

Chemical Analysis Report

NW-DIST-2023-04-11-01

Florida DEP Laboratory
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DOH Accreditation E31780

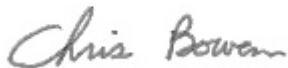
Event Description: **Twin Lakes**
Request ID: **RQ-2023-04-10-36**
Customer: **NW-DIST**
Project ID: **SMP**

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Certified by: Chris Bowen, Environmental Administrator

Date Certified: 03-MAY-2023 12:46



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 South Lobe

Collection Date/Time: 04/10/2023 12:41

Field ID: G3NW0448

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2399497	DEP SOP: NU-094-1	Color (true)	50		PCU	P428336	
	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P428330	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P428576	
		Sulfate	8.5		mg SO4/L	P428579	
	SM 2320 B-2011	Total Alkalinity	60		mg CaCO3/L	P428507	
	SM 2540 C-2015	TDS	104		mg/L	P428904	
	SM 2540 D-2015	TSS	5	I	mg/L	P428821	
	SM 4500-F- C-2011	Fluoride	0.11		mg F/L	P428730	
2399502	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P428376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P428410	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P428686	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P428342	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P428481	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Twin Lake Eastern Lake

Collection Date/Time: 04/10/2023 11:50

Field ID: G3NW0449

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2399498	DEP SOP: NU-094-1	Color (true)	27		PCU	P428336	
	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P428330	
	EPA 300.0 Rev. 2.1	Chloride	19	A	mg Cl/L	P428576	
		Sulfate	7.1	A	mg SO4/L	P428579	
	SM 2320 B-2011	Total Alkalinity	55		mg CaCO3/L	P428507	
	SM 2540 C-2015	TDS	102		mg/L	P428904	
	SM 2540 D-2015	TSS	4	I	mg/L	P428821	
	SM 4500-F- C-2011	Fluoride	0.051	I	mg F/L	P428730	
2399503	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P428376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P428410	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P428686	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P428343	
	SM 5310 B-2011	Organic Carbon	7.2		mg C/L	P428481	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Coleman Lake

Collection Date/Time: 04/10/2023 13:02

Field ID: G3NW0216

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2399499	DEP SOP: NU-094-1	Color (true)	43		PCU	P428336	
	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P428330	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P428576	
		Sulfate	8.6		mg SO4/L	P428579	
	SM 2320 B-2011	Total Alkalinity	49		mg CaCO3/L	P428507	
	SM 2540 C-2015	TDS	107		mg/L	P428904	
	SM 2540 D-2015	TSS	8	I	mg/L	P428821	
2399504	SM 4500-F- C-2011	Fluoride	0.090	I	mg F/L	P428730	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P428376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P428410	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P428686	
	EPA 365.1 Rev. 2.0	Total-P	0.32		mg P/L	P428343	
	SM 5310 B-2011	Organic Carbon	7.0		mg C/L	P428481	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Kell Aire Lake

Collection Date/Time: 04/10/2023 13:22

Field ID: G3NW0217

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2399500	DEP SOP: NU-094-1	Color (true)	37		PCU	P428336	
	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P428330	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P428576	
		Sulfate	8.5		mg SO4/L	P428579	
	SM 2320 B-2011	Total Alkalinity	49		mg CaCO3/L	P428507	
	SM 2540 C-2015	TDS	101		mg/L	P428904	
	SM 2540 D-2015	TSS	12		mg/L	P428821	
2399505	SM 4500-F- C-2011	Fluoride	0.090	I	mg F/L	P428730	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P428376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P428681	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P428686	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P428343	
	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P428481	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Twin Lake

Collection Date/Time: 04/10/2023 11:15

Field ID: G3NW0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2399501	DEP SOP: NU-094-1	Color (true)	51		PCU	P428336	
	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P428330	
	EPA 300.0 Rev. 2.1	Chloride	33		mg Cl/L	P428576	
		Sulfate	10		mg SO4/L	P428579	
	SM 2320 B-2011	Total Alkalinity	62	A	mg CaCO3/L	P428508	
	SM 2540 C-2015	TDS	133		mg/L	P428904	
	SM 2540 D-2015	TSS	5	I	mg/L	P428821	
	SM 4500-F- C-2011	Fluoride	0.14		mg F/L	P428730	
2399506	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P428376	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P428681	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P428686	
	EPA 365.1 Rev. 2.0	Total-P	0.66		mg P/L	P428343	
	SM 5310 B-2011	Organic Carbon	9.1		mg C/L	P428481	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P428336

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428330

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428576

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428579

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428376

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428410

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428681

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P428686

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428342

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
Batch ID: P428343

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

Reference Method: SM 2320 B-2011
Batch ID: P428507

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

Reference Method: SM 2320 B-2011
Batch ID: P428508

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

Reference Method: SM 2540 C-2015
Batch ID: P428904

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P428821

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P428730

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P428481

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P428336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.8		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428330

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428576

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428579

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428376

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428410

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: P428681

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P428686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.7		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428343

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

Reference Method: SM 2320 B-2011
Batch ID: P428507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.2		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P428508

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.6		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P428904

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

Reference Method: SM 2540 D-2015
Batch ID: P428821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	99.0		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P428730

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P428481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399498	Chloride	97.7		P	90 - 110
2399499	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399498	Sulfate	95.8		P	90 - 110
2399499	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399465	Ammonia-N	96.8	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399742	Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399509	Kjeldahl Nitrogen	112	119	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P428686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399469	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399470	Total-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399546	Total-P	99.0	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P428730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399380	Fluoride	104	104	P/P	94 - 104

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P428481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2399465	Organic Carbon	94.6	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P428336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399468	Color (true)	2.80	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399361	Turbidity	5.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399498	Chloride	0.676	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399498	Sulfate	0.128	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399465	Ammonia-N	2.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399742	Kjeldahl Nitrogen	3.62	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399509	Kjeldahl Nitrogen	4.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P428686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399469	NO2NO3-N	0.962	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399470	Total-P	0.520	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399546	Total-P	0.892	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P428507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399381	Total Alkalinity	1.47	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P428508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399501	Total Alkalinity	1.02	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P428904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399464	TDS	5.71	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P428730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399380	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P428481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2399465	Organic Carbon	0.175	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A118504

Included Lab Sample IDs: 2399497, 2399498, 2399499, 2399500, 2399501

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

Reference Method: DEP SOP: NU-094-1

Run ID: A118508

Included Lab Sample IDs: 2399497, 2399498, 2399499, 2399500, 2399501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118531

Included Lab Sample IDs: 2399502, 2399503, 2399504, 2399505, 2399506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118547

Included Lab Sample IDs: 2399502, 2399503, 2399504, 2399505, 2399506

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

Reference Method: SM 5310 B-2011

Run ID: A118566

Included Lab Sample IDs: 2399502, 2399503, 2399504, 2399505, 2399506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.3	P/P	90 - 110
Organic Carbon	98.1	99.0	P/P	90 - 110
Organic Carbon	98.3	98.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A118577

Included Lab Sample IDs: 2399497, 2399498, 2399499, 2399500, 2399501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.1	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118602

Included Lab Sample IDs: 2399502, 2399503, 2399504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.1	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A118603

Included Lab Sample IDs: 2399497, 2399498, 2399499, 2399500, 2399501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	99.4	P/P	90 - 110
Chloride	99.4	101	P/P	90 - 110
Sulfate	98.5	98.6	P/P	90 - 110
Sulfate	98.6	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118653

Included Lab Sample IDs: 2399502, 2399503, 2399504, 2399505, 2399506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A118673

Included Lab Sample IDs: 2399497, 2399498, 2399499, 2399500, 2399501

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118695

Included Lab Sample IDs: 2399505, 2399506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	99.8	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
DEP SOP: NU-094-1	Color (true)	98.8			2.80	
EPA 180.1 Rev. 2.0	Turbidity	100			5.06	
EPA 300.0 Rev. 2.1	Chloride	101	97.7	100	0.676	
	Sulfate	99.0	95.8	98.5	0.128	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	96.8	99.4		2.47
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	107	102		3.62
	Kjeldahl Nitrogen	107	112	119		4.26
EPA 353.2 Rev. 2.0	NO2NO3-N	108	104	104		0.962
EPA 365.1 Rev. 2.0	Total-P	96.7	101	102		0.520
	Total-P	97.9	99.0	100		0.892
SM 2320 B-2011	Total Alkalinity	96.2			1.47	
	Total Alkalinity	94.6			1.02	
SM 2540 C-2015	TDS	103			5.71	
SM 2540 D-2015	TSS	99.0				
SM 4500-F- C-2011	Fluoride	100	104	104		0.0
SM 5310 B-2011	Organic Carbon	98.5	94.6	94.4		0.175

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2399497, 2399498, 2399499, 2399500, 2399501
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2399497, 2399498, 2399499, 2399500, 2399501
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2399497, 2399498, 2399499, 2399500, 2399501
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2399497, 2399498, 2399499, 2399500, 2399501
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2399502, 2399503, 2399504, 2399505, 2399506
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2399502, 2399503, 2399504, 2399505, 2399506
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2399502, 2399503, 2399504, 2399505, 2399506
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2399502, 2399503, 2399504, 2399505, 2399506
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2399497, 2399498, 2399499, 2399500, 2399501
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2399497, 2399498, 2399499, 2399500, 2399501
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2399497, 2399498, 2399499, 2399500, 2399501
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2399497, 2399498, 2399499, 2399500, 2399501
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2399502, 2399503, 2399504, 2399505, 2399506

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	04/11/2023			04/11/2023 15:17	Anna M. Plaviak	2399497
	04/11/2023			04/11/2023 15:18	Anna M. Plaviak	2399498
	04/11/2023			04/11/2023 15:19	Anna M. Plaviak	2399499, 2399500
	04/11/2023			04/11/2023 15:20	Anna M. Plaviak	2399501
EPA 180.1 Rev. 2.0	04/11/2023			04/11/2023 13:18	Chandler E Cox	2399497
	04/11/2023			04/11/2023 13:21	Chandler E Cox	2399498
	04/11/2023			04/11/2023 13:22	Chandler E Cox	2399499
	04/11/2023			04/11/2023 13:23	Chandler E Cox	2399500
EPA 300.0 Rev. 2.1	04/11/2023			04/11/2023 13:24	Chandler E Cox	2399501
	04/11/2023			04/15/2023 03:33	Anna M. Plaviak	2399498
	04/11/2023			04/15/2023 04:03	Anna M. Plaviak	2399499
	04/11/2023			04/15/2023 08:20	Anna M. Plaviak	2399497
EPA 350.1 Rev. 2.0	04/11/2023			04/15/2023 08:35	Anna M. Plaviak	2399500
	04/11/2023			04/15/2023 08:50	Anna M. Plaviak	2399501
	04/11/2023			04/12/2023 14:14	Ping Hua	2399502
	04/11/2023			04/12/2023 14:15	Ping Hua	2399503
EPA 351.2 Rev. 2.0	04/11/2023			04/12/2023 14:16	Ping Hua	2399504
	04/11/2023			04/12/2023 14:18	Ping Hua	2399505
	04/11/2023			04/12/2023 14:19	Ping Hua	2399506
	04/11/2023	04/13/2023 13:00	Simonne.V. Calhoun	04/17/2023 10:54	Samantha L Bates	2399502
EPA 353.2 Rev. 2.0	04/11/2023	04/13/2023 13:00	Simonne.V. Calhoun	04/17/2023 10:56	Samantha L Bates	2399503
	04/11/2023	04/13/2023 13:00	Simonne.V. Calhoun	04/17/2023 10:57	Samantha L Bates	2399504
	04/11/2023	04/19/2023 11:19	Dana G. Hughes	04/20/2023 12:51	Ping Hua	2399505
	04/11/2023	04/19/2023 11:19	Dana G. Hughes	04/20/2023 12:53	Ping Hua	2399506
EPA 365.1 Rev. 2.0	04/11/2023			04/19/2023 10:25	Beverly Y. Sanders	2399502
	04/11/2023			04/19/2023 10:26	Beverly Y. Sanders	2399503
	04/11/2023			04/19/2023 10:28	Beverly Y. Sanders	2399504
	04/11/2023			04/19/2023 10:29	Beverly Y. Sanders	2399505
SM 2320 B-2011	04/11/2023			04/19/2023 10:30	Beverly Y. Sanders	2399506
	04/11/2023	04/12/2023 12:30	Simonne.V. Calhoun	04/13/2023 09:54	James L Waggeberby	2399502
	04/11/2023	04/12/2023 12:30	Simonne.V. Calhoun	04/13/2023 10:00	James L Waggeberby	2399503
	04/11/2023	04/12/2023 12:30	Simonne.V. Calhoun	04/13/2023 10:02	James L Waggeberby	2399504
	04/11/2023	04/12/2023 12:30	Simonne.V. Calhoun	04/13/2023 10:03	James L Waggeberby	2399505
	04/11/2023	04/12/2023 12:30	Simonne.V. Calhoun	04/13/2023 10:06	James L Waggeberby	2399506
	04/11/2023			04/13/2023 18:38	Dale L. Simmons	2399497
	04/11/2023			04/13/2023 18:49	Dale L. Simmons	2399498
	04/11/2023			04/13/2023 18:59	Dale L. Simmons	2399499
	04/11/2023			04/13/2023 19:10	Dale L. Simmons	2399500
	04/11/2023			04/13/2023 20:27	Dale L. Simmons	2399501

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2015	04/11/2023			04/14/2023 15:46	Yijie Li	2399497, 2399498, 2399499, 2399500, 2399501
SM 2540 D-2015	04/11/2023			04/14/2023 15:46	Yijie Li	2399497, 2399498, 2399499, 2399500, 2399501
SM 4500-F- C-2011	04/11/2023			04/20/2023 00:37	Dale L. Simmons	2399497
	04/11/2023			04/20/2023 00:43	Dale L. Simmons	2399498
	04/11/2023			04/20/2023 00:48	Dale L. Simmons	2399499
	04/11/2023			04/20/2023 00:54	Dale L. Simmons	2399500
	04/11/2023			04/20/2023 00:59	Dale L. Simmons	2399501
SM 5310 B-2011	04/11/2023			04/13/2023 16:01	Elise M. Gillis	2399503
	04/11/2023			04/13/2023 20:01	Elise M. Gillis	2399502
	04/11/2023			04/13/2023 20:46	Elise M. Gillis	2399504
	04/11/2023			04/13/2023 21:02	Elise M. Gillis	2399505
	04/11/2023			04/13/2023 21:19	Elise M. Gillis	2399506