Chemical Analysis Report

SW-DIST-2020-07-21-01

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

Event Description: **Innisbrook**
Request ID: **RQ-2020-07-20-69**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 05-AUG-2020 09:57

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 Innisbrook **Collection Date/Time: 07/20/2020 10:45**

Field ID: G5SW0040 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2184362	EPA 180.1 Rev. 2.0	Turbidity	6.5		NTU	P384971	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P385317	
		Sulfate	22		mg SO4/L	P385321	
	SM 2120 B-2011	Color (true)	110		PCU	P384963	
	SM 2320 B-2011	Total Alkalinity	107		mg CaCO3/L	P385067	
	SM 2540 C-2011	TDS	328		mg/L	P385460	
	SM 2540 D-2011	TSS	8	I	mg/L	P385466	
	SM 4500 F-C-2011	Fluoride	0.27		mg F/L	P385069	
2184363	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P385141	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P385054	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P384989	
	EPA 365.1 Rev. 2.0	Total-P	0.33		mg P/L	P385231	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P385261	
2184364	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P384958	

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: EPA 180.1 Rev. 2.0
Batch ID: P384971

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385317

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385321

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385141

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385054

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384989

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385231

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384958

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

Reference Method: SM 2120 B-2011
Batch ID: P384963

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P385067

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

Reference Method: SM 2540 C-2011
Batch ID: P385460

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P385466

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P385069

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385261

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: P385317

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385141

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385054

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385231

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: P384958

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

Reference Method: SM 2120 B-2011
Batch ID: P384963

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P385067

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P385069

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P385261

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: P385317

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184346	Chloride	96.3		P	90 - 110
2184513	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184346	Sulfate	94.8		P	90 - 110
2184513	Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184442	Ammonia-N	98.2	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184288	Kjeldahl Nitrogen	92.0	91.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184297	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184297	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184298	O-Phosphate-P	101	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P385069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184402	Fluoride	99.7	99.7	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2184442	Organic Carbon	97.1	98.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P384971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184274	Turbidity	1.31	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184346	Chloride	0.179	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P385321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184346	Sulfate	0.298	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P385141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184442	Ammonia-N	0.948	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184288	Kjeldahl Nitrogen	0.472	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184297	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184297	Total-P	0.309	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P384958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184298	O-Phosphate-P	1.49	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P384963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184345	Color (true)	0.874	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P385067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184402	Total Alkalinity	3.11	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P385460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184287	TDS	2.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P385069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184402	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P385261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2184442	Organic Carbon	0.788	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100010
Included Lab Sample IDs: 2184363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A100041
Included Lab Sample IDs: 2184362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A100041
Included Lab Sample IDs: 2184362

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100064
Included Lab Sample IDs: 2184363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100073
Included Lab Sample IDs: 2184363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A100127
Included Lab Sample IDs: 2184363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100152
Included Lab Sample IDs: 2184362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100162
Included Lab Sample IDs: 2184363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99994
Included Lab Sample IDs: 2184364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	97.7	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A99995
Included Lab Sample IDs: 2184362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	104	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A99997
Included Lab Sample IDs: 2184362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

* 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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.31	
EPA 300.0 Rev. 2.1	Chloride	99.5	96.3	98.5		0.179	
	Sulfate	97.1	94.8	96.6		0.298	
EPA 350.1 Rev. 2.0	Ammonia-N	97.2	98.2	99.2			0.948
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.0	92.0	91.5			0.472
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	100	99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	103	104	104			0.309
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	101	99.7			1.49
SM 2120 B-2011	Color (true)	103				0.874	
SM 2320 B-2011	Total Alkalinity	99.6				3.11	
SM 2540 C-2011	TDS					2.74	
SM 4500 F-C-2011	Fluoride	100	99.7	99.7			0.0
SM 5310 B-2011	Organic Carbon	99.8	97.1	98.0			0.788

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2184362
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2184362
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2184362
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2184363
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2184363
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2184363
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2184363
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2184364
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2184362
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2184362
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2184362
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2184362
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2184362
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2184363

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	07/21/2020			07/21/2020 16:20	Blanca Fach	2184362
EPA 300.0 Rev. 2.1	07/21/2020			07/28/2020 21:03	Julia Storbeck	2184362
EPA 350.1 Rev. 2.0	07/21/2020			07/25/2020 11:47	Ping Hua	2184363
EPA 351.2 Rev. 2.0	07/21/2020	07/23/2020 10:10	Sima Feizi	07/24/2020 12:44	Jhamieka S. Greenwood	2184363
EPA 353.2 Rev. 2.0	07/21/2020			07/22/2020 09:34	Beverly Y. Sanders	2184363
EPA 365.1 Rev. 2.0	07/21/2020	07/28/2020 10:00	Lipi Saha	07/29/2020 13:49	Benjamin T. Nordmann	2184363
EPA 365.1 Rev. 2.0 dissolved	07/21/2020			07/21/2020 16:17	Samantha Davila	2184364
SM 2120 B-2011	07/21/2020			07/21/2020 17:15	Julia Storbeck	2184362
SM 2320 B-2011	07/21/2020			07/22/2020 23:27	Dale L. Simmons	2184362
SM 2540 C-2011	07/21/2020			07/22/2020 14:56	Yijie Li	2184362
SM 2540 D-2011	07/21/2020			07/22/2020 14:56	Yijie Li	2184362
SM 4500 F-C-2011	07/21/2020			07/22/2020 23:27	Dale L. Simmons	2184362
SM 5310 B-2011	07/21/2020			07/27/2020 19:52	David Boose	2184363