

Chemical Analysis Report

NW-DIST-2023-12-05-01

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

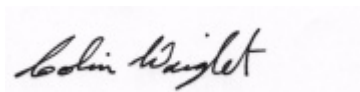
Event Description: **Twin Lakes**
Request ID: **RQ-2023-10-30-09**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 20-DEC-2023 09:56

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a white rectangular background.

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: TWIN LAKE EASTERN LAKE

Collection Date/Time: 12/04/2023 11:55

Field ID: G3NW0449

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2454503	DEP SOP: NU-094-1	Color (true)	37		PCU	P438515	
	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P438524	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P438811	
		Sulfate	6.5		mg SO4/L	P438815	
	SM 2320 B-2011	Total Alkalinity	48		mg CaCO3/L	P438936	
	SM 2540 C-2015	TDS	94		mg/L	P439143	
	SM 2540 D-2015	TSS	3	I	mg/L	P439129	
	SM 4500-F- C-2011	Fluoride	0.047	I	mg F/L	P438938	
2454508	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P438574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P438650	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P438893	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P438619	MS
	SM 5310 B-2011	Organic Carbon	7.2		mg C/L	P438605	

Sample Location: TWIN LAKE

Collection Date/Time: 12/04/2023 11:30

Field ID: G3NW0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2454504	DEP SOP: NU-094-1	Color (true)	60		PCU	P438515	
	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P438524	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P438811	
		Sulfate	6.7		mg SO4/L	P438815	
	SM 2320 B-2011	Total Alkalinity	44		mg CaCO3/L	P438936	
	SM 2540 C-2015	TDS	107		mg/L	P439143	
	SM 2540 D-2015	TSS	6	I	mg/L	P439129	
	SM 4500-F- C-2011	Fluoride	0.073	I	mg F/L	P438938	
2454509	EPA 350.1 Rev. 2.0	Ammonia-N	0.19		mg N/L	P438572	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P438607	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P438893	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P438619	MS
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P438605	

Sample Location: TWIN LAKE SOUTH LOBE

Collection Date/Time: 12/04/2023 12:15

Field ID: G3NW0448

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2454505	DEP SOP: NU-094-1	Color (true)	49		PCU	P438515	
	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P438524	
	EPA 300.0 Rev. 2.1	Chloride	29	A	mg Cl/L	P438811	
		Sulfate	5.2	A	mg SO4/L	P438815	
	SM 2320 B-2011	Total Alkalinity	45		mg CaCO3/L	P438936	
	SM 2540 C-2015	TDS	119		mg/L	P439143	
	SM 2540 D-2015	TSS	6	I	mg/L	P439129	
	SM 4500-F- C-2011	Fluoride	0.091	I	mg F/L	P438938	
2454510	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P438574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P438526	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P438893	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P438619	MS
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P438605	

Sample Location: KELL AIR LAKE

Collection Date/Time: 12/04/2023 13:15

Field ID: G3NW0217

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2454507	DEP SOP: NU-094-1	Color (true)	71		PCU	P438515	
	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P438524	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P438811	
		Sulfate	7.0		mg SO4/L	P438815	
	SM 2320 B-2011	Total Alkalinity	41		mg CaCO3/L	P438936	
	SM 2540 C-2015	TDS	96		mg/L	P439143	
	SM 2540 D-2015	TSS	6	I	mg/L	P439129	
	SM 4500-F- C-2011	Fluoride	0.067	I	mg F/L	P438938	
2454512	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P438572	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P438609	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P438676	
	EPA 365.1 Rev. 2.0	Total-P	0.13	J	mg P/L	P438619	MS
	SM 5310 B-2011	Organic Carbon	7.2		mg C/L	P438605	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: 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: P438515

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438522

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438524

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438811

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438815

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438572

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438574

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438526

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438607

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438609

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438650

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438676

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438893

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438619

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

Reference Method: SM 2320 B-2011
Batch ID: P438936

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

Reference Method: SM 2540 C-2015
Batch ID: P439143

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P439129

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P438605

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: P438515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438522

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438524

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438815

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438572

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438574

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438526

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438607

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438650

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438676

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438893

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438619

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

Reference Method: SM 2320 B-2011
Batch ID: P438936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.7		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P439143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	103		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P439129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	106		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P438605

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454505	Chloride	101		P	90 - 110
2454527	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454505	Sulfate	101		P	90 - 110
2454527	Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454119	Ammonia-N	99.4	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454299	Ammonia-N	95.2	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454259	Kjeldahl Nitrogen	97.8	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454509	Kjeldahl Nitrogen	103	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454512	Kjeldahl Nitrogen	99.0	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454300	Kjeldahl Nitrogen	103	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454512	NO2NO3-N	96.0	98.5	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454229	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454512	Total-P	106	111	P/F	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454527	Fluoride	101	101	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P438605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2454325	Organic Carbon	98.7	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P438515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454506	Color (true)	5.72	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454228	Turbidity	0.513	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P438524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454474	Turbidity	3.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454505	Chloride	0.377	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454505	Sulfate	0.981	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454119	Ammonia-N	1.83	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454299	Ammonia-N	2.42	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454259	Kjeldahl Nitrogen	4.17	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454509	Kjeldahl Nitrogen	1.88	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454512	Kjeldahl Nitrogen	5.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P438650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454300	Kjeldahl Nitrogen	5.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454512	NO2NO3-N	2.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454229	NO2NO3-N	0.355	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454512	Total-P	3.56	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P438936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454527	Total Alkalinity	0.165	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P439143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454289	TDS	3.89	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-2015
Batch ID: P439129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454289	TSS	8.33	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P438938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454527	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P438605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2454325	Organic Carbon	2.10	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: A123030

Included Lab Sample IDs: 2454503, 2454504, 2454505, 2454506, 2454507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	105	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A123033

Included Lab Sample IDs: 2454503, 2454504, 2454505, 2454506, 2454507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A123057

Included Lab Sample IDs: 2454508, 2454509, 2454510, 2454511, 2454512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	95.3	96.9	P/P	90 - 110
Ammonia-N	98.1	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A123065

Included Lab Sample IDs: 2454508, 2454509, 2454510, 2454511, 2454512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	99.4	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A123088

Included Lab Sample IDs: 2454512

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123097

Included Lab Sample IDs: 2454509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.3	90.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123101

Included Lab Sample IDs: 2454510, 2454511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123110

Included Lab Sample IDs: 2454512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	95.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A123118

Included Lab Sample IDs: 2454503, 2454504, 2454505, 2454506, 2454507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	103	P/P	90 - 110
Sulfate	98.5	99.6	P/P	90 - 110
Sulfate	99.6	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123168

Included Lab Sample IDs: 2454508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123180

Included Lab Sample IDs: 2454509, 2454510, 2454511, 2454512

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A123188

Included Lab Sample IDs: 2454508, 2454509, 2454510, 2454511

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123191

Included Lab Sample IDs: 2454508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	94.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A123207

Included Lab Sample IDs: 2454503, 2454504, 2454505, 2454506, 2454507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.8	94.3	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A123207

Included Lab Sample IDs: 2454503, 2454504, 2454505, 2454506, 2454507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	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)	105			5.72	
EPA 180.1 Rev. 2.0	Turbidity	103			0.513	
	Turbidity	103			3.01	
EPA 300.0 Rev. 2.1	Chloride	98.1	101	98.5	0.377	
	Sulfate	98.0	101	98.3	0.981	
EPA 350.1 Rev. 2.0	Ammonia-N	94.8	99.4	97.6		1.83
	Ammonia-N	96.8	95.2	99.4		2.42
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	97.8	105		4.17
	Kjeldahl Nitrogen	98.4	103	99.9		1.88
	Kjeldahl Nitrogen	94.2	99.0	107		5.58
	Kjeldahl Nitrogen	103	103	97.2		5.70
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	96.0	98.5		2.57
	NO2NO3-N	99.5	97.5			0.355
EPA 365.1 Rev. 2.0	Total-P	107	106	111		3.56
SM 2320 B-2011	Total Alkalinity	97.7			0.165	
SM 2540 C-2015	TDS	103			3.89	
SM 2540 D-2015	TSS	106			8.33	
SM 4500-F- C-2011	Fluoride	102	101	101		0.0
SM 5310 B-2011	Organic Carbon	96.9	98.7	96.0		2.10

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2454503, 2454504, 2454505, 2454506, 2454507
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2454503, 2454504, 2454505, 2454506, 2454507
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2454503, 2454504, 2454505, 2454506, 2454507
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2454503, 2454504, 2454505, 2454506, 2454507
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2454508, 2454509, 2454510, 2454511, 2454512
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2454508, 2454509, 2454510, 2454511, 2454512
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2454508, 2454509, 2454510, 2454511, 2454512
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2454508, 2454509, 2454510, 2454511, 2454512
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2454503, 2454504, 2454505, 2454506, 2454507
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2454503, 2454504, 2454505, 2454506, 2454507
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2454503, 2454504, 2454505, 2454506, 2454507
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2454503, 2454504, 2454505, 2454506, 2454507
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2454508, 2454509, 2454510, 2454511, 2454512

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	12/05/2023			12/05/2023 15:50	Chandler E Cox	2454503, 2454504
	12/05/2023			12/05/2023 15:51	Chandler E Cox	2454505
	12/05/2023			12/05/2023 15:53	Chandler E Cox	2454506, 2454507
EPA 180.1 Rev. 2.0	12/05/2023			12/05/2023 14:11	Khloe J Berg	2454506
	12/05/2023			12/05/2023 15:23	Khloe J Berg	2454503
	12/05/2023			12/05/2023 15:25	Khloe J Berg	2454504
	12/05/2023			12/05/2023 15:26	Khloe J Berg	2454505
	12/05/2023			12/05/2023 15:27	Khloe J Berg	2454507
EPA 300.0 Rev. 2.1	12/05/2023			12/08/2023 21:53	Anna M. Plaviak	2454505
	12/05/2023			12/09/2023 02:11	Anna M. Plaviak	2454503
	12/05/2023			12/09/2023 02:26	Anna M. Plaviak	2454504
	12/05/2023			12/09/2023 02:41	Anna M. Plaviak	2454506
	12/05/2023			12/09/2023 02:56	Anna M. Plaviak	2454507
EPA 350.1 Rev. 2.0	12/05/2023			12/06/2023 13:38	Ping Hua	2454509
	12/05/2023			12/06/2023 13:39	Ping Hua	2454512
	12/05/2023			12/06/2023 14:30	Ping Hua	2454510
	12/05/2023			12/06/2023 14:31	Ping Hua	2454511
	12/05/2023			12/06/2023 14:53	Ping Hua	2454508
EPA 351.2 Rev. 2.0	12/05/2023	12/06/2023 11:57	Simonne.V. Calhoun	12/07/2023 15:53	Ping Hua	2454510
	12/05/2023	12/06/2023 11:57	Simonne.V. Calhoun	12/07/2023 15:55	Ping Hua	2454511
	12/05/2023	12/07/2023 09:55	Samantha L Bates	12/08/2023 09:47	Samantha L Bates	2454509
	12/05/2023	12/07/2023 09:55	Samantha L Bates	12/08/2023 13:25	Samantha L Bates	2454512
	12/05/2023	12/08/2023 10:33	Ping Hua	12/12/2023 11:55	Samantha L Bates	2454508
EPA 353.2 Rev. 2.0	12/05/2023			12/07/2023 13:44	Fadila Guebre	2454512
	12/05/2023			12/12/2023 14:47	Fadila Guebre	2454508
	12/05/2023			12/12/2023 14:49	Fadila Guebre	2454509
	12/05/2023			12/12/2023 14:50	Fadila Guebre	2454510
	12/05/2023			12/12/2023 14:51	Fadila Guebre	2454511
EPA 365.1 Rev. 2.0	12/05/2023	12/08/2023 15:43	Adam P Silver	12/13/2023 09:53	James L Waggeberby	2454512
	12/05/2023	12/08/2023 15:43	Adam P Silver	12/13/2023 10:00	James L Waggeberby	2454509, 2454510
	12/05/2023	12/08/2023 15:43	Adam P Silver	12/13/2023 10:01	James L Waggeberby	2454511
	12/05/2023	12/08/2023 15:43	Adam P Silver	12/13/2023 13:05	James L Waggeberby	2454508
SM 2320 B-2011	12/05/2023			12/13/2023 02:20	Dale L. Simmons	2454503
	12/05/2023			12/13/2023 02:33	Dale L. Simmons	2454504
	12/05/2023			12/13/2023 02:45	Dale L. Simmons	2454505
	12/05/2023			12/13/2023 02:57	Dale L. Simmons	2454506
	12/05/2023			12/13/2023 03:09	Dale L. Simmons	2454507
SM 2540 C-2015	12/05/2023			12/08/2023 16:18	Yijie Li	2454503, 2454504, 2454505, 2454506, 2454507

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-2015	12/05/2023			12/08/2023 16:18	Yijie Li	2454503, 2454504, 2454505, 2454506, 2454507
SM 4500-F- C-2011	12/05/2023			12/13/2023 02:20	Dale L. Simmons	2454503
	12/05/2023			12/13/2023 02:33	Dale L. Simmons	2454504
	12/05/2023			12/13/2023 02:45	Dale L. Simmons	2454505
	12/05/2023			12/13/2023 02:57	Dale L. Simmons	2454506
SM 5310 B-2011	12/05/2023			12/13/2023 03:09	Dale L. Simmons	2454507
	12/05/2023			12/06/2023 23:08	Kenneth H Lee	2454508
	12/05/2023			12/06/2023 23:21	Kenneth H Lee	2454509
	12/05/2023			12/06/2023 23:34	Kenneth H Lee	2454510
	12/05/2023			12/06/2023 23:47	Kenneth H Lee	2454511
	12/05/2023			12/07/2023 00:00	Kenneth H Lee	2454512