Chemical Analysis Report

SO-DIST-2022-05-27-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **2022 SMP : Highland Lakes**
Request ID: **RQ-2022-05-23-33**
Customer: **SO-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 24-JUN-2022 09:27

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 Carrie at Center **Collection Date/Time: 05/26/2022 09:45**

Field ID: G4SD0212 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2330381	DEP SOP: NU-094-1	Color (true)**	120		PCU	P414494	
	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P414498	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P414982	
		Sulfate	6.2		mg SO4/L	P414986	
	SM 2320 B-2011	Total Alkalinity	21		mg CaCO3/L	P414793	
	SM 2540 C-2011	TDS	102		mg/L	P414964	
	SM 2540 D-2011	TSS	4	I	mg/L	P414966	
	SM 4500-F- C-2011	Fluoride	0.040	I	mg F/L	P414800	
2330383	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P414972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P414622	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P415288	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P414628	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P414683	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Francis at Center **Collection Date/Time: 05/26/2022 10:30**

Field ID: G4SD0187 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2330377	DEP SOP: NU-094-1	Color (true)**	9.5		PCU	P414494	
	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P414498	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P414982	
		Sulfate	25	A	mg SO4/L	P414986	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P414793	
	SM 2540 C-2011	TDS	108		mg/L	P414964	
	SM 2540 D-2011	TSS	3	I	mg/L	P414966	
	SM 4500-F- C-2011	Fluoride	0.055	I	mg F/L	P414800	
2330379	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P414972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P414622	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P415288	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P414628	
	SM 5310 B-2011	Organic Carbon	7.0		mg C/L	P414683	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Apthorpe at Center **Collection Date/Time: 05/26/2022 11:00**

Field ID: G4SD0185 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2330378	DEP SOP: NU-094-1	Color (true)**	19	A	PCU	P414494	
	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P414498	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P414982	
		Sulfate	34		mg SO4/L	P414986	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P414793	
	SM 2540 C-2011	TDS	138		mg/L	P414964	
	SM 2540 D-2011	TSS	3	I	mg/L	P414966	
	SM 4500-F- C-2011	Fluoride	0.050	I	mg F/L	P414800	
2330380	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P414972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P414622	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P415288	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P414628	
	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P414683	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Grassy Creek at Lake Apthorpe Dr. **Collection Date/Time: 05/26/2022 11:35**

Field ID: G4SD0184 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2330382	DEP SOP: NU-094-1	Color (true)**	45		PCU	P414494	
	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P414498	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P414982	
		Sulfate	26		mg SO4/L	P414986	
	SM 2320 B-2011	Total Alkalinity	7.6		mg CaCO3/L	P414793	
	SM 2540 C-2011	TDS	120	A	mg/L	P414965	
	SM 2540 D-2011	TSS	26	A	mg/L	P414967	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P414800	
2330384	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P414972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.7		mg N/L	P415357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.0		mg N/L	P415288	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P414628	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P414683	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P414494

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414498

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414982

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414986

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414972

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414622

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415288

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414628

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: P414793

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

Reference Method: SM 2540 C-2011
Batch ID: P414964

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P414965

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P414966

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P414967

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P414800

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P414683

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: P414494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414498

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414986

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414972

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414622

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: P415357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415288

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414628

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P414793

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.3		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P414800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P414683

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330377	Chloride	96.5		P	90 - 110
2330730	Chloride	95.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330377	Sulfate	92.8		P	90 - 110
2330730	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330356	Ammonia-N	96.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330438	Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2332469	Kjeldahl Nitrogen	98.2	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330374	NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330374	Total-P	104	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P414800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330291	Fluoride	98.1	98.7	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P414683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2330379	Organic Carbon	93.4	92.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P414494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330378	Color (true)	2.22	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330315	Turbidity	4.31	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330377	Chloride	0.292	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330377	Sulfate	0.316	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330356	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330438	Kjeldahl Nitrogen	1.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2332469	Kjeldahl Nitrogen	6.84	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330374	NO2NO3-N	1.84	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330374	Total-P	1.44	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P414793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330291	Total Alkalinity	0.629	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P414964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330292	TDS	2.04	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P414965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330382	TDS	4.15	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P414967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330382	TSS	7.63	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P414800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330291	Fluoride	0.489	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P414683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2330379	Organic Carbon	0.862	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: A112466
Included Lab Sample IDs: 2330377, 2330378, 2330381, 2330382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A112469
Included Lab Sample IDs: 2330377, 2330378, 2330381, 2330382

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

Reference Method: SM 5310 B-2011
Run ID: A112583
Included Lab Sample IDs: 2330379, 2330380, 2330383, 2330384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	96.8	P/P	90 - 110
Organic Carbon	96.8	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A112625
Included Lab Sample IDs: 2330384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.3	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A112626
Included Lab Sample IDs: 2330379, 2330380, 2330383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A112631
Included Lab Sample IDs: 2330379, 2330380, 2330383

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	101	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A112633
Included Lab Sample IDs: 2330377, 2330378, 2330381, 2330382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	97.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A112633
Included Lab Sample IDs: 2330377, 2330378, 2330381, 2330382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A112705
Included Lab Sample IDs: 2330379, 2330380, 2330383, 2330384

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A112707
Included Lab Sample IDs: 2330377, 2330378, 2330381, 2330382

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	99.7	P/P	90 - 110
Sulfate	99.8	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A112865
Included Lab Sample IDs: 2330379, 2330380, 2330383, 2330384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A112989
Included Lab Sample IDs: 2330384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	98.7	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)	102				2.22	
EPA 180.1 Rev. 2.0	Turbidity	96.8				4.31	
EPA 300.0 Rev. 2.1	Chloride	98.7	96.5	95.2		0.292	
	Sulfate	97.4	92.8	96.2		0.316	
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	96.4	98.2			1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	104	102			1.06
	Kjeldahl Nitrogen	101	98.2	107			6.84
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	100			1.84
EPA 365.1 Rev. 2.0	Total-P	100	104	102			1.44
SM 2320 B-2011	Total Alkalinity	98.3				0.629	
SM 2540 C-2011	TDS					2.04	
	TDS					4.15	
SM 2540 D-2011	TSS					7.63	
SM 4500-F- C-2011	Fluoride	98.4	98.1	98.7			0.489
SM 5310 B-2011	Organic Carbon	95.2	93.4	92.4			0.862

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2330377, 2330378, 2330381, 2330382
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2330377, 2330378, 2330381, 2330382
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2330377, 2330378, 2330381, 2330382
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2330377, 2330378, 2330381, 2330382
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2330379, 2330380, 2330383, 2330384
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2330379, 2330380, 2330383, 2330384
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2330379, 2330380, 2330383, 2330384
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2330379, 2330380, 2330383, 2330384
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2330377, 2330378, 2330381, 2330382
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2330377, 2330378, 2330381, 2330382
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2330377, 2330378, 2330381, 2330382
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2330377, 2330378, 2330381, 2330382
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2330379, 2330380, 2330383, 2330384

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	05/27/2022			05/27/2022 15:08	Anna M. Plaviak	2330377
	05/27/2022			05/27/2022 15:10	Anna M. Plaviak	2330378, 2330381
	05/27/2022			05/27/2022 15:11	Anna M. Plaviak	2330382
EPA 180.1 Rev. 2.0	05/27/2022			05/27/2022 14:25	Khloe J Berg	2330377
	05/27/2022			05/27/2022 14:27	Khloe J Berg	2330378
	05/27/2022			05/27/2022 14:28	Khloe J Berg	2330381
	05/27/2022			05/27/2022 14:29	Khloe J Berg	2330382
EPA 300.0 Rev. 2.1	05/27/2022			06/08/2022 11:53	Anna M. Plaviak	2330377
	05/27/2022			06/08/2022 12:41	Anna M. Plaviak	2330378
	05/27/2022			06/08/2022 12:53	Anna M. Plaviak	2330381
	05/27/2022			06/08/2022 13:05	Anna M. Plaviak	2330382
EPA 350.1 Rev. 2.0	05/27/2022			06/09/2022 11:37	Judith K. Clark	2330379
	05/27/2022			06/09/2022 11:38	Judith K. Clark	2330380
	05/27/2022			06/09/2022 11:39	Judith K. Clark	2330383
	05/27/2022			06/09/2022 11:41	Judith K. Clark	2330384
EPA 351.2 Rev. 2.0	05/27/2022	06/03/2022 11:25	Samantha L Bates	06/06/2022 14:31	Alexandra J Mattheus	2330379
	05/27/2022	06/03/2022 11:25	Samantha L Bates	06/06/2022 14:33	Alexandra J Mattheus	2330380
	05/27/2022	06/03/2022 11:25	Samantha L Bates	06/06/2022 14:34	Alexandra J Mattheus	2330383
	05/27/2022	06/21/2022 16:37	Samantha L Bates	06/22/2022 14:45	Alexandra J Mattheus	2330384
EPA 353.2 Rev. 2.0	05/27/2022			06/13/2022 18:08	Touraj Touran	2330379
	05/27/2022			06/13/2022 18:09	Touraj Touran	2330380
	05/27/2022			06/13/2022 18:10	Touraj Touran	2330383
	05/27/2022			06/13/2022 19:03	Touraj Touran	2330384
EPA 365.1 Rev. 2.0	05/27/2022	06/03/2022 15:50	Adam P Silver	06/06/2022 10:55	Sarah A Nixon	2330384
	05/27/2022	06/03/2022 15:50	Adam P Silver	06/06/2022 13:34	James L Waggerby	2330379
	05/27/2022	06/03/2022 15:50	Adam P Silver	06/06/2022 13:35	James L Waggerby	2330380
	05/27/2022	06/03/2022 15:50	Adam P Silver	06/06/2022 13:36	James L Waggerby	2330383
SM 2320 B-2011	05/27/2022			06/03/2022 05:37	Dale L. Simmons	2330377
	05/27/2022			06/03/2022 05:49	Dale L. Simmons	2330378
	05/27/2022			06/03/2022 06:01	Dale L. Simmons	2330381
	05/27/2022			06/03/2022 06:12	Dale L. Simmons	2330382
SM 2540 C-2011	05/27/2022			06/01/2022 14:08	Yijie Li	2330377, 2330378, 2330381, 2330382
SM 2540 D-2011	05/27/2022			06/01/2022 14:08	Yijie Li	2330377, 2330378, 2330381, 2330382
SM 4500-F- C-2011	05/27/2022			06/03/2022 05:37	Dale L. Simmons	2330377
	05/27/2022			06/03/2022 05:49	Dale L. Simmons	2330378
	05/27/2022			06/03/2022 06:01	Dale L. Simmons	2330381
	05/27/2022			06/03/2022 06:12	Dale L. Simmons	2330382
SM 5310 B-2011	05/27/2022			06/02/2022 23:30	Judith K. Clark	2330379
	05/27/2022			06/03/2022 00:44	Judith K. Clark	2330380
	05/27/2022			06/03/2022 01:05	Judith K. Clark	2330383

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	05/27/2022			06/03/2022 01:48	Judith K. Clark	2330384