Chemical Analysis Report

NW-DIST-2022-12-07-01

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

Event Description: **98 Whaler Run**
Request ID: **RQ-2022-11-14-17**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
Pensacola, FL 32502-5794
Attn: Myranda Butler

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

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 29-DEC-2022 12:26

B. Steinbock

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: Yellow River **Collection Date/Time: 12/06/2022 10:35**

Field ID: G4NW0031 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2373449	DEP SOP: NU-094-1	Color (true)	38		PCU	P423226	
	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P423242	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P423672	
		Sulfate	2.2		mg SO4/L	P423676	
	SM 2320 B-2011	Total Alkalinity	9.8		mg CaCO3/L	P423496	
	SM 2540 C-2015	TDS	37		mg/L	P423650	
	SM 2540 D-2015	TSS	10		mg/L	P423454	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P423500	
2373450	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P423436	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P423349	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P423361	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P423333	
	SM 5310 B-2011	Organic Carbon	3.4		mg C/L	P423563	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P423226

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423242

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423672

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423676

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423436

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423349

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423361

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423333

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

Reference Method: SM 2320 B-2011
Batch ID: P423496

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: P423650

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P423454

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P423500

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P423563

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: P423226

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423242

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423676

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	91.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423361

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423333

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

Reference Method: SM 2320 B-2011
Batch ID: P423496

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.2		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P423650

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

Reference Method: SM 2540 D-2015
Batch ID: P423454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	91.5		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P423500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P423563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373374	Chloride	98.2		P	90 - 110
2373786	Chloride	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373374	Sulfate	94.0		P	90 - 110
2373786	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373325	Ammonia-N	96.0	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373565	Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373450	NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373562	Total-P	103	105	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P423500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373693	Fluoride	101	100	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P423563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373562	Organic Carbon	99.1	99.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P423226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373494	Color (true)	0.231	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373189	Turbidity	2.26	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373374	Chloride	0.459	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373374	Sulfate	0.525	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373325	Ammonia-N	0.196	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373565	Kjeldahl Nitrogen	2.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373450	NO2NO3-N	0.277	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P423333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373562	Total-P	1.57	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P423496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373693	Total Alkalinity	0.983	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P423650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372999	TDS	5.08	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P423454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2372999	TSS	8.85	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P423500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373693	Fluoride	1.01	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P423563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373562	Organic Carbon	0.0	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: A116307
Included Lab Sample IDs: 2373449

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A116311
Included Lab Sample IDs: 2373449

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A116352
Included Lab Sample IDs: 2373450

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A116391
Included Lab Sample IDs: 2373450

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A116398
Included Lab Sample IDs: 2373449

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A116399
Included Lab Sample IDs: 2373450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	94.1	94.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116403
Included Lab Sample IDs: 2373450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	94.0	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A116421
Included Lab Sample IDs: 2373449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.8	95.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A116421
Included Lab Sample IDs: 2373449

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A116450
Included Lab Sample IDs: 2373450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.9	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	103				0.231	
EPA 180.1 Rev. 2.0	Turbidity	99.4				2.26	
EPA 300.0 Rev. 2.1	Chloride	99.9	98.2	97.0		0.459	
	Sulfate	99.9	94.0	98.5		0.525	
EPA 350.1 Rev. 2.0	Ammonia-N	91.8	96.0	95.8			0.196
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	101	104			2.36
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.0	98.5			0.277
EPA 365.1 Rev. 2.0	Total-P	104	103	105			1.57
SM 2320 B-2011	Total Alkalinity	97.2				0.983	
SM 2540 C-2015	TDS	102				5.08	
SM 2540 D-2015	TSS	91.5				8.85	
SM 4500-F- C-2011	Fluoride	100	101	100			1.01
SM 5310 B-2011	Organic Carbon	96.8	99.1	99.1			0.0

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2373449
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2373449
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2373449
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2373449
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2373450
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2373450
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2373450
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2373450
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2373449
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2373449
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2373449
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2373449
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2373450

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	12/07/2022			12/07/2022 14:26	Chandler E Cox	2373449
EPA 180.1 Rev. 2.0	12/07/2022			12/07/2022 13:30	Khloe J Berg	2373449
EPA 300.0 Rev. 2.1	12/07/2022			12/14/2022 23:28	Anna M. Plaviak	2373449
EPA 350.1 Rev. 2.0	12/07/2022			12/13/2022 11:18	Ping Hua	2373450
EPA 351.2 Rev. 2.0	12/07/2022	12/12/2022 08:23	Judith K. Clark	12/13/2022 13:01	Judith K. Clark	2373450
EPA 353.2 Rev. 2.0	12/07/2022			12/09/2022 10:54	Beverly Y. Sanders	2373450
EPA 365.1 Rev. 2.0	12/07/2022	12/09/2022 15:40	Adam P Silver	12/12/2022 13:26	Simonne.V. Calhoun	2373450
SM 2320 B-2011	12/07/2022			12/14/2022 06:23	Dale L. Simmons	2373449
SM 2540 C-2015	12/07/2022			12/08/2022 15:34	Yijie Li	2373449
SM 2540 D-2015	12/07/2022			12/08/2022 15:34	Yijie Li	2373449
SM 4500-F- C-2011	12/07/2022			12/14/2022 06:23	Dale L. Simmons	2373449
SM 5310 B-2011	12/07/2022			12/14/2022 16:41	Khloe J Berg	2373450