

Chemical Analysis Report

SE-DIST-2022-03-30-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Kenansville 22**
Request ID: **RQ-2022-02-07-53**
Customer: **SE-DIST**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-APR-2022 13:36

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: G3SE0047

Collection Date/Time: 03/29/2022 14:30

Field ID: G3SE0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2315350	DEP SOP: NU-094-1	Color (true)**	47	A	PCU	P411756	
	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P411772	
	EPA 300.0 Rev. 2.1	Chloride	200		mg Cl/L	P411906	
		Sulfate	65		mg SO4/L	P411909	
	SM 2320 B-2011	Total Alkalinity	98		mg CaCO3/L	P411967	
	SM 2540 C-2011	TDS	574	A	mg/L	P412029	
	SM 2540 D-2011	TSS	6	IA	mg/L	P411901	
	SM 4500-F- C-2011	Fluoride	0.26		mg F/L	P411971	
2315351	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P411976	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P412174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P411799	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P411938	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P411832	

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: DEP SOP: NU-094-1
Batch ID: P411756

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411772

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411906

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411909

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411976

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412174

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411938

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

Reference Method: SM 2320 B-2011
Batch ID: P411967

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P412029

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P411901

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P411971

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P411832

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: P411756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411906

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411909

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411976

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412174

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411938

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

Reference Method: SM 2320 B-2011
Batch ID: P411967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.5		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P411971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P411832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315182	Chloride	99.8		P	90 - 110
2315234	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315182	Sulfate	98.2		P	90 - 110
2315234	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315408	Ammonia-N	96.8	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315187	Kjeldahl Nitrogen	92.7	92.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315351	NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315351	Total-P	104	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P411971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315236	Fluoride	100	99.9	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P411832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315351	Organic Carbon	92.9	90.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P411756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315350	Color (true)	3.34	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315333	Turbidity	1.41	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315182	Chloride	0.973	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P411909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315182	Sulfate	1.17	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P411976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315408	Ammonia-N	1.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315187	Kjeldahl Nitrogen	0.667	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315351	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315351	Total-P	0.317	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P411967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315236	Total Alkalinity	0.837	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P412029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315350	TDS	0.523	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P411971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315236	Fluoride	0.483	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P411832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315351	Organic Carbon	1.53	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A111208

Included Lab Sample IDs: 2315350

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

Reference Method: DEP SOP: NU-094-1

Run ID: A111233

Included Lab Sample IDs: 2315350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A111239

Included Lab Sample IDs: 2315350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A111245

Included Lab Sample IDs: 2315351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A111262

Included Lab Sample IDs: 2315351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	95.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A111305

Included Lab Sample IDs: 2315350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	97.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A111305

Included Lab Sample IDs: 2315350

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A111307

Included Lab Sample IDs: 2315351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	97.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111379

Included Lab Sample IDs: 2315351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.3	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A111515

Included Lab Sample IDs: 2315351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	93.1	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)	100			3.34	
EPA 180.1 Rev. 2.0	Turbidity	97.0			1.41	
EPA 300.0 Rev. 2.1	Chloride	101	99.8	100	0.973	
	Sulfate	99.1	98.2	97.1	1.17	
EPA 350.1 Rev. 2.0	Ammonia-N	96.0	96.8	98.8		1.85
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.8	92.7	92.0		0.667
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.5	97.5		0.0
EPA 365.1 Rev. 2.0	Total-P	103	104	104		0.317
SM 2320 B-2011	Total Alkalinity	97.5			0.837	
SM 2540 C-2011	TDS				0.523	
SM 4500-F- C-2011	Fluoride	101	100	99.9		0.483
SM 5310 B-2011	Organic Carbon	94.2	92.9	90.0		1.53

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2315350
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2315350
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2315350
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2315350
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2315351
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2315351
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2315351
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2315351
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2315350
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2315350
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2315350
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2315350
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2315351

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	03/30/2022			03/30/2022 15:33	Samantha L Bates	2315350
EPA 180.1 Rev. 2.0	03/30/2022			03/30/2022 14:50	Anna M. Plaviak	2315350
EPA 300.0 Rev. 2.1	03/30/2022			04/01/2022 23:02	Anna M. Plaviak	2315350
EPA 350.1 Rev. 2.0	03/30/2022			04/05/2022 12:47	Ping Hua	2315351
EPA 351.2 Rev. 2.0	03/30/2022	04/12/2022 17:00	Samantha L Bates	04/15/2022 14:54	Alexandra J Mattheus	2315351
EPA 353.2 Rev. 2.0	03/30/2022			03/31/2022 10:09	Beverly Y. Sanders	2315351
EPA 365.1 Rev. 2.0	03/30/2022	04/07/2022 10:00	Simonne.V. Calhoun	04/07/2022 16:16	Sarah A Nixon	2315351
SM 2320 B-2011	03/30/2022			04/02/2022 10:13	Dale L. Simmons	2315350
SM 2540 C-2011	03/30/2022			03/31/2022 16:15	Simonne.V. Calhoun	2315350
SM 2540 D-2011	03/30/2022			03/31/2022 16:15	Simonne.V. Calhoun	2315350
SM 4500-F- C-2011	03/30/2022			04/02/2022 10:13	Dale L. Simmons	2315350
SM 5310 B-2011	03/30/2022			03/31/2022 13:52	Khloe J Berg	2315351