
2285227	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285141	Sulfate	101		P	90 - 110
2285227	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285206	Ammonia-N	96.2	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285228	Kjeldahl Nitrogen	95.7	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285087	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285145	O-Phosphate-P	97.0	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285263	O-Phosphate-P	96.6	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P405524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285141	Fluoride	99.1	98.5	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P405815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285338	Fluoride	97.5	96.4	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P405737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285085	Organic Carbon	98.9	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P405445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285227	Turbidity	3.02	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285141	Chloride	0.764	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P405512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285141	Sulfate	1.55	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285206	Ammonia-N	1.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285228	Kjeldahl Nitrogen	0.216	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285087	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285231	Total-P	1.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285145	O-Phosphate-P	1.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285263	O-Phosphate-P	0.927	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P405425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285290	Color (true)	3.49	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P405521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285141	Total Alkalinity	1.88	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P405813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285338	Total Alkalinity	0.361	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P406104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285227	TDS	7.46	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P405524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285141	Fluoride	0.495	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P405815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285338	Fluoride	0.513	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P405737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285085	Organic Carbon	0.728	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 300.0 Rev. 2.1

Run ID: A108426

Included Lab Sample IDs: 2285224, 2285225, 2285226, 2285227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108469

Included Lab Sample IDs: 2285232, 2285233, 2285234, 2285235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	98.1	P/P	90 - 110
O-Phosphate-P	98.1	98.1	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A108472

Included Lab Sample IDs: 2285224, 2285225, 2285226, 2285227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.6	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108477

Included Lab Sample IDs: 2285224, 2285225, 2285226, 2285227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A108510

Included Lab Sample IDs: 2285224, 2285225, 2285226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.0	98.8	P/P	90 - 110
Total Alkalinity	98.0	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108510

Included Lab Sample IDs: 2285224, 2285225, 2285226

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108555

Included Lab Sample IDs: 2285228, 2285229, 2285230, 2285231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	108	P/P	90 - 110
Total-P	108	108	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108558

Included Lab Sample IDs: 2285228, 2285229, 2285230, 2285231

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

Reference Method: SM 5310 B-2011

Run ID: A108603

Included Lab Sample IDs: 2285228, 2285229, 2285230, 2285231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	96.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A108640

Included Lab Sample IDs: 2285227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108640

Included Lab Sample IDs: 2285227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108657

Included Lab Sample IDs: 2285228, 2285229, 2285230, 2285231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108713

Included Lab Sample IDs: 2285228, 2285229, 2285230, 2285231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.4	P/P	90 - 110
Kjeldahl Nitrogen	104	103	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				3.02	
EPA 300.0 Rev. 2.1	Chloride	101	101	104	0.764	
	Sulfate	102	101	104	1.55	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	96.2	97.8		1.49
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9	95.7	96.1		0.216
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	102	101		0.985
EPA 365.1 Rev. 2.0	Total-P	106				1.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	97.0	95.8		1.02
	O-Phosphate-P	96.2	96.6	97.5		0.927
SM 2120 B-2011	Color (true)	97.9			3.49	
SM 2320 B-2011	Total Alkalinity	100			1.88	
	Total Alkalinity	98.5			0.361	
SM 2540 C-2011	TDS				7.46	
SM 4500 F-C-2011	Fluoride	99.2	99.1	98.5		0.495
	Fluoride	100	97.5	96.4		0.513
SM 5310 B-2011	Organic Carbon	100	98.9	100		0.728

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2285224, 2285225, 2285226, 2285227
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2285224, 2285225, 2285226, 2285227
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2285224, 2285225, 2285226, 2285227
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2285228, 2285229, 2285230, 2285231
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2285228, 2285229, 2285230, 2285231
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2285228, 2285229, 2285230, 2285231
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2285228, 2285229, 2285230, 2285231
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2285232, 2285233, 2285234, 2285235
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2285224, 2285225, 2285226, 2285227
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2285224, 2285225, 2285226, 2285227
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2285224, 2285225, 2285226, 2285227
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2285224, 2285225, 2285226, 2285227
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2285224, 2285225, 2285226, 2285227
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2285228, 2285229, 2285230, 2285231

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	10/21/2021			10/21/2021 16:03	Khloe J Berg	2285224, 2285225, 2285226, 2285227
EPA 300.0 Rev. 2.1	10/21/2021			10/22/2021 18:44	Roberta Tatti	2285227
	10/21/2021			10/22/2021 20:08	Roberta Tatti	2285224
	10/21/2021			10/22/2021 20:20	Roberta Tatti	2285225
	10/21/2021			10/22/2021 20:56	Roberta Tatti	2285226
EPA 350.1 Rev. 2.0	10/21/2021			11/01/2021 12:36	Ping Hua	2285228
	10/21/2021			11/01/2021 12:38	Ping Hua	2285229
	10/21/2021			11/01/2021 12:39	Ping Hua	2285230
	10/21/2021			11/01/2021 12:40	Ping Hua	2285231
EPA 351.2 Rev. 2.0	10/21/2021	11/03/2021 12:43	Benjamin T. Nordmann	11/04/2021 10:56	Alexandra J Mattheus	2285228
	10/21/2021	11/03/2021 12:43	Benjamin T. Nordmann	11/04/2021 11:01	Alexandra J Mattheus	2285229
	10/21/2021	11/03/2021 12:43	Benjamin T. Nordmann	11/04/2021 11:06	Alexandra J Mattheus	2285230
	10/21/2021	11/03/2021 12:43	Benjamin T. Nordmann	11/04/2021 11:08	Alexandra J Mattheus	2285231
EPA 353.2 Rev. 2.0	10/21/2021			10/27/2021 10:06	Beverly Y. Sanders	2285228
	10/21/2021			10/27/2021 10:07	Beverly Y. Sanders	2285229
	10/21/2021			10/27/2021 10:09	Beverly Y. Sanders	2285230
	10/21/2021			10/27/2021 10:10	Beverly Y. Sanders	2285231
EPA 365.1 Rev. 2.0	10/21/2021	10/26/2021 17:15	Simonne.V. Calhoun	10/27/2021 10:15	Lipi Saha	2285231
	10/21/2021	10/26/2021 17:15	Simonne.V. Calhoun	10/27/2021 10:22	Lipi Saha	2285228
	10/21/2021	10/26/2021 17:15	Simonne.V. Calhoun	10/27/2021 10:23	Lipi Saha	2285229
	10/21/2021	10/26/2021 17:15	Simonne.V. Calhoun	10/27/2021 10:24	Lipi Saha	2285230
EPA 365.1 Rev. 2.0 dissolved	10/21/2021			10/21/2021 14:36	James L Waggeberby	2285232
	10/21/2021			10/21/2021 14:38	James L Waggeberby	2285233
	10/21/2021			10/21/2021 14:39	James L Waggeberby	2285234
	10/21/2021			10/21/2021 14:49	James L Waggeberby	2285235
SM 2120 B-2011	10/21/2021			10/21/2021 15:50	Benjamin T. Nordmann	2285224
	10/21/2021			10/21/2021 15:51	Benjamin T. Nordmann	2285225
	10/21/2021			10/21/2021 15:52	Benjamin T. Nordmann	2285226, 2285227
SM 2320 B-2011	10/21/2021			10/23/2021 01:52	Dale L. Simmons	2285224
	10/21/2021			10/23/2021 02:45	Dale L. Simmons	2285225
	10/21/2021			10/23/2021 02:58	Dale L. Simmons	2285226
	10/21/2021			10/27/2021 19:12	Dale L. Simmons	2285227
SM 2540 C-2011	10/21/2021			10/26/2021 15:36	Yijie Li	2285224, 2285225, 2285226, 2285227
SM 2540 D-2011	10/21/2021			10/26/2021 15:36	Yijie Li	2285224, 2285225, 2285226, 2285227
SM 4500 F-C-2011	10/21/2021			10/23/2021 01:52	Dale L. Simmons	2285224
	10/21/2021			10/23/2021 02:45	Dale L. Simmons	2285225
	10/21/2021			10/23/2021 02:58	Dale L. Simmons	2285226
	10/21/2021			10/27/2021 19:12	Dale L. Simmons	2285227
SM 5310 B-2011	10/21/2021			10/28/2021 03:03	Khloe J Berg	2285228
	10/21/2021			10/28/2021 03:16	Khloe J Berg	2285229

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	10/21/2021			10/28/2021 03:28	Khloe J Berg	2285230
	10/21/2021			10/28/2021 03:41	Khloe J Berg	2285231