

Chemical Analysis Report

WAS-SECT-2022-09-20-02

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

Event Description: **Pinellas Lake Tarpon Canal**
Request ID: **RQ-2022-09-19-07**
Customer: **WAS-SECT**
Project ID: **SMP**

Send Reports to:
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Date Certified: 11-OCT-2022 10:17



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: Harbor Palms Nature Park Kayak Launch

Collection Date/Time: 09/19/2022 12:05

Field ID: 11-06

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2357646	DEP SOP: NU-094-1	Color (true)	100		PCU	P419864	
	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P419882	
	EPA 300.0 Rev. 2.1	Chloride	4.2E+03		mg Cl/L	P420255	
		Sulfate	610		mg SO4/L	P420259	
	SM 2320 B-2011	Total Alkalinity	85		mg CaCO3/L	P420277	
	SM 2540 C-2011	TDS	7.21E+03		mg/L	P420295	
	SM 2540 D-2011	TSS	5	IA	mg/L	P420243	
	SM 4500-F- C-2011	Fluoride	0.39		mg F/L	P420469	
2357647	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P420345	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P420076	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420298	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P419931	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P420035	

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: P419864

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419882

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420255

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420259

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420345

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420076

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420298

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419931

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

Reference Method: SM 2320 B-2011
Batch ID: P420277

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: P420295

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P420243

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P420469

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: DEP SOP: NU-094-1
Batch ID: P419864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419882

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420255

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420259

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420345

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420076

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420298

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: P419931

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

Reference Method: SM 2320 B-2011
Batch ID: P420277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P420469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	94 - 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 300.0 Rev. 2.1
Batch ID: P420255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357609	Chloride	93.2		P	90 - 110
2357656	Chloride	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357609	Sulfate	95.5		P	90 - 110
2357656	Sulfate	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358630	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2358510	Kjeldahl Nitrogen	105	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420298

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357773	NO2NO3-N	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357477	Total-P	96.3	95.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P420469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357646	Fluoride	100	100	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: DEP SOP: NU-094-1
Batch ID: P419864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357458	Color (true)	0.785	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357608	Turbidity	10.7	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357609	Chloride	0.245	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357609	Sulfate	0.327	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358630	Ammonia-N	0.126	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2358510	Kjeldahl Nitrogen	1.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357773	NO2NO3-N	2.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357477	Total-P	0.529	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P420277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357608	Total Alkalinity	0.499	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P420295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357612	TDS	4.24	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P420469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357646	Fluoride	0.0	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: DEP SOP: NU-094-1
Run ID: A114832
Included Lab Sample IDs: 2357646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A114837
Included Lab Sample IDs: 2357646

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

Reference Method: SM 5310 B-2011
Run ID: A114912
Included Lab Sample IDs: 2357647

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114914
Included Lab Sample IDs: 2357647

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A114999
Included Lab Sample IDs: 2357646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	100	P/P	90 - 110
Sulfate	99.3	99.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A115007
Included Lab Sample IDs: 2357646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A115023
Included Lab Sample IDs: 2357647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A115055
Included Lab Sample IDs: 2357647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115082

Included Lab Sample IDs: 2357647

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

Reference Method: SM 4500-F- C-2011

Run ID: A115129

Included Lab Sample IDs: 2357646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	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		LCS	Precision	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	102				0.785	
EPA 180.1 Rev. 2.0	Turbidity	101				10.7	
EPA 300.0 Rev. 2.1	Chloride	98.9	93.2	95.0		0.245	
	Sulfate	97.5	95.5	95.8		0.327	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	104	104			0.126
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4	105	107			1.75
EPA 353.2 Rev. 2.0	NO2NO3-N	103	104	101			2.36
EPA 365.1 Rev. 2.0	Total-P	107	96.3	95.7			0.529
SM 2320 B-2011	Total Alkalinity	101				0.499	
SM 2540 C-2011	TDS					4.24	
SM 4500-F- C-2011	Fluoride	100	100	100			0.0
SM 5310 B-2011	Organic Carbon	96.4	95.5	94.0			1.11

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2357646
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2357646
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2357646
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2357646
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2357647
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2357647
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2357647
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2357647
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2357646
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2357646
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2357646
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2357646
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2357647

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	09/20/2022			09/20/2022 16:04	Anna M. Plaviak	2357646
EPA 180.1 Rev. 2.0	09/20/2022			09/20/2022 13:56	Chandler E Cox	2357646
EPA 300.0 Rev. 2.1	09/20/2022			09/27/2022 15:27	Anna M. Plaviak	2357646
EPA 350.1 Rev. 2.0	09/20/2022			09/30/2022 12:43	Ping Hua	2357647
EPA 351.2 Rev. 2.0	09/20/2022	09/26/2022 13:48	Alexandra J Mattheus	10/03/2022 10:06	Samantha L Bates	2357647
EPA 353.2 Rev. 2.0	09/20/2022			09/28/2022 16:56	Touraj Touran	2357647
EPA 365.1 Rev. 2.0	09/20/2022	09/22/2022 14:19	Adam P Silver	09/23/2022 12:26	James L Waggerby	2357647
SM 2320 B-2011	09/20/2022			09/29/2022 04:29	Adam P Silver	2357646
SM 2540 C-2011	09/20/2022			09/21/2022 15:39	Yijie Li	2357646
SM 2540 D-2011	09/20/2022			09/21/2022 15:39	Yijie Li	2357646
SM 4500-F- C-2011	09/20/2022			10/05/2022 05:10	Adam P Silver	2357646
SM 5310 B-2011	09/20/2022			09/23/2022 02:36	Khloe J Berg	2357647