

Chemical Analysis Report

SO-DIST-2021-09-02-01

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

Event Description: **2021 SMP: Bee Branch HA**

Request ID: **RQ-2021-08-30-40**

Customer: **SO-DIST**

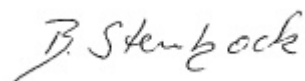
Project ID: **SMP**

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Date Certified: 28-SEP-2021 17:27



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: Bee Branch @ 78

Collection Date/Time: 09/01/2021 09:35

Field ID: G3SD0188

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2273229	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P403332	
	EPA 300.0 Rev. 2.1	Chloride	55		mg Cl/L	P403499	
		Sulfate	38		mg SO4/L	P403500	
		Color (true)	26		PCU	P403334	
	SM 2320 B-2011	Total Alkalinity	316		mg CaCO3/L	P403437	
	SM 2540 C-2011	TDS	485		mg/L	P403572	
	SM 2540 D-2011	TSS	3	I	mg/L	P403568	
	SM 4500 F-C-2011	Fluoride	0.30		mg F/L	P403438	
2273230	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P403363	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P403509	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P403348	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P403425	
	SM 5310 B-2011	Organic Carbon	7.2		mg C/L	P403549	
2273231	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.040		mg P/L	P403336	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: 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: P403332

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403499

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403500

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403363

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403509

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403348

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403425

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403336

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

Reference Method: SM 2120 B-2011
Batch ID: P403334

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P403437

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

Reference Method: SM 2540 C-2011
Batch ID: P403572

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P403568

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403438

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403549

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: P403499

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P403500

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P403363

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P403509

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P403348

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: P403425

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P403336

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

Reference Method: SM 2120 B-2011
 Batch ID: P403334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: SM 2320 B-2011
 Batch ID: P403437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P403438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.5		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403549

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273152	Chloride	99.6		P	90 - 110
2273276	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273152	Sulfate	100		P	90 - 110
2273276	Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273230	Ammonia-N	98.2	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273153	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273225	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273163	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P403438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273302	Fluoride	97.6	100	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2273256	Organic Carbon	95.6	95.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273152	Turbidity	10.5	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273152	Chloride	0.969	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273230	Ammonia-N	0.540	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273208	Kjeldahl Nitrogen	2.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273153	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273225	Total-P	0.397	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273163	O-Phosphate-P	0.295	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P403334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273207	Color (true)	0.546	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P403437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273302	Total Alkalinity	1.28	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P403572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273023	TDS	5.53	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P403438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273302	Fluoride	1.90	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2273256	Organic Carbon	0.137	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: A107623

Included Lab Sample IDs: 2273229

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

Reference Method: SM 2120 B-2011

Run ID: A107624

Included Lab Sample IDs: 2273229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107625

Included Lab Sample IDs: 2273231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107639

Included Lab Sample IDs: 2273230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107641

Included Lab Sample IDs: 2273230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	98.3	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107669

Included Lab Sample IDs: 2273229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107669

Included Lab Sample IDs: 2273229

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107673

Included Lab Sample IDs: 2273230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.6	96.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107690

Included Lab Sample IDs: 2273229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Sulfate	99.6	99.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107704

Included Lab Sample IDs: 2273230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107739

Included Lab Sample IDs: 2273230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	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					10.5	
EPA 300.0 Rev. 2.1	Chloride	100	99.6	99.5		0.969	
	Sulfate	100	100	99.9			
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.2	97.4			0.540
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105					2.92
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	108	102	102			0.397
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	101	102			0.295
SM 2120 B-2011	Color (true)	99.8				0.546	
SM 2320 B-2011	Total Alkalinity	103				1.28	
SM 2540 C-2011	TDS					5.53	
SM 4500 F-C-2011	Fluoride	99.5	97.6	100			1.90
SM 5310 B-2011	Organic Carbon	94.8	95.6	95.4			0.137

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2273229
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2273229
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2273229
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2273230
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2273230
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2273230
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2273230
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2273231
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2273229
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2273229
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2273229
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2273229
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2273229
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2273230

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	09/02/2021			09/02/2021 13:29	Sarah A Nixon	2273229
EPA 300.0 Rev. 2.1	09/02/2021			09/08/2021 15:43	Roberta Tatti	2273229
EPA 350.1 Rev. 2.0	09/02/2021			09/03/2021 13:12	Ping Hua	2273230
EPA 351.2 Rev. 2.0	09/02/2021	09/09/2021 12:30	Benjamin T. Nordmann	09/10/2021 11:19	Virginia P. Brown	2273230
EPA 353.2 Rev. 2.0	09/02/2021			09/03/2021 09:19	Beverly Y. Sanders	2273230
EPA 365.1 Rev. 2.0	09/02/2021	09/07/2021 15:50	Simonne.V. Calhoun	09/08/2021 10:28	Shengyu Ding	2273230
EPA 365.1 Rev. 2.0 dissolved	09/02/2021			09/02/2021 16:37	James L Waggerby	2273231
SM 2120 B-2011	09/02/2021			09/02/2021 15:05	Sarah A Nixon	2273229
SM 2320 B-2011	09/02/2021			09/07/2021 19:24	Sarah A Nixon	2273229
SM 2540 C-2011	09/02/2021			09/03/2021 14:31	Yijie Li	2273229
SM 2540 D-2011	09/02/2021			09/03/2021 14:31	Yijie Li	2273229
SM 4500 F-C-2011	09/02/2021			09/07/2021 19:24	Sarah A Nixon	2273229
SM 5310 B-2011	09/02/2021			09/09/2021 01:53	Madeline Gruver	2273230