

Chemical Analysis Report

SW-DIST-2019-06-21-01

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

Event Description: **LVI**s
Request ID: **RQ-2019-05-27-06**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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Date Certified: 08-JUL-2019 16:50



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: LAKE IDA @ CENTER

Collection Date/Time: 06/20/2019 10:30

Field ID: G3SW0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2097478	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P366131	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P366534	
		Sulfate	19		mg SO4/L	P366535	
	SM 2120 B	Color (true)	29	A	PCU	P366127	
	SM 2320 B-97	Total Alkalinity	64		mg CaCO3/L	P366445	RPD
	SM 2540 C-97	TDS	154		mg/L	P366616	
	SM 2540 D-97	TSS	2	U	mg/L	P366608	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P366583	
2097479	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P366548	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P366315	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P366334	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P366324	
	SM 5310 B-00	Organic Carbon	7.7		mg C/L	P366314	
2097480	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P366121	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P366131

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366534

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366535

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366548

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366315

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P366334

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366324

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366121

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

Reference Method: SM 2120 B
Batch ID: P366127

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P366445

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P366616

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P366608

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P366583

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P366314

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366315

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: P366334

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366324

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.4		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P366127

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

Reference Method: SM 2320 B-97
Batch ID: P366445

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P366583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P366314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097148	Chloride	96.8		P	90 - 110
2097263	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097148	Sulfate	96.0		P	90 - 110
2097263	Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097479	Ammonia-N	106	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097921	Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P366334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097374	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097921	Total-P	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097265	O-Phosphate-P	94.8	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P366583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098178	Fluoride	97.8	99.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P366314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2097303	Organic Carbon	95.0	96.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P366131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097379	Turbidity	0.966	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097148	Chloride	0.862	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P366535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097148	Sulfate	0.932	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097479	Ammonia-N	0.350	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097921	Kjeldahl Nitrogen	3.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P366334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097374	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097921	Total-P	0.472	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097265	O-Phosphate-P	2.19	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P366127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097478	Color (true)	2.87	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P366445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098178	Total Alkalinity	5.44	Sample	F	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P366616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097302	TDS	5.50	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P366583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098178	Fluoride	0.979	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P366314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2097303	Organic Carbon	1.00	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92279

Included Lab Sample IDs: 2097480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	97.4	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A92280

Included Lab Sample IDs: 2097478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A92281

Included Lab Sample IDs: 2097478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A92336

Included Lab Sample IDs: 2097478

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

Reference Method: SM 5310 B-00

Run ID: A92362

Included Lab Sample IDs: 2097479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92371

Included Lab Sample IDs: 2097479

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: A92397

Included Lab Sample IDs: 2097479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92400

Included Lab Sample IDs: 2097479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	94.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A92417
Included Lab Sample IDs: 2097478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A92461
Included Lab Sample IDs: 2097479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	106	106	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A92490
Included Lab Sample IDs: 2097478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.5	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					0.966	
EPA 300.0 Rev. 2.1	Chloride	98.6	96.8	99.3		0.862	
	Sulfate	98.6	96.0	99.6		0.932	
EPA 350.1 Rev. 2.0	Ammonia-N	106	106	106			0.350
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	107	102			3.86
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	103	99.0	99.5			0.472
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	94.8	96.9			2.19
SM 2120 B	Color (true)	100				2.87	
SM 2320 B-97	Total Alkalinity	103				5.44	
SM 2540 C-97	TDS					5.50	
SM 4500 F-C-97	Fluoride	98.0	97.8	99.1			0.979
SM 5310 B-00	Organic Carbon	96.0	95.0	96.6			1.00

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2097478
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2097478
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2097478
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2097479
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2097479
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2097479
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2097479
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2097480
SM 2120 B / E31780	True Color measured at 450 nm	2097478
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2097478
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2097478
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2097478
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2097478
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2097479

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	06/21/2019			06/21/2019 16:50	Adrian Shelby	2097478
EPA 300.0 Rev. 2.1	06/21/2019			06/28/2019 16:22	Jhamieka S. Greenwood	2097478
EPA 350.1 Rev. 2.0	06/21/2019			06/27/2019 13:20	Ping Hua	2097479
EPA 351.2 Rev. 2.0	06/21/2019	06/26/2019 11:25	Sima Feizi	06/27/2019 10:28	Joseph Suarez	2097479
EPA 353.2 Rev. 2.0	06/21/2019			06/26/2019 11:09	Beverly Y. Sanders	2097479
EPA 365.1 Rev. 2.0	06/21/2019	06/26/2019 12:15	Sima Feizi	06/27/2019 12:24	Lipi Saha	2097479
EPA 365.1 Rev. 2.0 dissolved	06/21/2019			06/21/2019 16:21	Jhamieka S. Greenwood	2097480
SM 2120 B	06/21/2019			06/21/2019 16:57	Madeline Funaro	2097478
SM 2320 B-97	06/21/2019			06/27/2019 07:51	Dale L. Simmons	2097478
SM 2540 C-97	06/21/2019			06/26/2019 15:02	Yijie Li	2097478
SM 2540 D-97	06/21/2019			06/26/2019 15:02	Yijie Li	2097478
SM 4500 F-C-97	06/21/2019			07/01/2019 22:10	Dale L. Simmons	2097478
SM 5310 B-00	06/21/2019			06/25/2019 06:54	Madeline Funaro	2097479