

Chemical Analysis Report

NE-DIST-2023-06-23-01

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

Event Description: **Trib Trout makeup Nutrients**
Request ID: **RQ-2023-06-19-41**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 13-JUL-2023 09:33

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

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: TRIBUTARY TO TROUT AT BESSENT RD

Collection Date/Time: 06/22/2023 12:05

Field ID: G2NE1207

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2419601	DEP SOP: NU-094-1	Color (true)	140		PCU	P431728	
	EPA 180.1 Rev. 2.0	Turbidity	9.0	A	NTU	P431737	
	EPA 300.0 Rev. 2.1	Chloride	2.4E+03		mg Cl/L	P431831	
		Sulfate	330		mg SO4/L	P431834	
	SM 2320 B-2011	Total Alkalinity	64		mg CaCO3/L	P431796	
	SM 2540 C-2015	TDS	4.10E+03		mg/L	P432257	
	SM 2540 D-2015	TSS	10	I	mg/L	P432094	
	SM 4500-F- C-2011	Fluoride	0.25		mg F/L	P431808	
2419602	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P431801	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P431898	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P432110	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P431779	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P431960	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: 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.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P431728

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P431737

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431831

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431834

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431801

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431898

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432110

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431779

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

Reference Method: SM 2320 B-2011
Batch ID: P431796

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P432257

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P432094

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P431808

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P431960

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: P431728

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: P431737

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431831

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431834

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431898

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: P432110

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431779

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

Reference Method: SM 2320 B-2011
Batch ID: P431796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.9		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P432257

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

Reference Method: SM 2540 D-2015
Batch ID: P432094

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	97.4		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P431808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P431960

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419489	Chloride	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419489	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2418719	Ammonia-N	99.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419923	Kjeldahl Nitrogen	99.8	93.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419923	NO2NO3-N	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419115	Total-P	96.7	98.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P431808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419627	Fluoride	99.0	99.0	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P431960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419434	Organic Carbon	94.4	95.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P431728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419563	Color (true)	0.868	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P431737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419601	Turbidity	3.69	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P431831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419489	Chloride	0.264	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2418719	Ammonia-N	0.735	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419923	Kjeldahl Nitrogen	5.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419923	NO2NO3-N	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419115	Total-P	1.48	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P431796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419627	Total Alkalinity	0.138	Sample	P	0 - 3.9

Quality Assurance Report Precision

Reference Method: SM 2540 C-2015
Batch ID: P432257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419627	TDS	1.75	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P431808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419627	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P431960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419434	Organic Carbon	0.780	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: A120002
Included Lab Sample IDs: 2419601

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A120006
Included Lab Sample IDs: 2419601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 2320 B-2011
Run ID: A120040
Included Lab Sample IDs: 2419601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.3	92.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A120040
Included Lab Sample IDs: 2419601

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A120041
Included Lab Sample IDs: 2419602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	97.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A120051
Included Lab Sample IDs: 2419601

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	102	P/P	90 - 110
Sulfate	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A120076
Included Lab Sample IDs: 2419602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A120112
Included Lab Sample IDs: 2419602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	96.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120133

Included Lab Sample IDs: 2419602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.1	93.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120192

Included Lab Sample IDs: 2419602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	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)	101			0.868	
EPA 180.1 Rev. 2.0	Turbidity	101			3.69	
EPA 300.0 Rev. 2.1	Chloride	105	108		0.264	
	Sulfate	105	106			
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	99.6	101		0.735
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	99.8	93.9		5.39
EPA 353.2 Rev. 2.0	NO2NO3-N	103	103	105		1.88
EPA 365.1 Rev. 2.0	Total-P	99.4	96.7	98.2		1.48
SM 2320 B-2011	Total Alkalinity	95.9			0.138	
SM 2540 C-2015	TDS	96.8			1.75	
SM 2540 D-2015	TSS	97.4				
SM 4500-F- C-2011	Fluoride	100	99.0	99.0		0.0
SM 5310 B-2011	Organic Carbon	95.8	94.4	95.4		0.780

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2419601
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2419601
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2419601
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2419601
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2419602
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2419602
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2419602
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2419602
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2419601
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2419601
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2419601
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2419601
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2419602

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	06/23/2023			06/23/2023 13:38	Samantha L Bates	2419601
EPA 180.1 Rev. 2.0	06/23/2023			06/23/2023 12:21	Alexis Price	2419601
EPA 300.0 Rev. 2.1	06/23/2023			06/27/2023 11:47	James L Waggeberby	2419601
EPA 350.1 Rev. 2.0	06/23/2023			06/26/2023 11:52	Khloe J Berg	2419602
EPA 351.2 Rev. 2.0	06/23/2023	06/29/2023 12:06	Simonne.V. Calhoun	06/30/2023 11:12	Samantha L Bates	2419602
EPA 353.2 Rev. 2.0	06/23/2023			07/06/2023 13:51	Judith K. Clark	2419602
EPA 365.1 Rev. 2.0	06/23/2023	06/27/2023 13:15	Simonne.V. Calhoun	06/28/2023 14:11	Simonne.V. Calhoun	2419602
SM 2320 B-2011	06/23/2023			06/26/2023 20:46	Adam P Silver	2419601
SM 2540 C-2015	06/23/2023			06/28/2023 14:17	Yijie Li	2419601
SM 2540 D-2015	06/23/2023			06/28/2023 14:17	Yijie Li	2419601
SM 4500-F- C-2011	06/23/2023			06/26/2023 20:46	Adam P Silver	2419601
SM 5310 B-2011	06/23/2023			06/29/2023 01:58	Elise M. Gillis	2419602