Chemical Analysis Report

SO-DIST-2022-12-15-02

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

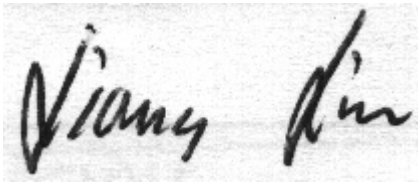
Event Description: **2022 SMP : Phyto Lakes**
Request ID: **RQ-2022-11-07-34**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: William Mullen

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 09-JAN-2023 15:37



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: Bonnet Lake @ Middle **Collection Date/Time: 12/14/2022 11:40**

Field ID: G4SD0170 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2375700	DEP SOP: NU-094-1	Color (true)	40		PCU	P423606	
	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P423623	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P423805	
		Sulfate	29	A	mg SO4/L	P423808	
	SM 2320 B-2011	Total Alkalinity	14		mg CaCO3/L	P423946	
	SM 2540 C-2015	TDS	119	A	mg/L	P424056	
	SM 2540 D-2015	TSS	7	I A	mg/L	P423856	
	SM 4500-F- C-2011	Fluoride	0.074	I	mg F/L	P423951	
2375703	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P424075	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P423818	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P423831	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P424020	
	SM 5310 B-2011	Organic Carbon	8.5		mg C/L	P423699	
2375706	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P423622	

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

Sample Location: Little Bonnet Lake @ Middle **Collection Date/Time: 12/14/2022 11:05**

Field ID: G4SD0169 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2375701	DEP SOP: NU-094-1	Color (true)	26	A	PCU	P423606	
	EPA 180.1 Rev. 2.0	Turbidity	9.2		NTU	P423623	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P423805	
		Sulfate	21		mg SO4/L	P423808	
	SM 2320 B-2011	Total Alkalinity	26		mg CaCO3/L	P423946	
	SM 2540 C-2015	TDS	107		mg/L	P424056	
	SM 2540 D-2015	TSS	8	I	mg/L	P423856	
	SM 4500-F- C-2011	Fluoride	0.077	I	mg F/L	P423951	
2375704	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P424224	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P423043	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P423831	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P424020	
	SM 5310 B-2011	Organic Carbon	7.5		mg C/L	P423699	
2375707	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P423618	

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

Sample Location: Little Red Water Lake @ Middle **Collection Date/Time: 12/14/2022 12:05**

Field ID: G4SD0171 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2375702	DEP SOP: NU-094-1	Color (true)	120		PCU	P423606	
	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P423623	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P423805	
		Sulfate	8.4		mg SO4/L	P423808	
	SM 2320 B-2011	Total Alkalinity	7.4		mg CaCO3/L	P423946	
	SM 2540 C-2015	TDS	77		mg/L	P424056	
	SM 2540 D-2015	TSS	4	I	mg/L	P423856	
	SM 4500-F- C-2011	Fluoride	0.057	I	mg F/L	P423951	
2375705	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P424075	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P423818	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P423831	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P423792	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P423699	
2375708	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P423618	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P423606

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423623

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423805

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423808

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424075

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424224

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423043

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423818

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423831

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424020

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423618

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423622

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2320 B-2011
Batch ID: P423946

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

Reference Method: SM 2540 C-2015
Batch ID: P424056

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P423856

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P423951

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P423699

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: P423606

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423623

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423805

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423808

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424075

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424224

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: P423043

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: P423818

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423831

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424020

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423622

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

Reference Method: SM 2320 B-2011
Batch ID: P423946

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P424056

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

Reference Method: SM 2540 D-2015
Batch ID: P423856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	104		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P423951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P423699

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375700	Chloride	103		P	90 - 110
2375701	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375700	Sulfate	103		P	90 - 110
2375701	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375621	Ammonia-N	96.6	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375704	Ammonia-N	97.4	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2376631	Kjeldahl Nitrogen	95.6	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375705	Kjeldahl Nitrogen	101	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375634	NO2NO3-N	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375704	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375707	O-Phosphate-P	92.0	93.1	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375623	O-Phosphate-P	100	98.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P423951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375528	Fluoride	100	99.5	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P423699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2375622	Organic Carbon	97.3	97.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P423606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375701	Color (true)	1.30	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375595	Turbidity	0.250	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375700	Chloride	0.251	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375700	Sulfate	0.488	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375621	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P424224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375704	Ammonia-N	0.104	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2376631	Kjeldahl Nitrogen	0.645	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375705	Kjeldahl Nitrogen	0.797	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375634	NO2NO3-N	0.851	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375743	Total-P	3.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375704	Total-P	0.386	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375707	O-Phosphate-P	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P423622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375623	O-Phosphate-P	2.12	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P423946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375528	Total Alkalinity	0.302	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P424056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375700	TDS	3.36	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P423951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375528	Fluoride	0.477	Spike	P	0 - 1.6

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P423699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2375622	Organic Carbon	0.0708	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: A116468
Included Lab Sample IDs: 2375700, 2375701, 2375702

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A116477
Included Lab Sample IDs: 2375706, 2375707, 2375708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.5	97.8	P/P	90 - 110
O-Phosphate-P	99.1	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A116478
Included Lab Sample IDs: 2375700, 2375701, 2375702

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

Reference Method: SM 5310 B-2011
Run ID: A116527
Included Lab Sample IDs: 2375703, 2375704, 2375705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.8	P/P	90 - 110
Organic Carbon	98.8	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A116559
Included Lab Sample IDs: 2375700, 2375701, 2375702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	104	P/P	90 - 110
Chloride	104	105	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110
Sulfate	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A116597
Included Lab Sample IDs: 2375703, 2375704, 2375705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116631
Included Lab Sample IDs: 2375705

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A116652
Included Lab Sample IDs: 2375700, 2375701, 2375702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.0	99.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A116652
Included Lab Sample IDs: 2375700, 2375701, 2375702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116709
Included Lab Sample IDs: 2375703, 2375704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	101	P/P	90 - 110
Total-P	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A116711
Included Lab Sample IDs: 2375703, 2375705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116719
Included Lab Sample IDs: 2375703, 2375704, 2375705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	99.6	P/P	90 - 110
Kjeldahl Nitrogen	97.1	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A116773
Included Lab Sample IDs: 2375704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	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)	103				1.30	
EPA 180.1 Rev. 2.0	Turbidity	100				0.250	
EPA 300.0 Rev. 2.1	Chloride	105	103	104		0.251	
	Sulfate	105	103	102		0.488	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	96.6	97.8			1.06
	Ammonia-N	98.2	97.4	97.2			0.104
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	95.6	94.6			0.645
	Kjeldahl Nitrogen	99.7	101	99.8			0.797
EPA 353.2 Rev. 2.0	NO2NO3-N	108	106	107			0.851
EPA 365.1 Rev. 2.0	Total-P	103					3.04
	Total-P	104	104	104			0.386
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	92.0	93.1			1.19
	O-Phosphate-P	98.3	100	98.1			2.12
SM 2320 B-2011	Total Alkalinity	98.9				0.302	
SM 2540 C-2015	TDS	97.1				3.36	
SM 2540 D-2015	TSS	104					
SM 4500-F- C-2011	Fluoride	102	100	99.5			0.477
SM 5310 B-2011	Organic Carbon	95.6	97.3	97.2			0.0708

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2375700, 2375701, 2375702
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2375700, 2375701, 2375702
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2375700, 2375701, 2375702
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2375700, 2375701, 2375702
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2375703, 2375704, 2375705
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2375703, 2375704, 2375705
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2375703, 2375704, 2375705
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2375703, 2375704, 2375705
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2375706, 2375707, 2375708
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2375700, 2375701, 2375702
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2375700, 2375701, 2375702
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2375700, 2375701, 2375702
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2375700, 2375701, 2375702
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2375703, 2375704, 2375705

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	12/15/2022			12/15/2022 14:26	Samantha L Bates	2375700
	12/15/2022			12/15/2022 14:27	Samantha L Bates	2375701
	12/15/2022			12/15/2022 14:28	Samantha L Bates	2375702
EPA 180.1 Rev. 2.0	12/15/2022			12/15/2022 13:37	Chandler E Cox	2375700, 2375701
	12/15/2022			12/15/2022 13:38	Chandler E Cox	2375702
EPA 300.0 Rev. 2.1	12/15/2022			12/21/2022 02:42	Anna M. Plaviak	2375700
	12/15/2022			12/21/2022 03:13	Anna M. Plaviak	2375701
	12/15/2022			12/21/2022 08:29	Anna M. Plaviak	2375702
EPA 350.1 Rev. 2.0	12/15/2022			01/03/2023 16:39	Ping Hua	2375703
	12/15/2022			01/03/2023 16:40	Ping Hua	2375705
	12/15/2022			01/06/2023 11:51	Ping Hua	2375704
EPA 351.2 Rev. 2.0	12/15/2022	01/03/2023 13:30	Simonne.V. Calhoun	01/04/2023 12:00	Samantha L Bates	2375704
	12/15/2022	12/21/2022 16:20	Simonne.V. Calhoun	01/04/2023 10:57	Samantha L Bates	2375703
	12/15/2022	12/21/2022 16:20	Simonne.V. Calhoun	01/04/2023 10:58	Samantha L Bates	2375705
EPA 353.2 Rev. 2.0	12/15/2022			12/21/2022 10:40	Beverly Y. Sanders	2375703
	12/15/2022			12/21/2022 10:41	Beverly Y. Sanders	2375704
	12/15/2022			12/21/2022 10:42	Beverly Y. Sanders	2375705
EPA 365.1 Rev. 2.0	12/15/2022	12/21/2022 15:15	Simonne.V. Calhoun	12/22/2022 11:37	James L Waggerby	2375705
	12/15/2022	12/29/2022 14:13	Adam P Silver	01/03/2023 13:54	James L Waggerby	2375704
	12/15/2022	12/29/2022 14:13	Adam P Silver	01/03/2023 14:04	James L Waggerby	2375703
EPA 365.1 Rev. 2.0 dissolved	12/15/2022			12/15/2022 14:22	Elise M. Gillis	2375707
	12/15/2022			12/15/2022 14:24	Elise M. Gillis	2375708
	12/15/2022			12/15/2022 16:09	Elise M. Gillis	2375706
SM 2320 B-2011	12/15/2022			12/23/2022 11:21	Dale L. Simmons	2375700
	12/15/2022			12/23/2022 11:35	Dale L. Simmons	2375701
	12/15/2022			12/23/2022 11:47	Dale L. Simmons	2375702
SM 2540 C-2015	12/15/2022			12/19/2022 16:08	Yijie Li	2375700, 2375701, 2375702
SM 2540 D-2015	12/15/2022			12/19/2022 16:08	Yijie Li	2375700, 2375701, 2375702
SM 4500-F- C-2011	12/15/2022			12/23/2022 11:21	Dale L. Simmons	2375700
	12/15/2022			12/23/2022 11:35	Dale L. Simmons	2375701
	12/15/2022			12/23/2022 11:47	Dale L. Simmons	2375702
SM 5310 B-2011	12/15/2022			12/17/2022 01:34	Khloe J Berg	2375703
	12/15/2022			12/17/2022 01:48	Khloe J Berg	2375704
	12/15/2022			12/17/2022 02:28	Khloe J Berg	2375705