

Chemical Analysis Report

WAS-SECT-2022-04-05-01

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

Event Description: **Pinellas Lake Tarpon Canal**

Request ID: **RQ-2022-04-04-11**

Customer: **WAS-SECT**

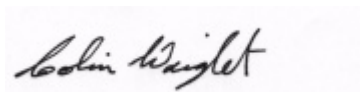
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 25-APR-2022 09:24

A handwritten signature in black ink, appearing to read "Colin Wright", 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: Pinellas Lake Tarpon Canal

Collection Date/Time: 04/04/2022 10:12

Field ID: Pinellas Lake Tarpon Canal

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316716	DEP SOP: NU-094-1	Color (true)**	25	A	PCU	P411989	
	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P411991	
	EPA 300.0 Rev. 2.1	Chloride	6.7E+03		mg Cl/L	P412226	
		Sulfate	980		mg SO4/L	P412235	
	SM 2320 B-2011	Total Alkalinity	100		mg CaCO3/L	P412455	
	SM 2540 C-2011	TDS	1.22E+04		mg/L	P412258	
	SM 2540 D-2011	TSS	3	U	mg/L	P412433	
	SM 4500-F- C-2011	Fluoride	0.51		mg F/L	P412531	
2316717	EPA 350.1 Rev. 2.0	Ammonia-N	0.23		mg N/L	P412083	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P412177	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P412007	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P412309	
	SM 5310 B-2011	Organic Carbon	9.0		mg C/L	P412109	

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: P411989

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411991

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412226

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412235

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412083

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412177

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412007

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412309

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

Reference Method: SM 2320 B-2011
Batch ID: P412455

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: P412258

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P412433

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P412531

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P412109

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: P411989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412226

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412235

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412083

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412177

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412007

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: P412309

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

Reference Method: SM 2320 B-2011
Batch ID: P412455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.6		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P412531

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P412109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316179	Chloride	97.7		P	90 - 110
2316422	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316179	Sulfate	99.0		P	90 - 110
2316422	Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316138	Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316410	Kjeldahl Nitrogen	94.9	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316635	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316637	Total-P	96.4	96.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P412531

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2318237	Fluoride	96.3	97.1	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P412109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315572	Organic Carbon	94.1	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P411989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316716	Color (true)	3.03	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P411991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316597	Turbidity	13.7	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316179	Chloride	0.281	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316179	Sulfate	0.186	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316138	Ammonia-N	0.665	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316410	Kjeldahl Nitrogen	4.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316635	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316637	Total-P	0.0500	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P412455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2318237	Total Alkalinity	2.25	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P412258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317055	TDS	0.608	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P412531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2318237	Fluoride	0.520	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P412109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2315572	Organic Carbon	2.50	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: A111317

Included Lab Sample IDs: 2316716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A111318

Included Lab Sample IDs: 2316716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A111331

Included Lab Sample IDs: 2316717

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A111365

Included Lab Sample IDs: 2316717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.1	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A111368

Included Lab Sample IDs: 2316716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	96.8	P/P	90 - 110
Sulfate	99.1	99.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A111373

Included Lab Sample IDs: 2316717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111481

Included Lab Sample IDs: 2316717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A111489

Included Lab Sample IDs: 2316717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.2	94.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A111512

Included Lab Sample IDs: 2316716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.1	95.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A111549

Included Lab Sample IDs: 2316716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.0	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)	99.0			3.03	
EPA 180.1 Rev. 2.0	Turbidity	96.2			13.7	
EPA 300.0 Rev. 2.1	Chloride	99.5	97.7	97.2	0.281	
	Sulfate	99.5	99.0	97.8	0.186	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	99.8	101		0.665
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	94.9	99.5		4.34
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	101		0.966
EPA 365.1 Rev. 2.0	Total-P	104	96.4	96.5		0.0500
SM 2320 B-2011	Total Alkalinity	96.6			2.25	
SM 2540 C-2011	TDS				0.608	
SM 4500-F- C-2011	Fluoride	97.5	96.3	97.1		0.520
SM 5310 B-2011	Organic Carbon	99.0	94.1	97.0		2.50

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2316716
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2316716
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2316716
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2316716
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2316717
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2316717
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2316717
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2316717
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2316716
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2316716
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2316716
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2316716
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2316717

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	04/05/2022			04/05/2022 15:32	Samantha L Bates	2316716
EPA 180.1 Rev. 2.0	04/05/2022			04/05/2022 14:48	Khloe J Berg	2316716
EPA 300.0 Rev. 2.1	04/05/2022			04/08/2022 01:07	Anna M. Plaviak	2316716
EPA 350.1 Rev. 2.0	04/05/2022			04/07/2022 12:47	Ping Hua	2316717
EPA 351.2 Rev. 2.0	04/05/2022	04/11/2022 15:33	Samantha L Bates	04/14/2022 16:14	Alexandra J Mattheus	2316717
EPA 353.2 Rev. 2.0	04/05/2022			04/06/2022 10:52	Beverly Y. Sanders	2316717
EPA 365.1 Rev. 2.0	04/05/2022	04/13/2022 14:10	Simonne.V. Calhoun	04/14/2022 16:04	Sarah A Nixon	2316717
SM 2320 B-2011	04/05/2022			04/14/2022 23:21	Dale L. Simmons	2316716
SM 2540 C-2011	04/05/2022			04/07/2022 13:30	Simonne.V. Calhoun	2316716
SM 2540 D-2011	04/05/2022			04/08/2022 15:29	Yijie Li	2316716
SM 4500-F- C-2011	04/05/2022			04/19/2022 02:37	Dale L. Simmons	2316716
SM 5310 B-2011	04/05/2022			04/08/2022 02:09	Khloe J Berg	2316717