Chemical Analysis Report

CEN-DIST-2022-06-29-01

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

Event Description: **Livingston and Reedy**
Request ID: **RQ-2022-06-27-15**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 19-JUL-2022 08:45

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: Reedy Lake Basin @ Lake Reedy Blvd- Bridge **Collection Date/Time: 06/28/2022 12:05**

Field ID: G4CE0224 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2337846	DEP SOP: NU-094-1	Color (true)	10	A	PCU	P415985	
	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P415989	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P416149	
		Sulfate	48		mg SO4/L	P416152	
	SM 2320 B-2011	Total Alkalinity	37		mg CaCO3/L	P416321	
	SM 2540 C-2011	TDS	177		mg/L	P416197	
	SM 2540 D-2011	TSS	29		mg/L	P416166	
	SM 4500-F- C-2011	Fluoride	0.097	I	mg F/L	P416325	
2337847	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P416263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P416181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416428	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P416139	
	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P416106	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P415985

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415989

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416149

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416152

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416263

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416428

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416139

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

Reference Method: SM 2320 B-2011
Batch ID: P416321

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: P416197

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P416166

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P416325

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P416106

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: P415985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.1		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416149

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416152

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

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: P416428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416139

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

Reference Method: SM 2320 B-2011
Batch ID: P416321

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: P416325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416106

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416149

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337729	Chloride	98.4		P	90 - 110
2337733	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337729	Sulfate	98.8		P	90 - 110
2337733	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337715	Ammonia-N	98.0	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337734	Kjeldahl Nitrogen	97.0	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337646	NO2NO3-N	98.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337909	Total-P	102	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P416325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2338014	Fluoride	99.2	99.2	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337911	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P415985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337846	Color (true)	1.23	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337729	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337729	Chloride	0.118	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P416152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337729	Sulfate	0.0320	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337715	Ammonia-N	2.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337734	Kjeldahl Nitrogen	0.443	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337646	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337909	Total-P	1.60	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P416321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338014	Total Alkalinity	0.255	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P416197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337729	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P416166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337729	TSS	6.67	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P416325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2338014	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P416106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337911	Organic Carbon	0.0628	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: A113156
Included Lab Sample IDs: 2337846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	100	P/P	90 - 110
Sulfate	99.7	100	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1
Run ID: A113169
Included Lab Sample IDs: 2337846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.7	98.7	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A113170
Included Lab Sample IDs: 2337846

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

Reference Method: SM 5310 B-2011
Run ID: A113244
Included Lab Sample IDs: 2337847

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113332
Included Lab Sample IDs: 2337847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113361
Included Lab Sample IDs: 2337847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A113365
Included Lab Sample IDs: 2337846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A113365
Included Lab Sample IDs: 2337846

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A113420
Included Lab Sample IDs: 2337847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113474
Included Lab Sample IDs: 2337847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	97.4	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)	96.1				1.23	
EPA 180.1 Rev. 2.0	Turbidity	95.8				0.0	
EPA 300.0 Rev. 2.1	Chloride	101	98.4	99.4		0.118	
	Sulfate	101	98.8	100		0.0320	
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	98.0	95.4			2.32
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	97.0	96.5			0.443
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.5	100			0.966
EPA 365.1 Rev. 2.0	Total-P	102	102	104			1.60
SM 2320 B-2011	Total Alkalinity	99.2				0.255	
SM 2540 C-2011	TDS					0.0	
SM 2540 D-2011	TSS					6.67	
SM 4500-F- C-2011	Fluoride	98.4	99.2	99.2			0.0
SM 5310 B-2011	Organic Carbon	97.4	100	100			0.0628

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2337846
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2337846
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2337846
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2337846
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2337847
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2337847
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2337847
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2337847
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2337846
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2337846
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2337846
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2337846
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2337847

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	06/29/2022			06/29/2022 15:34	Anna M. Plaviak	2337846
EPA 180.1 Rev. 2.0	06/29/2022			06/29/2022 14:08	Khloe J Berg	2337846
EPA 300.0 Rev. 2.1	06/29/2022			07/02/2022 04:06	Anna M. Plaviak	2337846
EPA 350.1 Rev. 2.0	06/29/2022			07/07/2022 11:12	Ping Hua	2337847
EPA 351.2 Rev. 2.0	06/29/2022	07/12/2022 12:13	Simonne.V. Calhoun	07/13/2022 11:48	Alexandra J Mattheus	2337847
EPA 353.2 Rev. 2.0	06/29/2022			07/11/2022 12:52	Judith K. Clark	2337847
EPA 365.1 Rev. 2.0	06/29/2022	07/06/2022 16:30	Adam P Silver	07/07/2022 17:13	James L Waggerby	2337847
SM 2320 B-2011	06/29/2022			07/06/2022 20:53	Dale L. Simmons	2337846
SM 2540 C-2011	06/29/2022			07/01/2022 14:10	Ping Hua	2337846
SM 2540 D-2011	06/29/2022			07/01/2022 14:10	Ping Hua	2337846
SM 4500-F- C-2011	06/29/2022			07/06/2022 20:53	Dale L. Simmons	2337846
SM 5310 B-2011	06/29/2022			06/30/2022 19:49	Khloe J Berg	2337847