

Chemical Analysis Report

SE-DIST-2024-05-08-03

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

Event Description: **Algal Bloom Response - SE ROC**
Request ID: **RQ-2024-04-22-56**
Customer: **SE-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Andrew Luering

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Marek Topolski, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 06-JUN-2024 09:32



NON-CONFORMANCE REPORT INCLUDED

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: St Lucie River - Harborage

Collection Date/Time: 05/07/2024 13:20

Field ID: SEHAB0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487951	DEP SOP: NU-094-1	Color (true)	15		PCU	P445437	
2487959	EPA 350.1 Rev. 2.0	Ammonia-N	0.035	Y	mg N/L	P445782	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60	Y	mg N/L	P449698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011	Y	mg N/L	P445900	
	EPA 365.1 Rev. 2.0	Total-P	0.10	Y	mg P/L	P445648	
2487967	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.069		mg P/L	P445451	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Sample Location: St. Lucie Canal - 96th Street Bridge

Collection Date/Time: 05/07/2024 09:55

Field ID: SEHAB0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487952	DEP SOP: NU-094-1	Color (true)	43	A	PCU	P445438	
2487960	EPA 350.1 Rev. 2.0	Ammonia-N	0.010	Y	mg N/L	P445732	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0	Y	mg N/L	P445757	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	IY	mg N/L	P445745	
	EPA 365.1 Rev. 2.0	Total-P	0.046	Y	mg P/L	P445678	
2487968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P445450	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Sample Location: St Lucie River - at Palm City Bridge

Collection Date/Time: 05/07/2024 13:10

Field ID: SEHAB0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487953	DEP SOP: NU-094-1	Color (true)	22		PCU	P445438	
2487961	EPA 350.1 Rev. 2.0	Ammonia-N	0.046	Y	mg N/L	P445783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1	Y	mg N/L	P449698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	IY	mg N/L	P445900	
	EPA 365.1 Rev. 2.0	Total-P	0.22	Y	mg P/L	P445648	
2487969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.091		mg P/L	P445451	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Sample Location: Lake Okeechobee - S308C (lakeside)

Collection Date/Time: 05/07/2024 09:10

Field ID: SEHAB0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487954	DEP SOP: NU-094-1	Color (true)	37		PCU	P445438	
2487962	EPA 350.1 Rev. 2.0	Ammonia-N	0.014	Y	mg N/L	P445732	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5	Y	mg N/L	P445757	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P445745	
	EPA 365.1 Rev. 2.0	Total-P	0.088	Y	mg P/L	P445678	
2487970	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P445450	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Sample Location: St. Lucie River - at Four Rivers

Collection Date/Time: 05/07/2024 12:15

Field ID: SEHAB0112

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487955	DEP SOP: NU-094-1	Color (true)	35		PCU	P445438	
2487963	EPA 350.1 Rev. 2.0	Ammonia-N	0.01	Y	mg N/L	P445783	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78	Y	mg N/L	P449698	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UYQ	mg N/L	P446011	
	EPA 365.1 Rev. 2.0	Total-P	0.12	Y	mg P/L	P445649	
2487971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.082		mg P/L	P445452	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days and analyzed out of hold time because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Sample Location: C44 Canal - S308C (canal Side)

Collection Date/Time: 05/07/2024 09:00

Field ID: SEHAB0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487956	DEP SOP: NU-094-1	Color (true)	37		PCU	P445438	
2487964	EPA 350.1 Rev. 2.0	Ammonia-N	0.016	Y	mg N/L	P445732	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5	Y	mg N/L	P445757	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024	Y	mg N/L	P445745	
	EPA 365.1 Rev. 2.0	Total-P	0.084	Y	mg P/L	P445678	
2487972	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P445450	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Sample Location: St. Lucie Canal - Army Corps Campground

Collection Date/Time: 05/07/2024 10:45

Field ID: SEHAB0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487957	DEP SOP: NU-094-1	Color (true)	41		PCU	P445438	
2487965	EPA 350.1 Rev. 2.0	Ammonia-N	0.01	Y	mg N/L	P445732	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1	Y	mg N/L	P445757	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P445745	
	EPA 365.1 Rev. 2.0	Total-P	0.052	Y	mg P/L	P445678	
2487973	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P445450	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Sample Location: St. Lucie River - Harborage

Collection Date/Time: 05/07/2024 13:25

Field ID: FB_05072024

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487958	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P445438	
2487966	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	UY	mg N/L	P445732	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	UY	mg N/L	P445757	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P445879	
	EPA 365.1 Rev. 2.0	Total-P	0.002	UY	mg P/L	P445770	
2487974	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P445450	

Ref. Method and Comment:
EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.
EPA 351.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.
EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.
EPA 365.1 Rev. 2.0: Total-P: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

Non-Conformance Report

NCR ID: 10491

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
SE-DIST-2024-05-08-03	TLH-2024-05-08-71		
NCR Type: CUSTODY		NCR Category: General	
Observation: Due to power outages caused by storm damages on 05/10/2024, samples exceeded maximum allowable temperature.			
Resolution: Data will be qualified as appropriate.			

Authorized by/Date: Sarah A Nixon 5/30/2024

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

ChemistryColin Wright(850) 245-8085
BiologyCheryl Swanson(850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P445437

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P445438

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445732

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445782

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445783

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445757

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P449698

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445879

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445900

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P446011

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445648

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445649

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445678

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445770

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445450

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445451

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445452

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P445437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P445438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445732

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445782

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445783

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445757

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P449698

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445879

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445900

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P446011

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445648

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445649

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445678

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445770

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445450

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445451

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445452

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487381	Ammonia-N	93.8	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487395	Ammonia-N	95.2	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445783

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487961	Ammonia-N	99.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487960	Kjeldahl Nitrogen	98.1	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P449698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487771	Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487245	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2488347	NO2NO3-N	95.5	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487746	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P446011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487963	NO2NO3-N	95.5	96.5	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487397	Total-P	94.9	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2488004	Total-P	92.1	92.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487851	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2488959	Total-P	99.3	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487970	O-Phosphate-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487750	O-Phosphate-P	97.1	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487608	O-Phosphate-P	98.6	99.6	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P445437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487594	Color (true)	1.44	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P445438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487952	Color (true)	1.58	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487381	Ammonia-N	2.44	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487395	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487961	Ammonia-N	1.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487960	Kjeldahl Nitrogen	0.949	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P449698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487771	Kjeldahl Nitrogen	2.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487245	NO2NO3-N	1.01	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2488347	NO2NO3-N	0.522	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487746	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P446011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487963	NO2NO3-N	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487397	Total-P	0.0263	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2488004	Total-P	0.892	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487851	Total-P	1.82	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2488959	Total-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487970	O-Phosphate-P	0.252	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487750	O-Phosphate-P	0.672	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487608	O-Phosphate-P	1.01	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: A125751

Included Lab Sample IDs: 2487951, 2487952, 2487953, 2487954, 2487955, 2487956, 2487957, 2487958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	98.6	P/P	90 - 110
Color (true)	98.6	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A125757

Included Lab Sample IDs: 2487967, 2487968, 2487969, 2487970, 2487971, 2487972, 2487973, 2487974

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125866

Included Lab Sample IDs: 2487959, 2487961, 2487963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	102	P/P	90 - 110
Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125886

Included Lab Sample IDs: 2487962, 2487964, 2487965

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125888

Included Lab Sample IDs: 2487960, 2487962, 2487964, 2487965, 2487966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125890

Included Lab Sample IDs: 2487960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.2	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125892

Included Lab Sample IDs: 2487960, 2487962, 2487964, 2487965

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125899

Included Lab Sample IDs: 2487959, 2487961, 2487963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	99.3	P/P	90 - 110
Ammonia-N	99.7	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125915

Included Lab Sample IDs: 2487959, 2487961, 2487963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125916

Included Lab Sample IDs: 2487966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125921

Included Lab Sample IDs: 2487960, 2487962, 2487964, 2487965, 2487966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.3	P/P	90 - 110
Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125932

Included Lab Sample IDs: 2487966

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125938

Included Lab Sample IDs: 2487959, 2487961

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125973

Included Lab Sample IDs: 2487963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	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)	99.2			1.44	
	Color (true)	97.5			1.58	
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	93.8	96.8		2.44
	Ammonia-N	96.2	95.2	97.6		1.91
	Ammonia-N	96.2	99.8	102		1.25
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.1	99.6		0.949
	Kjeldahl Nitrogen	101	103	100		2.12
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.0	100		1.01
	NO2NO3-N	102	95.5	96.0		0.522
	NO2NO3-N	102	100	102		1.45
	NO2NO3-N	101	95.5	96.5		1.04
EPA 365.1 Rev. 2.0	Total-P	100	94.9	94.9		0.0263
	Total-P	98.7	92.1	92.9		0.892
	Total-P	99.4	103	101		1.82
	Total-P	99.5	99.3	101		1.53
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	103	103		0.252
	O-Phosphate-P	101	97.1	97.8		0.672
	O-Phosphate-P	106	98.6	99.6		1.01

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2487951, 2487952, 2487953, 2487954, 2487955, 2487956, 2487957, 2487958
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2487959, 2487960, 2487961, 2487962, 2487963, 2487964, 2487965, 2487966
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2487959, 2487960, 2487961, 2487962, 2487963, 2487964, 2487965, 2487966
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2487959, 2487960, 2487961, 2487962, 2487963, 2487964, 2487965, 2487966
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2487959, 2487960, 2487961, 2487962, 2487963, 2487964, 2487965, 2487966
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2487967, 2487968, 2487969, 2487970, 2487971, 2487972, 2487973, 2487974

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	05/08/2024			05/08/2024 13:51	Jessica K Wilks	2487951
	05/08/2024			05/08/2024 13:54	Jessica K Wilks	2487952, 2487953
	05/08/2024			05/08/2024 13:55	Jessica K Wilks	2487954, 2487955
	05/08/2024			05/08/2024 13:56	Jessica K Wilks	2487956, 2487957
	05/08/2024			05/08/2024 13:57	Jessica K Wilks	2487958
EPA 350.1 Rev. 2.0	05/08/2024			05/28/2024 13:49	Khloe J Berg	2487960
	05/08/2024			05/28/2024 13:50	Khloe J Berg	2487962
	05/08/2024			05/28/2024 13:51	Khloe J Berg	2487964
	05/08/2024			05/28/2024 13:53	Khloe J Berg	2487965
	05/08/2024			05/28/2024 13:54	Khloe J Berg	2487966
	05/08/2024			05/29/2024 12:58	Khloe J Berg	2487959
	05/08/2024			05/29/2024 13:10	Khloe J Berg	2487961
EPA 351.2 Rev. 2.0	05/08/2024			05/29/2024 13:14	Khloe J Berg	2487963
	05/08/2024	05/28/2024 13:10	Simonne.V. Calhoun	05/30/2024 12:08	Robyn Blevins	2487959
	05/08/2024	05/28/2024 13:10	Simonne.V. Calhoun	05/30/2024 12:09	Robyn Blevins	2487961
	05/08/2024	05/28/2024 13:10	Simonne.V. Calhoun	05/30/2024 12:11	Robyn Blevins	2487963
	05/08/2024	05/29/2024 12:12	Robyn Blevins	05/30/2024 15:12	Robyn Blevins	2487960
	05/08/2024	05/29/2024 12:12	Robyn Blevins	05/30/2024 15:20	Robyn Blevins	2487962
	05/08/2024	05/29/2024 12:12	Robyn Blevins	05/30/2024 15:22	Robyn Blevins	2487964
EPA 353.2 Rev. 2.0	05/08/2024	05/29/2024 12:12	Robyn Blevins	05/30/2024 15:23	Robyn Blevins	2487965
	05/08/2024	05/29/2024 12:12	Robyn Blevins	05/30/2024 15:25	Robyn Blevins	2487966
	05/08/2024			05/28/2024 11:54	Fadila Guebre	2487964
	05/08/2024			05/28/2024 11:56	Fadila Guebre	2487962
	05/08/2024			05/28/2024 11:57	Fadila Guebre	2487960
	05/08/2024			05/28/2024 11:58	Fadila Guebre	2487965
	05/08/2024			05/30/2024 15:45	Fadila Guebre	2487966
EPA 365.1 Rev. 2.0	05/08/2024			05/31/2024 13:40	Fadila Guebre	2487961
	05/08/2024			05/31/2024 13:43	Fadila Guebre	2487959
	05/08/2024			06/04/2024 12:19	Fadila Guebre	2487963
	05/08/2024	05/23/2024 14:45	Adam P Silver	05/24/2024 09:35	James L Waggeberby	2487959
	05/08/2024	05/23/2024 14:45	Adam P Silver	05/24/2024 09:36	James L Waggeberby	2487961
	05/08/2024	05/23/2024 14:45	Adam P Silver	05/24/2024 09:43	James L Waggeberby	2487963
	05/08/2024	05/24/2024 13:22	Adam P Silver	05/28/2024 11:47	Elise M. Gillis	2487962
EPA 365.1 Rev. 2.0 dissolved	05/08/2024	05/24/2024 13:22	Adam P Silver	05/28/2024 11:48	Elise M. Gillis	2487964
	05/08/2024	05/24/2024 13:22	Adam P Silver	05/28/2024 11:49	Elise M. Gillis	2487965
	05/08/2024	05/24/2024 13:22	Adam P Silver	05/28/2024 15:20	Elise M. Gillis	2487960
	05/08/2024	05/29/2024 12:15	Josephine W Gitau	05/30/2024 12:39	Simonne.V. Calhoun	2487966
	05/08/2024			05/08/2024 15:04	Elise M. Gillis	2487970
	05/08/2024			05/08/2024 15:08	Elise M. Gillis	2487968
	05/08/2024			05/08/2024 15:09	Elise M. Gillis	2487972

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	05/08/2024			05/08/2024 15:10	Elise M. Gillis	2487973
	05/08/2024			05/08/2024 15:16	Elise M. Gillis	2487974
	05/08/2024			05/08/2024 15:32	Elise M. Gillis	2487967
	05/08/2024			05/08/2024 15:33	Elise M. Gillis	2487969
	05/08/2024			05/08/2024 15:44	Elise M. Gillis	2487971