Chemical Analysis Report

NW-DIST-2022-09-14-02

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

Event Description: **Pensacola Estuary Run**
Request ID: **RQ-2022-09-12-33**
Customer: **NW-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 04-OCT-2022 11:09

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: Bayou Grande **Collection Date/Time: 09/12/2022 09:40**

Field ID: G4NW0500 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2356373	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P419912	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P419805	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420065	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P419689	
	SM 5310 B-2011	Organic Carbon	5.8		mg C/L	P420035	
2356392	SM 2320 B-2011	Total Alkalinity	52	A	mg CaCO3/L	P419966	
	SM 2540 D-2011	TSS	3	I	mg/L	P419854	
	SM 4500-F- C-2011	Fluoride	0.40		mg F/L	P419968	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Bayou Grande near Navy Point Boat Ramp **Collection Date/Time: 09/12/2022 10:00**

Field ID: G4NW0501 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2356374	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P419912	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P419805	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420065	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P419689	
	SM 5310 B-2011	Organic Carbon	5.0		mg C/L	P420035	
2356393	SM 2320 B-2011	Total Alkalinity	59		mg CaCO3/L	P419966	
	SM 2540 D-2011	TSS	3	UA	mg/L	P419854	
	SM 4500-F- C-2011	Fluoride	0.47	I	mg F/L	P419968	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419912

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419805

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420065

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419689

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

Reference Method: SM 2320 B-2011
Batch ID: P419966

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

Reference Method: SM 2540 D-2011
Batch ID: P419854

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P419968

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P420035

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419912

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419805

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420065

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419689

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

Reference Method: SM 2320 B-2011
Batch ID: P419966

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P419968

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

Reference Method: SM 5310 B-2011
Batch ID: P420035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356439	Ammonia-N	98.0	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356438	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356373	NO2NO3-N	96.1	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356437	Total-P	101	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P419968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356392	Fluoride	95.7	97.9	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357647	Organic Carbon	95.5	94.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356439	Ammonia-N	0.555	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356438	Kjeldahl Nitrogen	0.156	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356373	NO2NO3-N	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356437	Total-P	0.496	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P419966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356392	Total Alkalinity	0.286	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P419968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356392	Fluoride	1.47	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P420035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357647	Organic Carbon	1.11	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114829
Included Lab Sample IDs: 2356373, 2356374

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A114854
Included Lab Sample IDs: 2356373, 2356374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A114856
Included Lab Sample IDs: 2356373, 2356374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	99.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A114876
Included Lab Sample IDs: 2356392, 2356393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A114876
Included Lab Sample IDs: 2356392, 2356393

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

Reference Method: SM 5310 B-2011
Run ID: A114912
Included Lab Sample IDs: 2356373, 2356374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A114923
Included Lab Sample IDs: 2356373, 2356374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	99.5	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
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	98.0	98.8			0.555
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	103	103			0.156
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.1	97.1			1.04
EPA 365.1 Rev. 2.0	Total-P	103	101	101			0.496
SM 2320 B-2011	Total Alkalinity	103				0.286	
SM 4500-F- C-2011	Fluoride	100	95.7	97.9			1.47
SM 5310 B-2011	Organic Carbon	96.4	95.5	94.0			1.11

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2356373, 2356374
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2356373, 2356374
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2356373, 2356374
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2356373, 2356374
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2356392, 2356393
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2356392, 2356393
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2356392, 2356393
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2356373, 2356374

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	09/14/2022			09/21/2022 12:18	Ping Hua	2356373
	09/14/2022			09/21/2022 12:19	Ping Hua	2356374
EPA 351.2 Rev. 2.0	09/14/2022	09/20/2022 11:51	Alexandra J Mattheus	09/21/2022 10:28	Alexandra J Mattheus	2356373
	09/14/2022	09/20/2022 11:51	Alexandra J Mattheus	09/21/2022 10:30	Alexandra J Mattheus	2356374
EPA 353.2 Rev. 2.0	09/14/2022			09/23/2022 16:27	Judith K. Clark	2356373
	09/14/2022			09/23/2022 16:36	Judith K. Clark	2356374
EPA 365.1 Rev. 2.0	09/14/2022	09/16/2022 15:34	Adam P Silver	09/20/2022 14:35	Simonne.V. Calhoun	2356373
	09/14/2022	09/16/2022 15:34	Adam P Silver	09/20/2022 14:36	Simonne.V. Calhoun	2356374
SM 2320 B-2011	09/14/2022			09/22/2022 01:18	Dale L. Simmons	2356392
	09/14/2022			09/22/2022 02:05	Dale L. Simmons	2356393
SM 2540 D-2011	09/14/2022			09/16/2022 15:56	Yijie Li	2356392, 2356393
SM 4500-F- C-2011	09/14/2022			09/21/2022 23:15	Dale L. Simmons	2356392
	09/14/2022			09/21/2022 23:44	Dale L. Simmons	2356393
SM 5310 B-2011	09/14/2022			09/23/2022 03:23	Khloe J Berg	2356373
	09/14/2022			09/23/2022 03:36	Khloe J Berg	2356374