Chemical Analysis Report

NW-DIST-2022-11-17-02

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

Event Description: **Project GreenShores Quarterly Sampling**
Request ID: **RQ-2022-11-14-04**
Customer: **NW-DIST**
Project ID: **DISTRICT**

Send Reports to:
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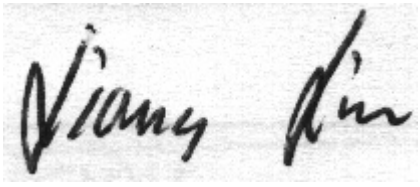
Date Certified: 09-DEC-2022 10:51



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: Range Marker East of Bayou Texas **Collection Date/Time: 11/16/2022 09:31**

Field ID: 1 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370365	DEP SOP: NU-094-1	Color (true)	7.5	UA	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.70	I	NTU	P422519	
	SM 2540 D-2015	TSS	3	U	mg/L	P422929	
2370379	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P423043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P422629	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P422864	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Midpoint between bay bridge and Muscogee Wharf **Collection Date/Time: 11/16/2022 09:47**

Field ID: 2 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370366	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.70	I	NTU	P422519	
	SM 2540 D-2015	TSS	4	I	mg/L	P422929	
2370380	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P423043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P422629	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P422864	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: East End of Primary Stormdrain **Collection Date/Time: 11/16/2022 09:58**

Field ID: 3 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370367	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.45	I	NTU	P422519	
	SM 2540 D-2015	TSS	3	U	mg/L	P422929	
2370381	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P423043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P422629	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P422864	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: South of Primary Stormdrain **Collection Date/Time: 11/16/2022 10:05**

Field ID: 4 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370368	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.70	I	NTU	P422519	
	SM 2540 D-2015	TSS	4	I	mg/L	P422929	
2370382	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P423043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P422629	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P422864	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: End of Chase St **Collection Date/Time: 11/16/2022 10:22**

Field ID: 5 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370369	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.65	I	NTU	P422519	
	SM 2540 D-2015	TSS	5	I	mg/L	P422929	
2370383	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P423043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P422629	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P422864	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Midpoint between Muscogee and Hawkshaw **Collection Date/Time: 11/16/2022 10:28**

Field ID: 6 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370370	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.50	I	NTU	P422519	
	SM 2540 D-2015	TSS	3	U	mg/L	P422929	
2370384	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P423043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P422629	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P422864	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Midpoint between bridge and port spoil pond **Collection Date/Time: 11/16/2022 10:37**

Field ID: 7 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370371	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.75	I	NTU	P422519	
	SM 2540 D-2015	TSS	3	U	mg/L	P422929	
2370385	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P423043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P422629	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P422864	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: West of Primary Stormdrain **Collection Date/Time: 11/16/2022 10:13**

Field ID: 8 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370372	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422524	
	EPA 180.1 Rev. 2.0	Turbidity	0.45	I	NTU	P422519	
	SM 2540 D-2015	TSS	5	I	mg/L	P422929	
2370386	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P423157	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P423015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P422865	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P422572	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: West of Hawkshaw Lagoon **Collection Date/Time: 11/16/2022 11:14**

Field ID: 9 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370373	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P422528	
	EPA 180.1 Rev. 2.0	Turbidity	1.0	I	NTU	P422519	
	SM 2540 D-2015	TSS	3	U	mg/L	P422929	
2370387	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P423157	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P423015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P422865	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P422610	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: South of Bayfront Stormdrain **Collection Date/Time: 11/16/2022 11:05**

Field ID: 10 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370374	DEP SOP: NU-094-1	Color (true)	7.5	UA	PCU	P422525	
	EPA 180.1 Rev. 2.0	Turbidity	0.50	I	NTU	P422519	
	SM 2540 D-2015	TSS	4	I	mg/L	P422929	
2370388	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P423044	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P423015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P422865	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P422610	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Seville Marina Inlet **Collection Date/Time: 11/16/2022 10:58**

Field ID: 11 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370375	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P422528	
	EPA 180.1 Rev. 2.0	Turbidity	0.70	I	NTU	P422519	
	SM 2540 D-2015	TSS	3	U	mg/L	P422929	
2370389	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P423044	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P423015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P422865	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P422610	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: East of Port Spoil Pond **Collection Date/Time: 11/16/2022 10:46**

Field ID: 12 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370376	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422525	
	EPA 180.1 Rev. 2.0	Turbidity	0.50	I	NTU	P422519	
	SM 2540 D-2015	TSS	3	UA	mg/L	P422929	
2370390	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P423044	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P423015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P422865	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P422610	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Hawkshaw Lagoon at Memorial Bridge **Collection Date/Time: 11/16/2022 12:07**

Field ID: 13 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370377	DEP SOP: NU-094-1	Color (true)	2.5	UA	PCU	P422528	
	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P422519	
	SM 2540 D-2015	TSS	4	I	mg/L	P422929	
2370391	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P423044	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P423127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P422865	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P422610	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 150ft. South of Hawkshaw Lagoon East Stormdrain

Collection Date/Time: 11/16/2022 11:39

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370378	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P422525	
	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P422519	
	SM 2540 D-2015	TSS	5	I	mg/L	P422929	
2370392	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P423044	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P423015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P422865	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P422610	

Ref. Method and Comment:
DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: 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: P422524

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P422525

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P422528

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422519

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423043

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423044

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423157

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422629

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423015

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: P423127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422864

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422865

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422572

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422610

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

Reference Method: SM 2540 D-2015
Batch ID: P422929

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P422524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P422525

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P422528

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: P422519

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423043

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423044

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423015

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422865

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422572

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422610

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

Reference Method: SM 2540 D-2015
Batch ID: P422929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.5		P	85 - 106

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370379	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370388	Ammonia-N	99.6	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2371068	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370385	Kjeldahl Nitrogen	93.7	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2372494	Kjeldahl Nitrogen	94.5	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370177	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370386	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370379	Total-P	99.4	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422610

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370388	Total-P	97.0	99.1	P/P	90 - 110

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370589	Turbidity	16.1	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370379	Ammonia-N	0.980	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370388	Ammonia-N	2.99	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2371068	Ammonia-N	1.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370385	Kjeldahl Nitrogen	3.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370606	Kjeldahl Nitrogen	5.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372494	Kjeldahl Nitrogen	3.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370177	NO2NO3-N	0.839	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370386	NO2NO3-N	0.436	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370379	Total-P	0.376	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370388	Total-P	2.17	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: A116002
Included Lab Sample IDs: 2370365, 2370366, 2370367, 2370368, 2370369, 2370370, 2370371, 2370372, 2370373, 2370374, 2370375, 2370376, 2370377, 2370378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.5	98.5	P/P	95 - 105
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1
Run ID: A116005
Included Lab Sample IDs: 2370365, 2370366, 2370367, 2370368, 2370369, 2370370, 2370371, 2370372, 2370374, 2370376, 2370378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.6	P/P	90 - 110
Color (true)	99.8	100	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1
Run ID: A116006
Included Lab Sample IDs: 2370373, 2370375, 2370377

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116076
Included Lab Sample IDs: 2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385, 2370386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116101
Included Lab Sample IDs: 2370387, 2370388, 2370389, 2370390, 2370391, 2370392

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116158
Included Lab Sample IDs: 2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.7	94.9	P/P	90 - 110
Kjeldahl Nitrogen	94.9	91.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A116167
Included Lab Sample IDs: 2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385, 2370386, 2370387, 2370388, 2370389, 2370390, 2370391, 2370392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110
NO2NO3-N	104	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A116231
Included Lab Sample IDs: 2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385, 2370388, 2370389, 2370390, 2370391, 2370392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.7	P/P	90 - 110
Ammonia-N	99.7	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116263
Included Lab Sample IDs: 2370386, 2370387, 2370388, 2370389, 2370390, 2370392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A116280
Included Lab Sample IDs: 2370386, 2370387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116306
Included Lab Sample IDs: 2370391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	99.0	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)	99.6					
	Color (true)	99.8					
	Color (true)	101					
EPA 180.1 Rev. 2.0	Turbidity	98.3				16.1	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	104	103			0.980
	Ammonia-N	98.8	99.6	104			2.99
	Ammonia-N	95.4	101	103			1.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.5	93.7	97.4			3.57
	Kjeldahl Nitrogen	104					5.92
	Kjeldahl Nitrogen	100	94.5	97.7			3.16
EPA 353.2 Rev. 2.0	NO2NO3-N	103	103	104			0.839
	NO2NO3-N	104	104	104			0.436
EPA 365.1 Rev. 2.0	Total-P	104	99.4	99.8			0.376
	Total-P	104	97.0	99.1			2.17
SM 2540 D-2015	TSS	96.5					

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2370365, 2370366, 2370367, 2370368, 2370369, 2370370, 2370371, 2370372, 2370373, 2370374, 2370375, 2370376, 2370377, 2370378
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2370365, 2370366, 2370367, 2370368, 2370369, 2370370, 2370371, 2370372, 2370373, 2370374, 2370375, 2370376, 2370377, 2370378
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385, 2370386, 2370387, 2370388, 2370389, 2370390, 2370391, 2370392
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385, 2370386, 2370387, 2370388, 2370389, 2370390, 2370391, 2370392
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385, 2370386, 2370387, 2370388, 2370389, 2370390, 2370391, 2370392
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2370379, 2370380, 2370381, 2370382, 2370383, 2370384, 2370385, 2370386, 2370387, 2370388, 2370389, 2370390, 2370391, 2370392
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2370365, 2370366, 2370367, 2370368, 2370369, 2370370, 2370371, 2370372, 2370373, 2370374, 2370375, 2370376, 2370377, 2370378

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	11/17/2022			11/17/2022 14:50	Chandler E Cox	2370373
	11/17/2022			11/17/2022 14:51	Chandler E Cox	2370375
	11/17/2022			11/17/2022 14:53	Chandler E Cox	2370377
	11/17/2022			11/17/2022 16:13	Chandler E Cox	2370365
	11/17/2022			11/17/2022 16:14	Chandler E Cox	2370366, 2370367
	11/17/2022			11/17/2022 16:15	Chandler E Cox	2370368, 2370369
	11/17/2022			11/17/2022 16:16	Chandler E Cox	2370370, 2370371
	11/17/2022			11/17/2022 16:17	Chandler E Cox	2370372
	11/17/2022			11/17/2022 16:20	Chandler E Cox	2370374, 2370376
	11/17/2022			11/17/2022 16:21	Chandler E Cox	2370378
EPA 180.1 Rev. 2.0	11/17/2022			11/17/2022 14:15	Anna M. Plaviak	2370365
	11/17/2022			11/17/2022 14:16	Anna M. Plaviak	2370366
	11/17/2022			11/17/2022 14:19	Anna M. Plaviak	2370367
	11/17/2022			11/17/2022 14:25	Anna M. Plaviak	2370368
	11/17/2022			11/17/2022 14:26	Anna M. Plaviak	2370369
	11/17/2022			11/17/2022 14:27	Anna M. Plaviak	2370370
	11/17/2022			11/17/2022 14:28	Anna M. Plaviak	2370371
	11/17/2022			11/17/2022 14:31	Anna M. Plaviak	2370372, 2370373
	11/17/2022			11/17/2022 14:32	Anna M. Plaviak	2370374
	11/17/2022			11/17/2022 14:33	Anna M. Plaviak	2370375
	11/17/2022			11/17/2022 14:36	Anna M. Plaviak	2370376, 2370377
	11/17/2022			11/17/2022 14:37	Anna M. Plaviak	2370378
EPA 350.1 Rev. 2.0	11/17/2022			12/02/2022 12:02	Ping Hua	2370379
	11/17/2022			12/02/2022 12:09	Ping Hua	2370380
	11/17/2022			12/02/2022 12:10	Ping Hua	2370381
	11/17/2022			12/02/2022 12:12	Ping Hua	2370382
	11/17/2022			12/02/2022 12:13	Ping Hua	2370383
	11/17/2022			12/02/2022 12:14	Ping Hua	2370384
	11/17/2022			12/02/2022 12:16	Ping Hua	2370385
	11/17/2022			12/02/2022 12:29	Ping Hua	2370388
	11/17/2022			12/02/2022 12:33	Ping Hua	2370389
	11/17/2022			12/02/2022 12:34	Ping Hua	2370390
	11/17/2022			12/02/2022 12:36	Ping Hua	2370391
	11/17/2022			12/02/2022 12:37	Ping Hua	2370392
	11/17/2022			12/06/2022 11:02	Ping Hua	2370386
	11/17/2022			12/06/2022 11:03	Ping Hua	2370387
EPA 351.2 Rev. 2.0	11/17/2022	11/21/2022 13:28	Alexandra J Mattheus	11/28/2022 16:00	Judith K. Clark	2370379
	11/17/2022	11/21/2022 13:28	Alexandra J Mattheus	11/28/2022 16:02	Judith K. Clark	2370380
	11/17/2022	11/21/2022 13:28	Alexandra J Mattheus	11/28/2022 16:03	Judith K. Clark	2370381
	11/17/2022	11/21/2022 13:28	Alexandra J Mattheus	11/28/2022 16:05	Judith K. Clark	2370382

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 351.2 Rev. 2.0	11/17/2022	11/21/2022 13:28	Alexandra J Mattheus	11/28/2022 16:07	Judith K. Clark	2370383
	11/17/2022	11/21/2022 13:28	Alexandra J Mattheus	11/28/2022 16:12	Judith K. Clark	2370384
	11/17/2022	11/21/2022 13:28	Alexandra J Mattheus	11/28/2022 16:13	Judith K. Clark	2370385
	11/17/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 13:54	Judith K. Clark	2370386
	11/17/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 13:56	Judith K. Clark	2370387
	11/17/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 13:57	Judith K. Clark	2370388
	11/17/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 13:59	Judith K. Clark	2370389
	11/17/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 14:01	Judith K. Clark	2370390
	11/17/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 14:02	Judith K. Clark	2370392
	11/17/2022	12/06/2022 10:38	Judith K. Clark	12/07/2022 12:53	Judith K. Clark	2370391
EPA 353.2 Rev. 2.0	11/17/2022			11/29/2022 09:47	Beverly Y. Sanders	2370379
	11/17/2022			11/29/2022 09:48	Beverly Y. Sanders	2370380
	11/17/2022			11/29/2022 09:50	Beverly Y. Sanders	2370381
	11/17/2022			11/29/2022 09:51	Beverly Y. Sanders	2370382
	11/17/2022			11/29/2022 09:52	Beverly Y. Sanders	2370383
	11/17/2022			11/29/2022 09:53	Beverly Y. Sanders	2370384
	11/17/2022			11/29/2022 09:54	Beverly Y. Sanders	2370385
	11/17/2022			11/29/2022 10:01	Beverly Y. Sanders	2370386
	11/17/2022			11/29/2022 10:07	Beverly Y. Sanders	2370387
	11/17/2022			11/29/2022 10:09	Beverly Y. Sanders	2370388
	11/17/2022			11/29/2022 10:10	Beverly Y. Sanders	2370389
	11/17/2022			11/29/2022 10:11	Beverly Y. Sanders	2370390
	11/17/2022			11/29/2022 10:12	Beverly Y. Sanders	2370391
	11/17/2022			11/29/2022 10:13	Beverly Y. Sanders	2370392
EPA 365.1 Rev. 2.0	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:15	James L Waggerby	2370379
	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:16	James L Waggerby	2370380
	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:17	James L Waggerby	2370381
	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:18	James L Waggerby	2370382
	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:19	James L Waggerby	2370383
	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:20	James L Waggerby	2370384
	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:21	James L Waggerby	2370385
	11/17/2022	11/18/2022 07:29	Adam P Silver	11/21/2022 15:22	James L Waggerby	2370386
	11/17/2022	11/21/2022 15:27	Adam P Silver	11/22/2022 12:16	James L Waggerby	2370388
	11/17/2022	11/21/2022 15:27	Adam P Silver	11/22/2022 12:17	James L Waggerby	2370387
	11/17/2022	11/21/2022 15:27	Adam P Silver	11/22/2022 12:18	James L Waggerby	2370389
	11/17/2022	11/21/2022 15:27	Adam P Silver	11/22/2022 12:19	James L Waggerby	2370390
	11/17/2022	11/21/2022 15:27	Adam P Silver	11/22/2022 12:20	James L Waggerby	2370391
	11/17/2022	11/21/2022 15:27	Adam P Silver	11/22/2022 12:21	James L Waggerby	2370392

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-2015	11/17/2022			11/22/2022 16:06	Yijie Li	2370365, 2370366, 2370367, 2370368, 2370369, 2370370, 2370371, 2370372, 2370373, 2370374, 2370375, 2370376, 2370377, 2370378