

Chemical Analysis Report

SO-DIST-2018-09-20-01

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

Event Description: **HA Sites**
Request ID: **RQ-2018-09-17-98**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 15-OCT-2018 11:31



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 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: Yellow Fever Creek

Collection Date/Time: 09/19/2018 13:00

Field ID: G3SD0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027118	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P352029	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P352354	
		Sulfate	14		mg SO4/L	P352357	
	SM 2120 B	Color (true)	44		PCU	P352007	
	SM 2320 B-97	Total Alkalinity	256		mg CaCO3/L	P352564	
	SM 2540 C-97	TDS	325		mg/L	P352862	
	SM 2540 D-97	TSS	8	I	mg/L	P352253	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P352566	
2027119	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P352537	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P352218	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P352295	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P352147	
	SM 5310 B-00	Organic Carbon	9.5		mg C/L	P352264	
2027120	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.085		mg P/L	P352013	

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: P352029

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352354

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352357

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352537

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352218

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352295

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352147

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352013

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

Reference Method: SM 2120 B
Batch ID: P352007

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P352564

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

Reference Method: SM 2540 C-97
Batch ID: P352862

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352253

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P352566

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352264

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: P352354

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352357

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352537

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352218

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352295

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: P352147

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P352007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P352564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P352566

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352264

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027136	Chloride	100	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027136	Sulfate	99.8	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027077	Ammonia-N	95.4	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027084	Kjeldahl Nitrogen	102	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027084	NO2NO3-N	99.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027061	Total-P	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027007	O-Phosphate-P	98.0	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P352566

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027327	Fluoride	95.1	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027119	Organic Carbon	95.0	95.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027136	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027136	Chloride	0.0587	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027136	Sulfate	0.407	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027077	Ammonia-N	1.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027084	Kjeldahl Nitrogen	2.13	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027084	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027061	Total-P	0.0980	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027007	O-Phosphate-P	0.374	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P352007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027135	Color (true)	0.154	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P352564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027327	Total Alkalinity	0.629	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P352862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027328	TDS	1.26	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P352566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027327	Fluoride	0.482	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P352264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027119	Organic Carbon	0.210	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: SM 2120 B
Run ID: A86617
Included Lab Sample IDs: 2027118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	106	108	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A86618
Included Lab Sample IDs: 2027120

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86622
Included Lab Sample IDs: 2027118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86704
Included Lab Sample IDs: 2027119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A86718
Included Lab Sample IDs: 2027118

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

Reference Method: SM 5310 B-00
Run ID: A86723
Included Lab Sample IDs: 2027119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.2	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86728
Included Lab Sample IDs: 2027119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86737
Included Lab Sample IDs: 2027119

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86823

Included Lab Sample IDs: 2027119

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

Reference Method: SM 2320 B-97

Run ID: A86829

Included Lab Sample IDs: 2027118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86829

Included Lab Sample IDs: 2027118

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.0	
EPA 300.0 Rev. 2.1	Chloride	100	100	100			0.0587
	Sulfate	98.9	99.8	99.4			0.407
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	95.4	97.5			1.84
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	102	106			2.13
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	99.7	101			0.966
EPA 365.1 Rev. 2.0	Total-P	104	100	100			0.0980
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	98.0	98.6			0.374
SM 2120 B	Color (true)	99.0				0.154	
SM 2320 B-97	Total Alkalinity	103				0.629	
SM 2540 C-97	TDS					1.26	
SM 4500 F-C-97	Fluoride	96.9	95.1	95.7			0.482
SM 5310 B-00	Organic Carbon	96.2	95.0	95.3			0.210

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2027118
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2027118
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2027118
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2027119
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2027119
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2027119
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2027119
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2027120
SM 2120 B / E31780	True Color measured at 450 nm	2027118
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2027118
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2027118
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2027118
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2027118
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2027119

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	09/20/2018			09/20/2018 10:44	Megan Treadwell	2027118
EPA 300.0 Rev. 2.1	09/20/2018			09/27/2018 05:10	Lipi Saha	2027118
EPA 350.1 Rev. 2.0	09/20/2018			09/27/2018 12:51	Ping Hua	2027119
EPA 351.2 Rev. 2.0	09/20/2018	09/25/2018 15:30	Adrian Shelby	09/27/2018 08:57	Joseph Suarez	2027119
EPA 353.2 Rev. 2.0	09/20/2018			09/26/2018 11:52	Lauren Bottorf	2027119
EPA 365.1 Rev. 2.0	09/20/2018	09/24/2018 12:05	Sima Feizi	09/25/2018 10:02	Beverly Y. Sanders	2027119
EPA 365.1 Rev. 2.0 dissolved	09/20/2018			09/20/2018 16:23	Julia Storbeck	2027120
SM 2120 B	09/20/2018			09/20/2018 15:49	DeAsia Armster	2027118
SM 2320 B-97	09/20/2018			09/28/2018 05:14	Dale L. Simmons	2027118
SM 2540 C-97	09/20/2018			09/24/2018 15:00	DeAsia Armster	2027118
SM 2540 D-97	09/20/2018			09/24/2018 15:00	DeAsia Armster	2027118
SM 4500 F-C-97	09/20/2018			09/28/2018 05:14	Dale L. Simmons	2027118
SM 5310 B-00	09/20/2018			09/26/2018 04:42	Megan Treadwell	2027119