

Chemical Analysis Report

WAS-SECT-2022-07-19-01

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-2022-07-18-08**

Customer: **WAS-SECT**

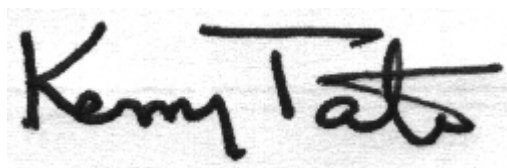
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 03-AUG-2022 09:38

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 Tarpon Bypass

Collection Date/Time: 07/18/2022 11:18

Field ID: Harbor Palms Tarpon Bypass

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342194	DEP SOP: NU-094-1	Color (true)	31		PCU	P416853	
	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P416869	
	EPA 300.0 Rev. 2.1	Chloride	4.5E+03		mg Cl/L	P417207	
		Sulfate	640		mg SO4/L	P417210	
	SM 2320 B-2011	Total Alkalinity	89		mg CaCO3/L	P417217	
	SM 2540 C-2011	TDS	8.39E+03		mg/L	P417297	
	SM 2540 D-2011	TSS	5	I	mg/L	P417286	
	SM 4500-F- C-2011	Fluoride	0.43		mg F/L	P417220	
2342195	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P417313	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P417154	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417164	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P416948	
	SM 5310 B-2011	Organic Carbon	9.1		mg C/L	P417157	

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: P416853

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416869

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417207

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417210

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417154

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417164

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416948

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

Reference Method: SM 2320 B-2011
Batch ID: P417217

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: P417297

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417286

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P417157

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: P416853

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: P416869

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: P417207

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417210

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417154

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: P417164

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: P416948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P417217

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342089	Chloride	95.5		P	90 - 110
2342115	Chloride	93.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342089	Sulfate	94.1		P	90 - 110
2342115	Sulfate	93.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342195	Ammonia-N	105	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342195	Kjeldahl Nitrogen	98.1	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341131	NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342195	Total-P	100	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343211	Fluoride	99.4	98.6	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342121	Organic Carbon	98.2	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P416853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342200	Color (true)	3.79	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342105	Turbidity	2.29	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342089	Chloride	0.136	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342089	Sulfate	0.173	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342195	Ammonia-N	3.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342195	Kjeldahl Nitrogen	0.108	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341131	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342195	Total-P	0.435	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P417217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343211	Total Alkalinity	0.165	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P417297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342174	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343211	Fluoride	0.483	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P417157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342121	Organic Carbon	0.491	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: A113584
Included Lab Sample IDs: 2342194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A113588
Included Lab Sample IDs: 2342194

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113685
Included Lab Sample IDs: 2342195

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

Reference Method: SM 5310 B-2011
Run ID: A113703
Included Lab Sample IDs: 2342195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A113707
Included Lab Sample IDs: 2342195

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A113721
Included Lab Sample IDs: 2342194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	100	P/P	90 - 110
Sulfate	98.4	99.3	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A113724
Included Lab Sample IDs: 2342194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	99.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A113724
Included Lab Sample IDs: 2342194

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113731

Included Lab Sample IDs: 2342195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.7	96.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113763

Included Lab Sample IDs: 2342195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.7	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)	102			3.79	
EPA 180.1 Rev. 2.0	Turbidity	97.0			2.29	
EPA 300.0 Rev. 2.1	Chloride	98.0	95.5	93.7	0.136	
	Sulfate	97.4	94.1	93.6	0.173	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	105	101		3.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.1	98.2		0.108
EPA 353.2 Rev. 2.0	NO2NO3-N	102	108	108		0.0
EPA 365.1 Rev. 2.0	Total-P	99.8	100	100		0.435
SM 2320 B-2011	Total Alkalinity	100			0.165	
SM 2540 C-2011	TDS				6.74	
SM 4500-F- C-2011	Fluoride	101	99.4	98.6		0.483
SM 5310 B-2011	Organic Carbon	99.8	98.2	97.6		0.491

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2342194
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2342194
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2342194
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2342194
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2342195
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2342195
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2342195
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2342195
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2342194
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2342194
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2342194
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2342194
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2342195

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	07/19/2022			07/19/2022 14:37	Samantha L Bates	2342194
EPA 180.1 Rev. 2.0	07/19/2022			07/19/2022 13:39	Anna M. Plaviak	2342194
EPA 300.0 Rev. 2.1	07/19/2022			07/26/2022 15:41	Anna M. Plaviak	2342194
EPA 350.1 Rev. 2.0	07/19/2022			07/28/2022 10:58	Ping Hua	2342195
EPA 351.2 Rev. 2.0	07/19/2022	07/26/2022 11:30	Simonne.V. Calhoun	07/27/2022 11:34	Samantha L Bates	2342195
EPA 353.2 Rev. 2.0	07/19/2022			07/26/2022 10:26	Beverly Y. Sanders	2342195
EPA 365.1 Rev. 2.0	07/19/2022	07/22/2022 16:03	Adam P Silver	07/25/2022 09:42	James L Waggerby	2342195
SM 2320 B-2011	07/19/2022			07/27/2022 03:14	Dale L. Simmons	2342194
SM 2540 C-2011	07/19/2022			07/22/2022 15:32	Yijie Li	2342194
SM 2540 D-2011	07/19/2022			07/22/2022 15:32	Yijie Li	2342194
SM 4500-F- C-2011	07/19/2022			07/26/2022 23:52	Dale L. Simmons	2342194
SM 5310 B-2011	07/19/2022			07/23/2022 00:49	Touraj Touran	2342195