

Chemical Analysis Report

NW-DIST-2023-12-12-02

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

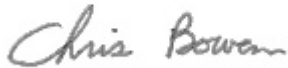
Event Description: **Highway 20 Run**
Request ID: **RQ-2023-12-04-43**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
Pensacola, FL 32502-5794
Attn: Myranda Butler

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Kerry Tate, Ph.D.
Marek Topolski, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Chris Bowen, Environmental Administrator

Date Certified: 04-JAN-2024 09:42



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: Lagrange Bayou Middle

Collection Date/Time: 12/11/2023 11:20

Field ID: G3NW0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2456175	DEP SOP: NU-094-1	Color (true)	36	A	PCU	P438851	
	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P438845	
	EPA 300.0 Rev. 2.1	Chloride	7.6E+03		mg Cl/L	P439333	
		Sulfate	1.1E+03		mg SO4/L	P439336	
	SM 2320 B-2011	Total Alkalinity	54		mg CaCO3/L	P438946	
	SM 2540 C-2015	TDS	1.32E+04		mg/L	P439354	
	SM 2540 D-2015	TSS	4	I	mg/L	P439298	
2456177	SM 4500-F- C-2011	Fluoride	0.51		mg F/L	P438949	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P439066	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P438856	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P439155	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P438866	
	SM 5310 B-2014	Organic Carbon	5.8		mg C/L	P438997	

Sample Location: Alaqua Bayou Center

Collection Date/Time: 12/11/2023 12:30

Field ID: G3NW0180

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2456176	DEP SOP: NU-094-1	Color (true)	24		PCU	P438851	
	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P438845	
	EPA 300.0 Rev. 2.1	Chloride	8.4E+03		mg Cl/L	P439333	
		Sulfate	1.2E+03		mg SO4/L	P439336	
	SM 2320 B-2011	Total Alkalinity	57		mg CaCO3/L	P438946	
	SM 2540 C-2015	TDS	1.45E+04		mg/L	P439354	
	SM 2540 D-2015	TSS	4	I	mg/L	P439298	
	SM 4500-F- C-2011	Fluoride	0.56		mg F/L	P438949	
2456178	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P439066	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P438856	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P439155	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P438866	
	SM 5310 B-2014	Organic Carbon	4.6		mg C/L	P439360	

Sample Location: FB

Collection Date/Time: 12/11/2023 11:30

Field ID: FB_12112023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2456179	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P438851	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P438845	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P439333	
		Sulfate	0.20	U	mg SO4/L	P439336	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P439118	
	SM 2540 C-2015	TDS	15	U	mg/L	P439353	
	SM 2540 D-2015	TSS	2	U	mg/L	P439295	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P439121	
2456180	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P438989	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P438961	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P439164	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P438970	
	SM 5310 B-2014	Organic Carbon	0.50	U	mg C/L	P439102	

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: P438851

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438845

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439333

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439336

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438989

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P439066

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438961

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439155

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: P439164

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438866

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438970

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

Reference Method: SM 2320 B-2011
Batch ID: P438946

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

Reference Method: SM 2320 B-2011
Batch ID: P439118

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

Reference Method: SM 2540 C-2015
Batch ID: P439353

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2015
Batch ID: P439354

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P439295

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P439298

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P439121

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P438997

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

Reference Method: SM 5310 B-2014
Batch ID: P439102

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

Reference Method: SM 5310 B-2014
Batch ID: P439360

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: P438851

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: P438845

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439333

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439336

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438989

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P439066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	105		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438961

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439155

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438866

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438970

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

Reference Method: SM 2320 B-2011
Batch ID: P438946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	92 - 105

Reference Method: SM 2320 B-2011
Batch ID: P439118

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.8		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P439353

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	98.0		P	85 - 115

Reference Method: SM 2540 C-2015
Batch ID: P439354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	93.6		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P439295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.0		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P439298

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.8		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P439121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P438997

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-2014
Batch ID: P439102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Reference Method: SM 5310 B-2014
Batch ID: P439360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456168	Chloride	101		P	90 - 110
2456233	Chloride	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456168	Sulfate	97.3		P	90 - 110
2456233	Sulfate	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456171	Ammonia-N	95.0	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P439066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456147	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456177	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456172	Kjeldahl Nitrogen	99.5	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456149	NO2NO3-N	98.9	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456055	NO2NO3-N	96.4	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456144	Total-P	95.7	95.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456255	Total-P	110	105	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456083	Fluoride	102	103	P/P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P439121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456018	Fluoride	102	101	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P438997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456177	Organic Carbon	90.2	91.6	P/P	85 - 115

Reference Method: SM 5310 B-2014
Batch ID: P439102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456505	Organic Carbon	101	101	P/P	85 - 115

Reference Method: SM 5310 B-2014
Batch ID: P439360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2456178	Organic Carbon	89.8	89.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P438851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456175	Color (true)	2.05	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456083	Turbidity	2.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456168	Chloride	0.172	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P439336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456168	Sulfate	0.226	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456171	Ammonia-N	1.76	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P439066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456147	Ammonia-N	1.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456177	Kjeldahl Nitrogen	2.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456172	Kjeldahl Nitrogen	0.146	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456149	NO2NO3-N	1.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P439164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456055	NO2NO3-N	0.722	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456144	Total-P	0.603	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456255	Total-P	3.49	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P438946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456083	Total Alkalinity	0.100	Sample	P	0 - 3.9

Reference Method: SM 2320 B-2011
Batch ID: P439118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456018	Total Alkalinity	0.763	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P439353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456018	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 2540 C-2015
Batch ID: P439354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456639	TDS	1.82	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-2015
Batch ID: P439298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456283	TSS	4.00	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P438949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456083	Fluoride	1.00	Spike	P	0 - 1.9

Reference Method: SM 4500-F- C-2011
Batch ID: P439121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456018	Fluoride	0.516	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P438997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456177	Organic Carbon	1.38	Spike	P	0 - 15

Reference Method: SM 5310 B-2014
Batch ID: P439102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456505	Organic Carbon	0.0213	Spike	P	0 - 15

Reference Method: SM 5310 B-2014
Batch ID: P439360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2456178	Organic Carbon	0.297	Spike	P	0 - 15

* 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: A123164

Included Lab Sample IDs: 2456175, 2456176, 2456179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A123166

Included Lab Sample IDs: 2456175, 2456176, 2456179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A123209

Included Lab Sample IDs: 2456175, 2456176

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.0	95.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A123209

Included Lab Sample IDs: 2456175, 2456176

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123222

Included Lab Sample IDs: 2456177, 2456178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	107	P/P	90 - 110
Kjeldahl Nitrogen	98.4	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A123230

Included Lab Sample IDs: 2456180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123232

Included Lab Sample IDs: 2456177, 2456178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	98.2	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A123234

Included Lab Sample IDs: 2456177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	120	95.6	P/P	70 - 130

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A123237

Included Lab Sample IDs: 2456177, 2456178

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123262

Included Lab Sample IDs: 2456180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123263

Included Lab Sample IDs: 2456180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.0	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A123264

Included Lab Sample IDs: 2456177, 2456178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	99.7	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A123280

Included Lab Sample IDs: 2456180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	123	96.2	P/P	70 - 130

Reference Method: SM 2320 B-2011

Run ID: A123283

Included Lab Sample IDs: 2456179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	95.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A123283

Included Lab Sample IDs: 2456179

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A123302

Included Lab Sample IDs: 2456180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A123338

Included Lab Sample IDs: 2456175, 2456176, 2456179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	99.2	P/P	90 - 110
Sulfate	99.3	100	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A123379

Included Lab Sample IDs: 2456178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	120	96.8	P/P	70 - 130

* 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)	101			2.05	
EPA 180.1 Rev. 2.0	Turbidity	103			2.91	
EPA 300.0 Rev. 2.1	Chloride	102	101	96.5	0.172	
	Sulfate	101	97.3	95.5	0.226	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	95.0	97.2		1.76
	Ammonia-N	94.4	102	100		1.84
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	107	105		2.00
	Kjeldahl Nitrogen	98.3	99.5	99.7		0.146
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.9	100		1.44
	NO2NO3-N	99.0	96.4	97.4		0.722
EPA 365.1 Rev. 2.0	Total-P	101	95.7	95.1		0.603
	Total-P	106	110	105		3.49
SM 2320 B-2011	Total Alkalinity	97.4			0.100	
	Total Alkalinity	95.8			0.763	
SM 2540 C-2015	TDS	98.0			0.0	
	TDS	93.6			1.82	
SM 2540 D-2015	TSS	96.0				
	TSS	96.8			4.00	
SM 4500-F- C-2011	Fluoride	103	102	103		1.00
	Fluoride	102	102	101		0.516
SM 5310 B-2014	Organic Carbon	96.6	90.2	91.6		1.38
	Organic Carbon	99.3	101	101		0.0213
	Organic Carbon	95.8	89.8	89.5		0.297

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2456175, 2456176, 2456179
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2456175, 2456176, 2456179
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2456175, 2456176, 2456179
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2456175, 2456176, 2456179
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2456177, 2456178, 2456180
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2456177, 2456178, 2456180
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2456177, 2456178, 2456180
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2456177, 2456178, 2456180
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2456175, 2456176, 2456179
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2456175, 2456176, 2456179
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2456175, 2456176, 2456179
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2456175, 2456176, 2456179
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2456177, 2456178, 2456180

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	12/12/2023			12/12/2023 14:13	Samantha L Bates	2456175
	12/12/2023			12/12/2023 14:14	Samantha L Bates	2456176, 2456179
	12/12/2023			12/12/2023 14:24	Chandler E Cox	2456175
EPA 180.1 Rev. 2.0	12/12/2023			12/12/2023 14:25	Chandler E Cox	2456176
	12/12/2023			12/12/2023 14:32	Chandler E Cox	2456179
	12/12/2023			12/20/2023 21:31	James L Waggeberby	2456175
EPA 300.0 Rev. 2.1	12/12/2023			12/20/2023 21:46	James L Waggeberby	2456176
	12/12/2023			12/20/2023 22:01	James L Waggeberby	2456179
	12/12/2023			12/14/2023 12:59	Khloe J Berg	2456180
EPA 350.1 Rev. 2.0	12/12/2023			12/15/2023 14:31	Ping Hua	2456177
	12/12/2023			12/15/2023 14:33	Ping Hua	2456178
	12/12/2023			12/14/2023 11:34	Samantha L Bates	2456177
EPA 351.2 Rev. 2.0	12/12/2023	12/13/2023 09:31	Samantha L Bates	12/14/2023 11:42	Samantha L Bates	2456178
	12/12/2023	12/13/2023 09:31	Samantha L Bates	12/15/2023 14:18	Samantha L Bates	2456180
	12/12/2023	12/14/2023 15:30	Simonne.V. Calhoun	12/14/2023 14:22	Fadila Guebre	2456177
EPA 353.2 Rev. 2.0	12/12/2023			12/14/2023 14:24	Fadila Guebre	2456178
	12/12/2023			12/18/2023 12:30	Anna M. Plaviak	2456180
	12/12/2023			12/14/2023 14:06	James L Waggeberby	2456177
EPA 365.1 Rev. 2.0	12/12/2023	12/13/2023 13:13	Adam P Silver	12/14/2023 14:07	James L Waggeberby	2456178
	12/12/2023	12/13/2023 13:13	Adam P Silver	12/15/2023 14:14	James L Waggeberby	2456180
	12/12/2023	12/14/2023 11:55	Adam P Silver	12/13/2023 23:52	Chandler E Cox	2456175
SM 2320 B-2011	12/12/2023			12/14/2023 00:05	Chandler E Cox	2456176
	12/12/2023			12/16/2023 02:25	Chandler E Cox	2456179
	12/12/2023			12/15/2023 15:49	Yijie Li	2456175, 2456176, 2456179
SM 2540 C-2015	12/12/2023			12/15/2023 15:49	Yijie Li	2456175, 2456176, 2456179
SM 2540 D-2015	12/12/2023			12/13/2023 22:18	Chandler E Cox	2456175
	12/12/2023			12/13/2023 22:22	Chandler E Cox	2456176
	12/12/2023			12/16/2023 02:25	Chandler E Cox	2456179
SM 4500-F- C-2011	12/12/2023			12/14/2023 10:41	Kenneth H Lee	2456177
	12/12/2023			12/16/2023 12:34	Kenneth H Lee	2456180
	12/12/2023			12/20/2023 17:21	Kenneth H Lee	2456178