Chemical Analysis Report

NW-DIST-2023-02-21-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Twin Lakes**
Request ID: **RQ-2023-02-20-21**
Customer: **NW-DIST**
Project ID: **SMP**

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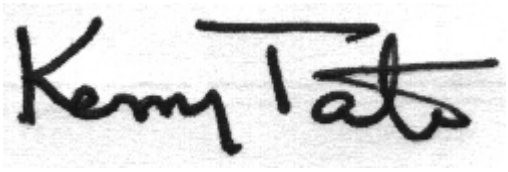
Date Certified: 13-MAR-2023 08:34



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: 02/20/2023 12:10**

Field ID: G3NW0216 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388699	DEP SOP: NU-094-1	Color (true)	44	A	PCU	P426178	
	EPA 180.1 Rev. 2.0	Turbidity	4.5	A	NTU	P426184	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P426649	
		Sulfate	9.7		mg SO4/L	P426653	
	SM 2320 B-2011	Total Alkalinity	50		mg CaCO3/L	P426394	
	SM 2540 C-2015	TDS	115		mg/L	P426737	
	SM 2540 D-2015	TSS	5	I	mg/L	P426639	
	SM 4500-F- C-2011	Fluoride	0.088	I	mg F/L	P426397	
2388704	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P426472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P426402	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P426279	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P426217	
	SM 5310 B-2011	Organic Carbon	7.0		mg C/L	P426275	

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: 02/20/2023 12:45**

Field ID: G3NW0215 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388700	DEP SOP: NU-094-1	Color (true)	48		PCU	P426178	
	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P426184	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P426649	
		Sulfate	13		mg SO4/L	P426653	
	SM 2320 B-2011	Total Alkalinity	59		mg CaCO3/L	P426394	
	SM 2540 C-2015	TDS	138		mg/L	P426737	
	SM 2540 D-2015	TSS	4	I	mg/L	P426639	
	SM 4500-F- C-2011	Fluoride	0.16		mg F/L	P426397	
2388705	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P426472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P426402	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P426279	
	EPA 365.1 Rev. 2.0	Total-P	0.56		mg P/L	P426217	
	SM 5310 B-2011	Organic Carbon	8.8		mg C/L	P426275	

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: 02/20/2023 13:25**

Field ID: G3NW0449 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388701	DEP SOP: NU-094-1	Color (true)	27		PCU	P426178	
	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P426184	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P426649	
		Sulfate	6.9		mg SO4/L	P426653	
	SM 2320 B-2011	Total Alkalinity	51		mg CaCO3/L	P426394	
	SM 2540 C-2015	TDS	86		mg/L	P426737	
	SM 2540 D-2015	TSS	4	I	mg/L	P426639	
	SM 4500-F- C-2011	Fluoride	0.050	I	mg F/L	P426397	
2388706	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P426472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P426402	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P426279	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P426218	
	SM 5310 B-2011	Organic Carbon	6.2		mg C/L	P426275	

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: 02/20/2023 11:50**

Field ID: G3NW0217 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388702	DEP SOP: NU-094-1	Color (true)	47		PCU	P426178	
	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P426184	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P426649	
		Sulfate	9.2		mg SO4/L	P426653	
	SM 2320 B-2011	Total Alkalinity	46		mg CaCO3/L	P426394	
	SM 2540 C-2015	TDS	106		mg/L	P426737	
	SM 2540 D-2015	TSS	10		mg/L	P426639	
	SM 4500-F- C-2011	Fluoride	0.085	I	mg F/L	P426397	
2388707	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P426473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P426402	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P426279	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P426218	
	SM 5310 B-2011	Organic Carbon	7.6		mg C/L	P426275	

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 South lobe **Collection Date/Time: 02/20/2023 13:10**

Field ID: G3NW0448 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388703	DEP SOP: NU-094-1	Color (true)	49		PCU	P426178	
	EPA 180.1 Rev. 2.0	Turbidity	0.95	I	NTU	P426184	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P426649	
		Sulfate	8.2		mg SO4/L	P426653	
	SM 2320 B-2011	Total Alkalinity	52		mg CaCO3/L	P426394	
	SM 2540 C-2015	TDS	118	A	mg/L	P426737	
	SM 2540 D-2015	TSS	2	I A	mg/L	P426639	
	SM 4500-F- C-2011	Fluoride	0.11		mg F/L	P426397	
2388708	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P426473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P426402	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P426279	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P426218	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P426275	

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: P426178

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426184

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426649

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426653

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426472

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426473

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426402

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426279

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426217

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: P426218

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

Reference Method: SM 2320 B-2011
Batch ID: P426394

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

Reference Method: SM 2540 C-2015
Batch ID: P426737

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P426639

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P426397

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P426275

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: P426178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426184

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426649

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426653

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426472

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426279

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: P426217

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.6		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426218

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

Reference Method: SM 2320 B-2011
Batch ID: P426394

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.1		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P426737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	94.2		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P426639

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	98.4		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P426397

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P426275

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388484	Chloride	96.7		P	90 - 110
2388699	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388484	Sulfate	101		P	90 - 110
2388699	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388706	Ammonia-N	96.4	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388707	Ammonia-N	95.2	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388686	Kjeldahl Nitrogen	100	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388704	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388646	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388900	Total-P	101	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P426397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388643	Fluoride	102	99.7	P/P	94 - 104

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P426275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2388646	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P426178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388699	Color (true)	1.19	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P426184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388699	Turbidity	5.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388484	Chloride	1.92	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388484	Sulfate	1.54	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388706	Ammonia-N	1.69	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388707	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388686	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388704	NO2NO3-N	0.283	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388646	Total-P	0.244	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388900	Total-P	0.635	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P426394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388643	Total Alkalinity	1.19	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P426737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388703	TDS	8.47	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P426397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388643	Fluoride	1.49	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P426275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2388646	Organic Carbon	0.0998	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A117573
Included Lab Sample IDs: 2388699, 2388700, 2388701, 2388702, 2388703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A117574
Included Lab Sample IDs: 2388699, 2388700, 2388701, 2388702, 2388703

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

Reference Method: SM 5310 B-2011
Run ID: A117617
Included Lab Sample IDs: 2388704, 2388705, 2388706, 2388707, 2388708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	97.4	P/P	90 - 110
Organic Carbon	97.4	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A117620
Included Lab Sample IDs: 2388704, 2388705, 2388706, 2388707, 2388708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A117624
Included Lab Sample IDs: 2388704, 2388705, 2388707, 2388708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	104	P/P	90 - 110
Total-P	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A117627
Included Lab Sample IDs: 2388706

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A117667
Included Lab Sample IDs: 2388699, 2388700, 2388701, 2388702, 2388703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.0	99.1	P/P	90 - 110
Total Alkalinity	99.1	96.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A117667
Included Lab Sample IDs: 2388699, 2388700, 2388701, 2388702, 2388703

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A117687
Included Lab Sample IDs: 2388699, 2388700, 2388701, 2388702, 2388703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.1	96.6	P/P	90 - 110
Chloride	96.6	97.4	P/P	90 - 110
Sulfate	98.7	99.0	P/P	90 - 110
Sulfate	99.0	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A117701
Included Lab Sample IDs: 2388704, 2388705, 2388706, 2388707, 2388708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.0	P/P	90 - 110
Ammonia-N	98.5	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A117796
Included Lab Sample IDs: 2388704, 2388705, 2388706, 2388707, 2388708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.9	P/P	90 - 110
Kjeldahl Nitrogen	99.9	102	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	SMP	MS
DEP SOP: NU-094-1	Color (true)	99.0				1.19	
EPA 180.1 Rev. 2.0	Turbidity	99.9				5.33	
EPA 300.0 Rev. 2.1	Chloride	99.3	96.7	100		1.92	
	Sulfate	103	101	104		1.54	
EPA 350.1 Rev. 2.0	Ammonia-N	100	96.4	98.2			1.69
	Ammonia-N	97.0	95.2	95.2			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.7	100	97.4			2.72
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	98.5	98.0			0.283
EPA 365.1 Rev. 2.0	Total-P	98.6	102	103			0.244
	Total-P	97.8	101	100			0.635
SM 2320 B-2011	Total Alkalinity	98.1				1.19	
SM 2540 C-2015	TDS	94.2				8.47	
SM 2540 D-2015	TSS	98.4					
SM 4500-F- C-2011	Fluoride	101	102	99.7			1.49
SM 5310 B-2011	Organic Carbon	95.2	100	100			0.0998

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2388699, 2388700, 2388701, 2388702, 2388703
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2388699, 2388700, 2388701, 2388702, 2388703
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2388699, 2388700, 2388701, 2388702, 2388703
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2388699, 2388700, 2388701, 2388702, 2388703
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2388704, 2388705, 2388706, 2388707, 2388708
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2388704, 2388705, 2388706, 2388707, 2388708
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2388704, 2388705, 2388706, 2388707, 2388708
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2388704, 2388705, 2388706, 2388707, 2388708
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2388699, 2388700, 2388701, 2388702, 2388703
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2388699, 2388700, 2388701, 2388702, 2388703
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2388699, 2388700, 2388701, 2388702, 2388703
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2388699, 2388700, 2388701, 2388702, 2388703
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2388704, 2388705, 2388706, 2388707, 2388708

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	02/21/2023			02/21/2023 14:12	Alexis Price	2388699
	02/21/2023			02/21/2023 14:13	Alexis Price	2388700, 2388701
	02/21/2023			02/21/2023 14:14	Alexis Price	2388702, 2388703
EPA 180.1 Rev. 2.0	02/21/2023			02/21/2023 13:41	Anna M. Plaviak	2388699
	02/21/2023			02/21/2023 13:44	Anna M. Plaviak	2388700, 2388701
	02/21/2023			02/21/2023 13:45	Anna M. Plaviak	2388702
	02/21/2023			02/21/2023 13:46	Anna M. Plaviak	2388703
EPA 300.0 Rev. 2.1	02/21/2023			03/02/2023 03:28	Judith K. Clark	2388699
	02/21/2023			03/02/2023 05:13	Judith K. Clark	2388700
	02/21/2023			03/02/2023 05:28	Judith K. Clark	2388701
	02/21/2023			03/02/2023 05:43	Judith K. Clark	2388702
	02/21/2023			03/02/2023 06:28	Judith K. Clark	2388703
EPA 350.1 Rev. 2.0	02/21/2023			02/28/2023 11:24	Ping Hua	2388706
	02/21/2023			02/28/2023 11:37	Ping Hua	2388704
	02/21/2023			02/28/2023 11:38	Ping Hua	2388705
	02/21/2023			02/28/2023 11:50	Ping Hua	2388707
	02/21/2023			02/28/2023 11:54	Ping Hua	2388708
EPA 351.2 Rev. 2.0	02/21/2023	02/27/2023 12:30	Simonne.V. Calhoun	03/03/2023 16:16	Judith K. Clark	2388704
	02/21/2023	02/27/2023 12:30	Simonne.V. Calhoun	03/03/2023 16:17	Judith K. Clark	2388705
	02/21/2023	02/27/2023 12:30	Simonne.V. Calhoun	03/03/2023 16:19	Judith K. Clark	2388706
	02/21/2023	02/27/2023 12:30	Simonne.V. Calhoun	03/03/2023 16:20	Judith K. Clark	2388707
	02/21/2023	02/27/2023 12:30	Simonne.V. Calhoun	03/03/2023 16:30	Judith K. Clark	2388708
EPA 353.2 Rev. 2.0	02/21/2023			02/23/2023 09:53	Beverly Y. Sanders	2388704
	02/21/2023			02/23/2023 10:03	Beverly Y. Sanders	2388705
	02/21/2023			02/23/2023 10:04	Beverly Y. Sanders	2388706
	02/21/2023			02/23/2023 10:06	Beverly Y. Sanders	2388707
	02/21/2023			02/23/2023 10:07	Beverly Y. Sanders	2388708
EPA 365.1 Rev. 2.0	02/21/2023	02/22/2023 13:36	Adam P Silver	02/23/2023 12:32	Simonne.V. Calhoun	2388704
	02/21/2023	02/22/2023 13:36	Adam P Silver	02/23/2023 12:34	Simonne.V. Calhoun	2388705
	02/21/2023	02/22/2023 13:36	Adam P Silver	02/23/2023 12:43	Simonne.V. Calhoun	2388707
	02/21/2023	02/22/2023 13:36	Adam P Silver	02/23/2023 12:45	Simonne.V. Calhoun	2388708
	02/21/2023	02/22/2023 13:36	Adam P Silver	02/23/2023 14:03	Simonne.V. Calhoun	2388706
SM 2320 B-2011	02/21/2023			02/25/2023 09:08	Dale L. Simmons	2388699
	02/21/2023			02/25/2023 09:22	Dale L. Simmons	2388700
	02/21/2023			02/25/2023 09:35	Dale L. Simmons	2388701
	02/21/2023			02/25/2023 10:23	Dale L. Simmons	2388702
	02/21/2023			02/25/2023 10:36	Dale L. Simmons	2388703
SM 2540 C-2015	02/21/2023			02/24/2023 16:46	Yijie Li	2388699, 2388700, 2388701, 2388702, 2388703

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-2015	02/21/2023			02/24/2023 16:46	Yijie Li	2388699, 2388700, 2388701, 2388702, 2388703
SM 4500-F- C-2011	02/21/2023			02/25/2023 09:08	Dale L. Simmons	2388699
	02/21/2023			02/25/2023 09:22	Dale L. Simmons	2388700
	02/21/2023			02/25/2023 09:35	Dale L. Simmons	2388701
	02/21/2023			02/25/2023 10:23	Dale L. Simmons	2388702
	02/21/2023			02/25/2023 10:36	Dale L. Simmons	2388703
SM 5310 B-2011	02/21/2023			02/23/2023 02:10	Elise M. Gillis	2388704
	02/21/2023			02/23/2023 02:51	Elise M. Gillis	2388705
	02/21/2023			02/23/2023 03:05	Elise M. Gillis	2388706
	02/21/2023			02/23/2023 03:19	Elise M. Gillis	2388707
	02/21/2023			02/23/2023 03:33	Elise M. Gillis	2388708