Chemical Analysis Report

SE-DIST-2023-04-18-01

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

Event Description: **Highlands Canoe Run**
Request ID: **RQ-2023-04-10-30**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
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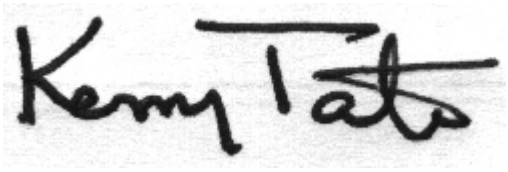
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 08-MAY-2023 11:16



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Lake Henry near Center **Collection Date/Time: 04/17/2023 10:40**

Field ID: G4SE0162 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2401008	DEP SOP: NU-094-1	Color (true)	13		PCU	P428631	
	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P428648	
	EPA 300.0 Rev. 2.1	Chloride	22	A	mg Cl/L	P428894	
		Sulfate	26	A	mg SO4/L	P428898	
	SM 2320 B-2011	Total Alkalinity	20		mg CaCO3/L	P428868	
	SM 2540 C-2015	TDS	115		mg/L	P429116	
	SM 2540 D-2015	TSS	6	I	mg/L	P428907	
	SM 4500-F- C-2011	Fluoride	0.064	I	mg F/L	P429109	MS
2401012	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P428830	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P428921	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429083	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P428738	
	SM 5310 B-2011	Organic Carbon	9.3		mg C/L	P428910	

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: Little Lake Jackson near Center **Collection Date/Time: 04/17/2023 12:40**

Field ID: G4SE0166 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2401009	DEP SOP: NU-094-1	Color (true)	19		PCU	P428631	
	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P428648	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P428894	
		Sulfate	14		mg SO4/L	P428898	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P428868	
	SM 2540 C-2015	TDS	82		mg/L	P429116	
	SM 2540 D-2015	TSS	2	I	mg/L	P428907	
	SM 4500-F- C-2011	Fluoride	0.080	I	mg F/L	P429109	MS
2401013	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P428830	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P429163	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429083	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P428738	
	SM 5310 B-2011	Organic Carbon	7.6		mg C/L	P428910	

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: Lake Denton near Center **Collection Date/Time: 04/17/2023 13:40**

Field ID: G4SE0158 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2401010	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P428631	
	EPA 180.1 Rev. 2.0	Turbidity	0.35	I	NTU	P428648	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P428894	
		Sulfate	45		mg SO4/L	P428898	
	SM 2320 B-2011	Total Alkalinity	34	A	mg CaCO3/L	P428868	
	SM 2540 C-2015	TDS	143		mg/L	P429116	
	SM 2540 D-2015	TSS	2	I	mg/L	P428907	
	SM 4500-F- C-2011	Fluoride	0.23		mg F/L	P429109	MS
2401014	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P428830	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P429163	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.6		mg N/L	P429245	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P428738	
	SM 5310 B-2011	Organic Carbon	2.0		mg C/L	P428910	

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: Huckleberry Lake near Center **Collection Date/Time: 04/17/2023 11:45**

Field ID: G4SE0160 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2401011	DEP SOP: NU-094-1	Color (true)	97		PCU	P428631	
	EPA 180.1 Rev. 2.0	Turbidity	3.4	A	NTU	P428649	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P428894	
		Sulfate	4.1		mg SO4/L	P428898	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P428868	
	SM 2540 C-2015	TDS	76		mg/L	P429116	
	SM 2540 D-2015	TSS	4	I	mg/L	P428907	
	SM 4500-F- C-2011	Fluoride	0.081	I	mg F/L	P429109	MS
2401015	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P428830	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P429163	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P429083	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P428738	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P428910	

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: P428631

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428648

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428649

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428894

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428898

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429163

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429083

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429245

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428738

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

Reference Method: SM 2320 B-2011
Batch ID: P428868

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

Reference Method: SM 2540 C-2015
Batch ID: P429116

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P428907

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P428910

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: P428631

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428648

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	99.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428649

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428894

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428898

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	104		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429083

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429245

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428738

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

Reference Method: SM 2320 B-2011
Batch ID: P428868

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.3		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P429116

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

Reference Method: SM 2540 D-2015
Batch ID: P428907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.9		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P428910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401008	Chloride	103		P	90 - 110
2401091	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401008	Sulfate	101		P	90 - 110
2401091	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401012	Ammonia-N	99.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401012	Kjeldahl Nitrogen	99.2	91.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401013	Kjeldahl Nitrogen	97.8	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401015	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402185	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401012	Total-P	103	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400967	Fluoride	105	106	F/F	94 - 104

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P428910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401014	Organic Carbon	96.2	96.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P428631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400865	Color (true)	6.34	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400707	Turbidity	2.53	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401011	Turbidity	1.17	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401008	Chloride	0.204	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401008	Sulfate	0.227	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401012	Ammonia-N	3.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401012	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401013	Kjeldahl Nitrogen	4.34	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401015	NO2NO3-N	0.473	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402185	NO2NO3-N	0.935	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401012	Total-P	1.13	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P428868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401010	Total Alkalinity	1.34	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P429116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400353	TDS	3.08	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400967	Fluoride	0.470	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P428910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401014	Organic Carbon	0.0	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: A118636
Included Lab Sample IDs: 2401008, 2401009, 2401010, 2401011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A118641
Included Lab Sample IDs: 2401008, 2401009, 2401010, 2401011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.3	99.1	P/P	90 - 110
Sulfate	99.5	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A118642
Included Lab Sample IDs: 2401008, 2401009, 2401010, 2401011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A118700
Included Lab Sample IDs: 2401015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A118712
Included Lab Sample IDs: 2401012, 2401013, 2401014, 2401015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.4	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A118721
Included Lab Sample IDs: 2401012, 2401013, 2401014

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A118726
Included Lab Sample IDs: 2401008, 2401009, 2401010, 2401011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.8	95.7	P/P	90 - 110
Total Alkalinity	94.1	93.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A118740
Included Lab Sample IDs: 2401012, 2401013, 2401014, 2401015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	99.8	P/P	90 - 110
Organic Carbon	98.6	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A118783
Included Lab Sample IDs: 2401012, 2401013, 2401015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A118789
Included Lab Sample IDs: 2401012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	106	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A118831
Included Lab Sample IDs: 2401008, 2401009, 2401010, 2401011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A118899
Included Lab Sample IDs: 2401014

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A118934
Included Lab Sample IDs: 2401013, 2401014, 2401015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	104	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)	101				6.34	
EPA 180.1 Rev. 2.0	Turbidity	99.2				2.53	
	Turbidity	99.5				1.17	
EPA 300.0 Rev. 2.1	Chloride	99.9	103	103		0.204	
	Sulfate	102	101	103		0.227	
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	99.2	103			3.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	99.2	91.5			4.75
	Kjeldahl Nitrogen	104	97.8	104			4.34
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.473
	NO2NO3-N	104	105	104			0.935
EPA 365.1 Rev. 2.0	Total-P	102	103	104			1.13
SM 2320 B-2011	Total Alkalinity	96.3				1.34	
SM 2540 C-2015	TDS	106				3.08	
SM 2540 D-2015	TSS	96.9					
SM 4500-F- C-2011	Fluoride	103	105	106			0.470
SM 5310 B-2011	Organic Carbon	96.1	96.2	96.2			0.0

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2401008, 2401009, 2401010, 2401011
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2401008, 2401009, 2401010, 2401011
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2401008, 2401009, 2401010, 2401011
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2401008, 2401009, 2401010, 2401011
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2401012, 2401013, 2401014, 2401015
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2401012, 2401013, 2401014, 2401015
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2401012, 2401013, 2401014, 2401015
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2401012, 2401013, 2401014, 2401015
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2401008, 2401009, 2401010, 2401011
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2401008, 2401009, 2401010, 2401011
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2401008, 2401009, 2401010, 2401011
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2401008, 2401009, 2401010, 2401011
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2401012, 2401013, 2401014, 2401015

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	04/18/2023			04/18/2023 14:26	Alexis Price	2401008
	04/18/2023			04/18/2023 14:27	Alexis Price	2401009
	04/18/2023			04/18/2023 14:28	Alexis Price	2401010
	04/18/2023			04/18/2023 14:29	Alexis Price	2401011
EPA 180.1 Rev. 2.0	04/18/2023			04/18/2023 13:23	Chandler E Cox	2401008
	04/18/2023			04/18/2023 13:24	Chandler E Cox	2401009
	04/18/2023			04/18/2023 13:25	Chandler E Cox	2401010
	04/18/2023			04/18/2023 13:31	Chandler E Cox	2401011
EPA 300.0 Rev. 2.1	04/18/2023			04/21/2023 12:05	James L Waggerby	2401008
	04/18/2023			04/21/2023 14:20	James L Waggerby	2401009
	04/18/2023			04/21/2023 14:35	James L Waggerby	2401010
	04/18/2023			04/21/2023 14:50	James L Waggerby	2401011
EPA 350.1 Rev. 2.0	04/18/2023			04/21/2023 13:31	Ping Hua	2401012
	04/18/2023			04/21/2023 13:43	Ping Hua	2401013
	04/18/2023			04/21/2023 13:44	Ping Hua	2401014
	04/18/2023			04/21/2023 13:46	Ping Hua	2401015
EPA 351.2 Rev. 2.0	04/18/2023	04/25/2023 12:18	Simonne.V. Calhoun	04/26/2023 12:52	Samantha L Bates	2401012
	04/18/2023	05/01/2023 12:40	Simonne.V. Calhoun	05/03/2023 10:43	Samantha L Bates	2401013
	04/18/2023	05/01/2023 12:40	Simonne.V. Calhoun	05/03/2023 10:48	Samantha L Bates	2401014
	04/18/2023	05/01/2023 12:40	Simonne.V. Calhoun	05/03/2023 10:53	Samantha L Bates	2401015
EPA 353.2 Rev. 2.0	04/18/2023			04/26/2023 09:50	Beverly Y. Sanders	2401015
	04/18/2023			04/26/2023 09:58	Beverly Y. Sanders	2401012
	04/18/2023			04/26/2023 10:00	Beverly Y. Sanders	2401013
	04/18/2023			05/02/2023 12:07	Beverly Y. Sanders	2401014
EPA 365.1 Rev. 2.0	04/18/2023	04/20/2023 13:15	Alexis Price	04/21/2023 09:57	James L Waggerby	2401015
	04/18/2023	04/20/2023 13:15	Alexis Price	04/22/2023 13:38	James L Waggerby	2401012
	04/18/2023	04/20/2023 13:15	Alexis Price	04/22/2023 13:39	James L Waggerby	2401013
	04/18/2023	04/20/2023 13:15	Alexis Price	04/22/2023 13:40	James L Waggerby	2401014
SM 2320 B-2011	04/18/2023			04/21/2023 23:57	Dale L. Simmons	2401010
	04/18/2023			04/22/2023 01:26	Dale L. Simmons	2401008
	04/18/2023			04/22/2023 01:36	Dale L. Simmons	2401009
	04/18/2023			04/22/2023 01:46	Dale L. Simmons	2401011
SM 2540 C-2015	04/18/2023			04/19/2023 15:28	Yijie Li	2401008, 2401009, 2401010, 2401011
SM 2540 D-2015	04/18/2023			04/19/2023 15:28	Yijie Li	2401008, 2401009, 2401010, 2401011
SM 4500-F- C-2011	04/18/2023			04/26/2023 18:17	Dale L. Simmons	2401008
	04/18/2023			04/26/2023 18:23	Dale L. Simmons	2401009
	04/18/2023			04/26/2023 18:28	Dale L. Simmons	2401010
	04/18/2023			04/26/2023 18:33	Dale L. Simmons	2401011
SM 5310 B-2011	04/18/2023			04/21/2023 17:43	Elise M. Gillis	2401014
	04/18/2023			04/21/2023 20:25	Elise M. Gillis	2401012

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	04/18/2023			04/21/2023 20:41	Elise M. Gillis	2401013
	04/18/2023			04/21/2023 20:58	Elise M. Gillis	2401015