

Chemical Analysis Report

NW-DIST-2023-06-30-01

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

Event Description: **Lake Powell Continuous Monitoring Recovery**
Request ID: **RQ-2023-06-26-16**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 20-JUL-2023 09:40

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 Location: Lake Powell Drain East Arm

Collection Date/Time: 06/28/2023 11:50

Field ID: G3NW0009

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2421103	DEP SOP: NU-094-1	Color (true)	49	Q	PCU	P432008	
	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P432005	
	EPA 300.0 Rev. 2.1	Chloride	7.2E+03		mg Cl/L	P432087	
		Sulfate	1.1E+03		mg SO4/L	P432090	
	SM 2320 B-2011	Total Alkalinity	49		mg CaCO3/L	P432221	
	SM 2540 C-2015	TDS	1.31E+04		mg/L	P432262	
	SM 2540 D-2015	TSS	3	U	mg/L	P432167	
	SM 4500-F- C-2011	Fluoride	0.47	I	mg F/L	P432225	
2421105	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P432419	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P431978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P432177	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P432068	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P432216	

Ref. Method and Comment:

DEP SOP: NU-094-1: The sample expired upon receipt.

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

Sample Location: Powell Lake Center N of Cain Rd Area

Collection Date/Time: 06/28/2023 12:25

Field ID: G3NW0012

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2421104	DEP SOP: NU-094-1	Color (true)	20	Q	PCU	P432008	
	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P432005	
	EPA 300.0 Rev. 2.1	Chloride	1.1E+04		mg Cl/L	P432087	
		Sulfate	1.6E+03		mg SO4/L	P432090	
	SM 2320 B-2011	Total Alkalinity	71		mg CaCO3/L	P432221	
	SM 2540 C-2015	TDS	1.90E+04		mg/L	P432262	
	SM 2540 D-2015	TSS	3	U	mg/L	P432167	
	SM 4500-F- C-2011	Fluoride	0.74		mg F/L	P432225	
2421106	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P432419	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P431978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P432177	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P432068	
	SM 5310 B-2011	Organic Carbon	2.4		mg C/L	P432216	

Ref. Method and Comment:

DEP SOP: NU-094-1: The sample expired upon receipt.

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

Sample Location: Tucker Bayou E Choctawhatchee Bay

Collection Date/Time: 06/28/2023 13:30

Field ID: G3NW0010

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2421107	DEP SOP: NU-094-1	Color (true)	76	AQ	PCU	P432008	
	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P432005	
	EPA 300.0 Rev. 2.1	Chloride	350		mg Cl/L	P432087	
		Sulfate	50		mg SO4/L	P432090	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P432220	
	SM 2540 C-2015	TDS	666		mg/L	P432262	
	SM 2540 D-2015	TSS	9	I	mg/L	P432166	
	SM 4500-F- C-2011	Fluoride	0.080	I	mg F/L	P432224	
2421108	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P432244	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P432142	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P432623	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P432188	
	SM 5310 B-2011	Organic Carbon	7.5		mg C/L	P432157	

Ref. Method and Comment:

DEP SOP: NU-094-1: The sample expired upon receipt.

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: P432008

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432005

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P432087

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P432090

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432244

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432419

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432142

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432177

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: P432623

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432068

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432188

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

Reference Method: SM 2320 B-2011
Batch ID: P432220

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

Reference Method: SM 2320 B-2011
Batch ID: P432221

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

Reference Method: SM 2540 C-2015
Batch ID: P432262

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P432166

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P432167

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P432224

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P432225

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P432157

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

Reference Method: SM 5310 B-2011
Batch ID: P432216

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: P432008

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: P432005

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P432087

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P432090

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432419

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432142

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432177

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432623

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432068

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432188

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

Reference Method: SM 2320 B-2011
Batch ID: P432220

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.4		P	92 - 105

Reference Method: SM 2320 B-2011
Batch ID: P432221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.7		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P432262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	96.3		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P432166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.9		P	85 - 106

Reference Method: SM 2540 D-2015
Batch ID: P432167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	92.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P432224

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P432225

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

Reference Method: SM 5310 B-2011
Batch ID: P432157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P432216

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: P432087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2420983	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P432090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2420983	Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421081	Ammonia-N	94.6	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421105	Ammonia-N	99.6	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2420960	Kjeldahl Nitrogen	108	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421081	Kjeldahl Nitrogen	106	111	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421077	NO2NO3-N	97.8	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2423893	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2420784	Total-P	95.4	95.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421282	Total-P	102	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P432224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421625	Fluoride	100	100	P/P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P432225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2420134	Fluoride	101	102	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P432157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421081	Organic Carbon	93.8	95.3	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P432216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2421077	Organic Carbon	86.6	89.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P432008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421107	Color (true)	0.499	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421076	Turbidity	0.969	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P432087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2420983	Chloride	0.349	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P432090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2420983	Sulfate	0.530	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421081	Ammonia-N	2.30	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421105	Ammonia-N	0.666	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2420960	Kjeldahl Nitrogen	0.580	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421081	Kjeldahl Nitrogen	3.88	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421077	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2423893	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2420784	Total-P	0.549	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421282	Total-P	0.830	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P432220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421625	Total Alkalinity	1.33	Sample	P	0 - 3.9

Reference Method: SM 2320 B-2011
Batch ID: P432221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2420134	Total Alkalinity	0.942	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P432262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2420354	TDS	0.702	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P432224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421625	Fluoride	0.0	Spike	P	0 - 1.9

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P432225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2420134	Fluoride	0.480	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P432157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421081	Organic Carbon	1.25	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P432216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2421077	Organic Carbon	2.55	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A120130

Included Lab Sample IDs: 2421103, 2421104, 2421107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A120131

Included Lab Sample IDs: 2421103, 2421104, 2421107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120167

Included Lab Sample IDs: 2421105, 2421106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	108	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A120184

Included Lab Sample IDs: 2421103, 2421104, 2421107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	108	108	P/P	90 - 110
Sulfate	105	106	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A120215

Included Lab Sample IDs: 2421108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120223

Included Lab Sample IDs: 2421105, 2421106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110
Total-P	98.8	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120228

Included Lab Sample IDs: 2421105, 2421106

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A120247

Included Lab Sample IDs: 2421103, 2421104, 2421107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.0	92.7	P/P	90 - 110
Total Alkalinity	97.2	93.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A120247

Included Lab Sample IDs: 2421103, 2421104, 2421107

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

Reference Method: SM 5310 B-2011

Run ID: A120252

Included Lab Sample IDs: 2421105, 2421106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.2	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120254

Included Lab Sample IDs: 2421108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120263

Included Lab Sample IDs: 2421108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120290

Included Lab Sample IDs: 2421108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120349

Included Lab Sample IDs: 2421105, 2421106

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120452

Included Lab Sample IDs: 2421108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report

Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120452

Included Lab Sample IDs: 2421108

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
DEP SOP: NU-094-1	Color (true)	101			0.499	
EPA 180.1 Rev. 2.0	Turbidity	100			0.969	
EPA 300.0 Rev. 2.1	Chloride	101	99.7		0.349	
	Sulfate	97.5	97.5		0.530	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	94.6	97.0		2.30
	Ammonia-N	97.4	99.6	98.8		0.666
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	108	108		0.580
	Kjeldahl Nitrogen	107	106	111		3.88
EPA 353.2 Rev. 2.0	NO2NO3-N	106	97.8	96.8		1.03
	NO2NO3-N	100	99.0	99.0		0.0
EPA 365.1 Rev. 2.0	Total-P	96.6	95.4	95.9		0.549
	Total-P	101	102	101		0.830
SM 2320 B-2011	Total Alkalinity	96.4			1.33	
	Total Alkalinity	96.7			0.942	
SM 2540 C-2015	TDS	96.3			0.702	
SM 2540 D-2015	TSS	94.9				
	TSS	92.3				
SM 4500-F- C-2011	Fluoride	99.2	100	100		0.0
	Fluoride	101	101	102		0.480
SM 5310 B-2011	Organic Carbon	96.5	93.8	95.3		1.25
	Organic Carbon	95.8	86.6	89.9		2.55

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2421103, 2421104, 2421107
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2421103, 2421104, 2421107
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2421103, 2421104, 2421107
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2421103, 2421104, 2421107
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2421105, 2421106, 2421108
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2421105, 2421106, 2421108
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2421105, 2421106, 2421108
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2421105, 2421106, 2421108
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2421103, 2421104, 2421107
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2421103, 2421104, 2421107
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2421103, 2421104, 2421107
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2421103, 2421104, 2421107
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2421105, 2421106, 2421108

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	06/30/2023			06/30/2023 13:56	Samantha L Bates	2421103
	06/30/2023			06/30/2023 13:57	Samantha L Bates	2421104
	06/30/2023			06/30/2023 13:58	Samantha L Bates	2421107
EPA 180.1 Rev. 2.0	06/30/2023			06/30/2023 11:48	Chandler E Cox	2421103
	06/30/2023			06/30/2023 11:49	Chandler E Cox	2421104
	06/30/2023			06/30/2023 12:05	Chandler E Cox	2421107
EPA 300.0 Rev. 2.1	06/30/2023			07/06/2023 10:43	James L Waggeberby	2421103
	06/30/2023			07/06/2023 10:58	James L Waggeberby	2421104
	06/30/2023			07/06/2023 11:13	James L Waggeberby	2421107
EPA 350.1 Rev. 2.0	06/30/2023			07/10/2023 11:47	Khloe J Berg	2421108
	06/30/2023			07/13/2023 10:45	Khloe J Berg	2421105
	06/30/2023			07/13/2023 10:49	Khloe J Berg	2421106
EPA 351.2 Rev. 2.0	06/30/2023	06/30/2023 13:45	Simonne.V. Calhoun	07/05/2023 15:33	Samantha L Bates	2421105
	06/30/2023	06/30/2023 13:45	Simonne.V. Calhoun	07/05/2023 15:35	Samantha L Bates	2421106
	06/30/2023	07/07/2023 11:48	Simonne.V. Calhoun	07/10/2023 09:24	Samantha L Bates	2421108
EPA 353.2 Rev. 2.0	06/30/2023			07/07/2023 13:45	Judith K. Clark	2421105
	06/30/2023			07/07/2023 13:46	Judith K. Clark	2421106
	06/30/2023			07/18/2023 10:05	Beverly Y. Sanders	2421108
EPA 365.1 Rev. 2.0	06/30/2023	07/06/2023 15:43	Alexis Price	07/07/2023 11:11	Chandler E Cox	2421105
	06/30/2023	07/06/2023 15:43	Alexis Price	07/07/2023 11:19	Chandler E Cox	2421106
	06/30/2023	07/07/2023 16:02	Adam P Silver	07/11/2023 13:12	Simonne.V. Calhoun	2421108
SM 2320 B-2011	06/30/2023			07/08/2023 06:16	Dale L. Simmons	2421107
	06/30/2023			07/08/2023 11:53	Dale L. Simmons	2421103
	06/30/2023			07/08/2023 12:07	Dale L. Simmons	2421104
SM 2540 C-2015	06/30/2023			06/30/2023 14:35	Dana G. Hughes	2421103, 2421104, 2421107
SM 2540 D-2015	06/30/2023			06/30/2023 14:35	Dana G. Hughes	2421103, 2421104, 2421107
SM 4500-F- C-2011	06/30/2023			07/08/2023 06:16	Dale L. Simmons	2421107
	06/30/2023			07/08/2023 08:53	Dale L. Simmons	2421103
	06/30/2023			07/08/2023 08:59	Dale L. Simmons	2421104
SM 5310 B-2011	06/30/2023			07/07/2023 07:28	Elise M. Gillis	2421108
	06/30/2023			07/08/2023 07:09	Elise M. Gillis	2421105
	06/30/2023			07/08/2023 07:23	Elise M. Gillis	2421106