

Chemical Analysis Report

NE-DIST-2022-01-21-01

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

Event Description: **Nassau RPS LVS**
Request ID: **RQ-2022-01-17-28**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 09-FEB-2022 10:26



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: Pigeon Creek @ Andrews RD

Collection Date/Time: 01/20/2022 11:20

Field ID: 19010098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2301087	DEP SOP: NU-094-1	Color (true)**	150		PCU	P408809	
	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P408817	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P409285	
		Sulfate	2.0		mg SO4/L	P409288	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P409053	
	SM 2540 C-2011	TDS	54		mg/L	P409307	
	SM 2540 D-2011	TSS	2	U	mg/L	P409310	
2301088	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P409056	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P409348	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P409132	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P408987	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P409099	
2301089	SM 5310 B-2011	Organic Carbon	16		mg C/L	P409214	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P408800	

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: P408809

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P408817

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409285

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409288

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P409348

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409132

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408987

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409099

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408800

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P409053

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P409307

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P409310

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P409056

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P409214

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: P408809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409285

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409288

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P409348

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408987

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: P409099

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408800

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

Reference Method: SM 2320 B-2011
Batch ID: P409053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.2		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P409056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P409214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301034	Chloride	98.5		P	90 - 110
2301092	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301034	Sulfate	94.7		P	90 - 110
2301092	Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P409348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301249	Ammonia-N	98.0	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2300929	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301061	NO2NO3-N	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301060	Total-P	107	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301172	O-Phosphate-P	97.9	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P409056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301560	Fluoride	99.2	99.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P409214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2301038	Organic Carbon	94.6	94.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P408809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301092	Color (true)	1.34	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P408817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301095	Turbidity	0.475	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301034	Chloride	0.599	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301034	Sulfate	1.02	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P409348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301249	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2300929	Kjeldahl Nitrogen	1.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301061	NO2NO3-N	0.837	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301060	Total-P	2.04	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301172	O-Phosphate-P	2.18	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P409053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301560	Total Alkalinity	0.403	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P409307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301036	TDS	6.42	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P409056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301560	Fluoride	0.492	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P409214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2301038	Organic Carbon	0.203	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 dissolved

Run ID: A109981

Included Lab Sample IDs: 2301089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.3	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A109985

Included Lab Sample IDs: 2301087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109987

Included Lab Sample IDs: 2301087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A110050

Included Lab Sample IDs: 2301088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A110068

Included Lab Sample IDs: 2301087

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

Reference Method: SM 4500 F-C-2011

Run ID: A110068

Included Lab Sample IDs: 2301087

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

Reference Method: SM 5310 B-2011

Run ID: A110130

Included Lab Sample IDs: 2301088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A110154

Included Lab Sample IDs: 2301087

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	99.7	P/P	90 - 110
Sulfate	98.5	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A110164

Included Lab Sample IDs: 2301088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A110182

Included Lab Sample IDs: 2301088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A110201

Included Lab Sample IDs: 2301088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	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)	98.6			1.34	
EPA 180.1 Rev. 2.0	Turbidity				0.475	
EPA 300.0 Rev. 2.1	Chloride	97.6	98.5	99.1	0.599	
	Sulfate	96.4	95.9	94.7	1.02	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	98.0	99.6		1.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	105	103		1.49
EPA 353.2 Rev. 2.0	NO2NO3-N	103	99.6	101		0.837
EPA 365.1 Rev. 2.0	Total-P	106	107	105		2.04
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	97.9	100		2.18
SM 2320 B-2011	Total Alkalinity	99.2			0.403	
SM 2540 C-2011	TDS				6.42	
SM 4500 F-C-2011	Fluoride	97.8	99.2	99.8		0.492
SM 5310 B-2011	Organic Carbon	94.6	94.6	94.8		0.203

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2301087
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2301087
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2301087
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2301087
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2301088
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2301088
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2301088
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2301088
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2301089
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2301087
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2301087
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2301087
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2301087
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2301088

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	01/21/2022			01/21/2022 14:30	Blanca Fach	2301087
EPA 180.1 Rev. 2.0	01/21/2022			01/21/2022 15:36	Sarah A Nixon	2301087
EPA 300.0 Rev. 2.1	01/21/2022			02/01/2022 18:16	James L Waggeberby	2301087
EPA 350.1 Rev. 2.0	01/21/2022			02/02/2022 13:20	Ping Hua	2301088
EPA 351.2 Rev. 2.0	01/21/2022	01/31/2022 10:51	Samantha L Bates	02/01/2022 16:19	Virginia P. Brown	2301088
EPA 353.2 Rev. 2.0	01/21/2022			01/26/2022 10:12	Beverly Y. Sanders	2301088
EPA 365.1 Rev. 2.0	01/21/2022	01/28/2022 14:50	Simonne.V. Calhoun	02/02/2022 16:44	Sarah A Nixon	2301088
EPA 365.1 Rev. 2.0 dissolved	01/21/2022			01/21/2022 14:11	James L Waggeberby	2301089
SM 2320 B-2011	01/21/2022			01/27/2022 01:57	Dale L. Simmons	2301087
SM 2540 C-2011	01/21/2022			01/25/2022 16:02	Yijie Li	2301087
SM 2540 D-2011	01/21/2022			01/25/2022 16:02	Yijie Li	2301087
SM 4500 F-C-2011	01/21/2022			01/27/2022 01:57	Dale L. Simmons	2301087
SM 5310 B-2011	01/21/2022			01/28/2022 23:23	Nathaniel J Jones	2301088