

Chemical Analysis Report

NW-DIST-2023-05-17-04

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

Event Description: **Hogtown Bayou Run**
Request ID: **RQ-2023-05-15-39**
Customer: **NW-DIST**
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 08-JUN-2023 10:55

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

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 ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410374	DEP SOP: NU-094-1	Color (true)	9.1		PCU	P430000	
	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P430009	
	EPA 300.0 Rev. 2.1	Chloride	1.0E+04		mg Cl/L	P430366	
		Sulfate	1.5E+03		mg SO4/L	P430369	
	SM 2320 B-2011	Total Alkalinity	75		mg CaCO3/L	P430440	
	SM 2540 C-2015	TDS	1.97E+04		mg/L	P430683	
	SM 2540 D-2015	TSS	3	I	mg/L	P430522	RPD
	SM 4500-F- C-2011	Fluoride	0.71		mg F/L	P430444	MS
2410379	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P430337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P430179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P430295	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P430094	
	SM 5310 B-2011	Organic Carbon	3.8	I	mg C/L	P430100	

Sample Location: BUCK BAYOU CENTER

Collection Date/Time: 05/16/2023 11:00

Field ID: G3NW0233

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410375	DEP SOP: NU-094-1	Color (true)	6.5	A	PCU	P430001	
	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P430009	
	EPA 300.0 Rev. 2.1	Chloride	1.1E+04		mg Cl/L	P430366	
		Sulfate	1.5E+03		mg SO4/L	P430369	
	SM 2320 B-2011	Total Alkalinity	79		mg CaCO3/L	P430440	
	SM 2540 C-2015	TDS	1.89E+04		mg/L	P430683	
	SM 2540 D-2015	TSS	3	U	mg/L	P430522	RPD
	SM 4500-F- C-2011	Fluoride	0.74		mg F/L	P430444	MS
2410380	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P430337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P430179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P430295	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P430094	
	SM 5310 B-2011	Organic Carbon	3.4	I	mg C/L	P430100	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: HOGTOWN BAYOU AT CESSNA PARK

Collection Date/Time: 05/16/2023 12:15

Field ID: G3NW0152

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410376	DEP SOP: NU-094-1	Color (true)	7.5		PCU	P430001	
	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P430009	
	EPA 300.0 Rev. 2.1	Chloride	1.1E+04		mg Cl/L	P430366	
		Sulfate	1.5E+03		mg SO4/L	P430369	
	SM 2320 B-2011	Total Alkalinity	79		mg CaCO3/L	P430440	
	SM 2540 C-2015	TDS	1.87E+04	J	mg/L	P430683	
	SM 2540 D-2015	TSS	6	I	mg/L	P430522	RPD
	SM 4500-F- C-2011	Fluoride	0.77		mg F/L	P430444	MS
2410381	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P430337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P430179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P430295	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P430094	
	SM 5310 B-2011	Organic Carbon	3.7	I	mg C/L	P430100	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 C-2015: Constant dry weight was not attained.

Sample Location: CHURCHILL BAYOU CENTER

Collection Date/Time: 05/16/2023 12:00

Field ID: G3NW0235

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410377	DEP SOP: NU-094-1	Color (true)	14		PCU	P430001	
	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P430009	
	EPA 300.0 Rev. 2.1	Chloride	1.1E+04		mg Cl/L	P430366	
		Sulfate	1.5E+03		mg SO4/L	P430369	
	SM 2320 B-2011	Total Alkalinity	78		mg CaCO3/L	P430440	
	SM 2540 C-2015	TDS	1.89E+04		mg/L	P430683	
	SM 2540 D-2015	TSS	6	I	mg/L	P430522	RPD
	SM 4500-F- C-2011	Fluoride	0.75		mg F/L	P430444	MS
2410382	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P430337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P430179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P430295	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P430094	
	SM 5310 B-2011	Organic Carbon	4.3		mg C/L	P430100	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: MUSSETT BAYOU CENTER

Collection Date/Time: 05/16/2023 11:50

Field ID: G3NW0234

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410378	DEP SOP: NU-094-1	Color (true)	8.0		PCU	P430001	
	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P430009	
	EPA 300.0 Rev. 2.1	Chloride	1.0E+04		mg Cl/L	P430366	
		Sulfate	1.5E+03		mg SO4/L	P430369	
	SM 2320 B-2011	Total Alkalinity	79		mg CaCO3/L	P430440	
	SM 2540 C-2015	TDS	1.92E+04		mg/L	P430683	
	SM 2540 D-2015	TSS	11	AJ	mg/L	P430522	RPD
	SM 4500-F- C-2011	Fluoride	0.73		mg F/L	P430444	MS
2410383	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P430337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P430179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P430295	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P430094	
	SM 5310 B-2011	Organic Carbon	3.8	I	mg C/L	P430100	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P430000

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P430001

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P430009

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430366

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430369

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430337

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430179

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430295

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430094

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P430440

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

Reference Method: SM 2540 C-2015
Batch ID: P430683

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P430522

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P430444

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P430100

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: P430000

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.1		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P430001

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	94.2		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P430009

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430366

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430337

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430179

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430094

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P430440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.8		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P430683

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

Reference Method: SM 2540 D-2015
Batch ID: P430522

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	92.7		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P430444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	104		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P430100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410233	Chloride	100		P	90 - 110
2410416	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410233	Sulfate	96.7		P	90 - 110
2410416	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410310	Ammonia-N	99.6	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410310	Kjeldahl Nitrogen	105	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410379	NO2NO3-N	97.1	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430094

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410310	Total-P	96.6	94.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P430444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408857	Fluoride	108	108	F/F	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P430100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410138	Organic Carbon	94.2	93.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P430000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2409990	Color (true)	6.03	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P430009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2409974	Turbidity	1.71	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410233	Chloride	2.02	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P430369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410233	Sulfate	1.75	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410310	Ammonia-N	0.822	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410310	Kjeldahl Nitrogen	3.59	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410379	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410310	Total-P	2.68	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P430440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410185	Total Alkalinity	0.321	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P430683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410643	TDS	3.55	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P430522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410378	TSS	11.3	Sample	F	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P430444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2408857	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P430100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410138	Organic Carbon	0.956	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: A119229

Included Lab Sample IDs: 2410374, 2410375, 2410376, 2410377, 2410378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.0	97.2	P/P	90 - 110
Color (true)	97.2	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A119231

Included Lab Sample IDs: 2410374, 2410375, 2410376, 2410377, 2410378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.5	98.0	P/P	95 - 105

Reference Method: SM 5310 B-2011

Run ID: A119268

Included Lab Sample IDs: 2410379, 2410380, 2410381, 2410382, 2410383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.2	97.8	P/P	90 - 110
Organic Carbon	97.8	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A119340

Included Lab Sample IDs: 2410379, 2410380, 2410381, 2410382, 2410383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.8	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A119351

Included Lab Sample IDs: 2410374, 2410375, 2410376, 2410377, 2410378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.7	99.4	P/P	90 - 110
Chloride	99.4	99.3	P/P	90 - 110
Sulfate	96.3	97.7	P/P	90 - 110
Sulfate	97.7	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A119353

Included Lab Sample IDs: 2410379, 2410380, 2410381, 2410382, 2410383

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119364

Included Lab Sample IDs: 2410379, 2410380, 2410381, 2410382, 2410383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A119381

Included Lab Sample IDs: 2410379, 2410380, 2410381, 2410382, 2410383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A119421

Included Lab Sample IDs: 2410374, 2410375, 2410376, 2410377, 2410378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.3	98.9	P/P	90 - 110
Total Alkalinity	98.7	94.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A119421

Included Lab Sample IDs: 2410374, 2410375, 2410376, 2410377, 2410378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	109	107	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)	95.1				6.03	
	Color (true)	94.2					
EPA 180.1 Rev. 2.0	Turbidity	97.2				1.71	
EPA 300.0 Rev. 2.1	Chloride	98.9	100	101		2.02	
	Sulfate	97.1	96.7	98.5		1.75	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	99.6	98.6			0.822
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	105	101			3.59
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	97.1	97.1			0.0
EPA 365.1 Rev. 2.0	Total-P	98.8	96.6	94.0			2.68
SM 2320 B-2011	Total Alkalinity	99.8				0.321	
SM 2540 C-2015	TDS	103				3.55	
SM 2540 D-2015	TSS	92.7				11.3	
SM 4500-F- C-2011	Fluoride	104	108	108			0.0
SM 5310 B-2011	Organic Carbon	98.2	94.2	93.1			0.956

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2410374, 2410375, 2410376, 2410377, 2410378
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2410374, 2410375, 2410376, 2410377, 2410378
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2410374, 2410375, 2410376, 2410377, 2410378
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2410374, 2410375, 2410376, 2410377, 2410378
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2410379, 2410380, 2410381, 2410382, 2410383
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2410379, 2410380, 2410381, 2410382, 2410383
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2410379, 2410380, 2410381, 2410382, 2410383
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2410379, 2410380, 2410381, 2410382, 2410383
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2410374, 2410375, 2410376, 2410377, 2410378
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2410374, 2410375, 2410376, 2410377, 2410378
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2410374, 2410375, 2410376, 2410377, 2410378
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2410374, 2410375, 2410376, 2410377, 2410378
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2410379, 2410380, 2410381, 2410382, 2410383

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	05/17/2023			05/17/2023 14:34	Anna M. Plaviak	2410374
	05/17/2023			05/17/2023 14:39	Anna M. Plaviak	2410375
	05/17/2023			05/17/2023 14:40	Anna M. Plaviak	2410376, 2410377
	05/17/2023			05/17/2023 14:41	Anna M. Plaviak	2410378
EPA 180.1 Rev. 2.0	05/17/2023			05/17/2023 14:06	Khloe J Berg	2410374
	05/17/2023			05/17/2023 14:07	Khloe J Berg	2410375
	05/17/2023			05/17/2023 14:08	Khloe J Berg	2410376
	05/17/2023			05/17/2023 14:09	Khloe J Berg	2410377
EPA 300.0 Rev. 2.1	05/17/2023			05/17/2023 14:10	Khloe J Berg	2410378
	05/17/2023			05/24/2023 13:54	James L Waggeberby	2410374
	05/17/2023			05/24/2023 14:09	James L Waggeberby	2410375
	05/17/2023			05/24/2023 14:24	James L Waggeberby	2410376
EPA 350.1 Rev. 2.0	05/17/2023			05/24/2023 15:09	James L Waggeberby	2410377
	05/17/2023			05/24/2023 15:24	James L Waggeberby	2410378
	05/17/2023			05/24/2023 13:01	Khloe J Berg	2410379
	05/17/2023			05/24/2023 13:02	Khloe J Berg	2410380
EPA 351.2 Rev. 2.0	05/17/2023			05/24/2023 13:04	Khloe J Berg	2410381
	05/17/2023			05/24/2023 13:05	Khloe J Berg	2410382
	05/17/2023			05/24/2023 13:06	Khloe J Berg	2410383
	05/17/2023	05/22/2023 11:09	Dana G. Hughes	05/23/2023 14:47	Samantha L Bates	2410379
EPA 353.2 Rev. 2.0	05/17/2023	05/22/2023 11:09	Dana G. Hughes	05/23/2023 14:48	Samantha L Bates	2410380
	05/17/2023	05/22/2023 11:09	Dana G. Hughes	05/23/2023 14:50	Samantha L Bates	2410381
	05/17/2023	05/22/2023 11:09	Dana G. Hughes	05/23/2023 14:52	Samantha L Bates	2410382
	05/17/2023	05/22/2023 11:09	Dana G. Hughes	05/23/2023 14:53	Samantha L Bates	2410383
EPA 365.1 Rev. 2.0	05/17/2023			05/24/2023 09:29	Beverly Y. Sanders	2410379
	05/17/2023			05/24/2023 09:35	Beverly Y. Sanders	2410380
	05/17/2023			05/24/2023 09:36	Beverly Y. Sanders	2410381
	05/17/2023			05/24/2023 09:37	Beverly Y. Sanders	2410382
SM 2320 B-2011	05/17/2023			05/24/2023 09:38	Beverly Y. Sanders	2410383
	05/17/2023	05/19/2023 11:40	Adam P Silver	05/23/2023 10:23	James L Waggeberby	2410379
	05/17/2023	05/19/2023 11:40	Adam P Silver	05/23/2023 10:24	James L Waggeberby	2410380
	05/17/2023	05/19/2023 11:40	Adam P Silver	05/23/2023 10:25	James L Waggeberby	2410381
	05/17/2023	05/19/2023 11:40	Adam P Silver	05/23/2023 10:26	James L Waggeberby	2410382
	05/17/2023	05/19/2023 11:40	Adam P Silver	05/23/2023 10:27	James L Waggeberby	2410383
	05/17/2023			05/25/2023 10:17	Dale L. Simmons	2410374
	05/17/2023			05/25/2023 11:16	Dale L. Simmons	2410375
	05/17/2023			05/25/2023 11:29	Dale L. Simmons	2410376
	05/17/2023			05/25/2023 11:43	Dale L. Simmons	2410377
	05/17/2023			05/25/2023 11:56	Dale L. Simmons	2410378

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2015	05/17/2023			05/19/2023 16:01	Yijie Li	2410374, 2410375, 2410376, 2410377, 2410378
SM 2540 D-2015	05/17/2023			05/19/2023 16:01	Yijie Li	2410374, 2410375, 2410376, 2410377, 2410378
SM 4500-F- C-2011	05/17/2023			05/25/2023 07:16	Dale L. Simmons	2410374
	05/17/2023			05/25/2023 07:22	Dale L. Simmons	2410375
	05/17/2023			05/25/2023 07:27	Dale L. Simmons	2410376
	05/17/2023			05/25/2023 07:32	Dale L. Simmons	2410377
	05/17/2023			05/25/2023 07:38	Dale L. Simmons	2410378
SM 5310 B-2011	05/17/2023			05/19/2023 04:15	Elise M. Gillis	2410379
	05/17/2023			05/19/2023 04:28	Elise M. Gillis	2410380
	05/17/2023			05/19/2023 04:45	Elise M. Gillis	2410381
	05/17/2023			05/19/2023 05:41	Elise M. Gillis	2410382
	05/17/2023			05/19/2023 05:56	Elise M. Gillis	2410383