

Chemical Analysis Report

SW-DIST-2022-06-02-03

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

Event Description: **Pinellas Continuous Monitoring**

Request ID: **RQ-2022-05-30-12**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

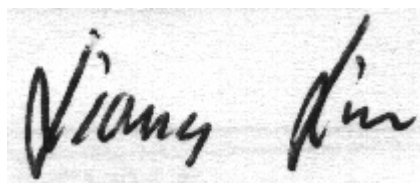
FL Dept. of Environmental Protection
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Sarah Meyer

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-JUN-2022 09:37

A handwritten signature in black ink, appearing to read "Liang Lin", 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: Cross Canal (North)

Collection Date/Time: 06/01/2022 09:30

Field ID: G5SW0187

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2331472	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P414665	
	SM 2320 B-2011	Total Alkalinity	121	A	mg CaCO3/L	P415137	
	SM 2540 D-2011	TSS	2	U	mg/L	P414908	
	SM 4500-F- C-2011	Fluoride	0.42		mg F/L	P415762	
2331473	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P415076	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P414742	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P415114	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P414901	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P414757	
2331474	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P414706	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414665

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415076

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414742

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415114

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414901

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P414706

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

Reference Method: SM 2320 B-2011
Batch ID: P415137

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 D-2011
Batch ID: P414908

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P415762

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P414757

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P414665

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415076

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414742

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415114

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: P414901

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P414706

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

Reference Method: SM 2320 B-2011
Batch ID: P415137

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

Reference Method: SM 4500-F- C-2011
Batch ID: P415762

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

Reference Method: SM 5310 B-2011
Batch ID: P414757

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2329993	Ammonia-N	97.8	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331350	Kjeldahl Nitrogen	95.3	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331023	NO2NO3-N	109	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P414901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331440	Total-P	106	105	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P415762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331472	Fluoride	101	100	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P414757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2331287	Organic Carbon	96.2	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P414665

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331349	Turbidity	5.79	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P415076

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2329993	Ammonia-N	0.152	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P414742

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331350	Kjeldahl Nitrogen	2.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P415114

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331023	NO2NO3-N	5.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P414901

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331440	Total-P	1.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P414706

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331474	O-Phosphate-P	0.0922	Spike	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P415137

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331472	Total Alkalinity	0.307	Sample	P	0 - 3.8

Reference Method: SM 2540 D-2011

Batch ID: P414908

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331385	TSS	0.0	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P415762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331472	Fluoride	0.480	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P414757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2331287	Organic Carbon	0.543	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A112575

Included Lab Sample IDs: 2331472

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A112594

Included Lab Sample IDs: 2331474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	98.9	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A112617

Included Lab Sample IDs: 2331473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112704

Included Lab Sample IDs: 2331473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.2	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A112754

Included Lab Sample IDs: 2331473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A112776

Included Lab Sample IDs: 2331473

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A112793

Included Lab Sample IDs: 2331473

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

Reference Method: SM 2320 B-2011

Run ID: A112796

Included Lab Sample IDs: 2331472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A113065

Included Lab Sample IDs: 2331472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	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	
EPA 180.1 Rev. 2.0	Turbidity	96.7				5.79	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	97.8	98.0			0.152
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.3	95.3	98.5			2.80
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	109	103			5.66
EPA 365.1 Rev. 2.0	Total-P	105	106	105			1.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101					0.0922
SM 2320 B-2011	Total Alkalinity	101				0.307	
SM 2540 D-2011	TSS					0.0	
SM 4500-F- C-2011	Fluoride	101	101	100			0.480
SM 5310 B-2011	Organic Carbon	95.6	96.2	97.0			0.543

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2331472
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2331473
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2331473
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2331473
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2331473
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2331474
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2331472
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2331472
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2331472
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2331473

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	06/02/2022			06/02/2022 13:42	Anna M. Plaviak	2331472
EPA 350.1 Rev. 2.0	06/02/2022			06/10/2022 14:24	Ping Hua	2331473
EPA 351.2 Rev. 2.0	06/02/2022	06/08/2022 11:39	Samantha L Bates	06/09/2022 12:44	Alexandra J Mattheus	2331473
EPA 353.2 Rev. 2.0	06/02/2022			06/10/2022 17:21	Touraj Touran	2331473
EPA 365.1 Rev. 2.0	06/02/2022	06/09/2022 15:30	Simonne.V. Calhoun	06/10/2022 11:11	James L Waggerby	2331473
EPA 365.1 Rev. 2.0 dissolved	06/02/2022			06/02/2022 17:39	Nathaniel J Jones	2331474
SM 2320 B-2011	06/02/2022			06/14/2022 02:33	Dale L. Simmons	2331472
SM 2540 D-2011	06/02/2022			06/07/2022 15:26	Blanca Fach	2331472
SM 4500-F- C-2011	06/02/2022			06/24/2022 12:29	Dale L. Simmons	2331472
SM 5310 B-2011	06/02/2022			06/04/2022 04:32	Khloe J Berg	2331473