

Chemical Analysis Report

TLH-ROC-2019-07-25-01

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

Event Description: **Run 5**
Request ID: **RQ-2019-07-08-50**
Customer: **TLH-ROC**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 12-AUG-2019 17:15



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: CAMP BRANCH @ US90

Collection Date/Time: 07/25/2019 11:15

Field ID: G3TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106227	EPA 180.1 Rev. 2.0	Turbidity	8.3		NTU	P368027	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P368187	
		Sulfate	1.5		mg SO4/L	P368402	
	SM 2120 B	Color (true)	84		PCU	P368033	
	SM 2320 B-97	Total Alkalinity	75		mg CaCO3/L	P368372	
	SM 2540 C-97	TDS	152		mg/L	P368268	
	SM 2540 D-97	TSS	2	UA	mg/L	P368113	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P368377	
2106228	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P368536	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P368154	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P368131	
	EPA 365.1 Rev. 2.0	Total-P	0.38		mg P/L	P368139	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P368107	
2106229	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.32		mg P/L	P367947	

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: P368027

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368187

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368402

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368536

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368154

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368131

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368139

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367947

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

Reference Method: SM 2120 B
Batch ID: P368033

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P368372

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

Reference Method: SM 2540 C-97
Batch ID: P368268

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368113

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368377

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368107

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: P368187

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P368402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P368536

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P368154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P368131

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P368139

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P367947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: SM 2120 B
 Batch ID: P368033

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

Reference Method: SM 2320 B-97
 Batch ID: P368372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P368377

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106075	Chloride	96.7		P	90 - 110
2106164	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P368402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106252	Sulfate	99.5		P	90 - 110
2106349	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106212	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106228	Kjeldahl Nitrogen	107	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368131

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106165	NO2NO3-N	97.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106254	Total-P	101	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106105	O-Phosphate-P	95.6	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106385	Fluoride	97.5	98.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106255	Organic Carbon	110	96.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P368027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106211	Turbidity	0.404	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P368187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106164	Chloride	0.869	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P368402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106252	Sulfate	1.59	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P368536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106212	Ammonia-N	0.525	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P368154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106228	Kjeldahl Nitrogen	6.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P368131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106165	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P368139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106254	Total-P	3.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P367947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106105	O-Phosphate-P	0.626	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P368033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106253	Color (true)	0.674	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106385	Total Alkalinity	1.26	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P368268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106164	TDS	1.99	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P368377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106385	Fluoride	0.484	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106255	Organic Carbon	6.62	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: A93035

Included Lab Sample IDs: 2106229

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	96.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93065

Included Lab Sample IDs: 2106227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A93066

Included Lab Sample IDs: 2106227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A93112

Included Lab Sample IDs: 2106228

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93127

Included Lab Sample IDs: 2106228

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93147

Included Lab Sample IDs: 2106227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.2	98.7	P/P	90 - 110
Sulfate	99.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93156

Included Lab Sample IDs: 2106228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93183

Included Lab Sample IDs: 2106228

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A93228
Included Lab Sample IDs: 2106227

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

Reference Method: SM 4500 F-C-97
Run ID: A93228
Included Lab Sample IDs: 2106227

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A93303
Included Lab Sample IDs: 2106228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	107	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					0.404	
EPA 300.0 Rev. 2.1	Chloride	98.8	98.2	96.7		0.869	
	Sulfate	99.9	99.5	101		1.59	
EPA 350.1 Rev. 2.0	Ammonia-N	101	105	106			0.525
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.2	107	98.0			6.32
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	97.0	97.6			0.501
EPA 365.1 Rev. 2.0	Total-P	99.4	101	97.2			3.32
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	95.6	96.2			0.626
SM 2120 B	Color (true)	103				0.674	
SM 2320 B-97	Total Alkalinity	104				1.26	
SM 2540 C-97	TDS					1.99	
SM 4500 F-C-97	Fluoride	97.7	97.5	98.1			0.484
SM 5310 B-00	Organic Carbon	102	110	96.6			6.62

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2106227
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2106227
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2106227
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2106228
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2106228
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2106228
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2106228
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2106229
SM 2120 B / E31780	True Color measured at 450 nm	2106227
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2106227
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2106227
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2106227
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2106227
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2106228

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	07/25/2019			07/26/2019 15:55	Adrian Shelby	2106227
EPA 300.0 Rev. 2.1	07/25/2019			07/31/2019 02:26	Jhamieka S. Greenwood	2106227
	07/25/2019			07/31/2019 13:23	Jhamieka S. Greenwood	2106227
EPA 350.1 Rev. 2.0	07/25/2019			08/06/2019 19:04	Virginia P. Brown	2106228
EPA 351.2 Rev. 2.0	07/25/2019	07/30/2019 11:45	Adrian Shelby	07/31/2019 09:49	Joseph Suarez	2106228
EPA 353.2 Rev. 2.0	07/25/2019			07/30/2019 10:51	Beverly Y. Sanders	2106228
EPA 365.1 Rev. 2.0	07/25/2019	07/30/2019 12:01	Vijayalakshmi Reddy	08/01/2019 08:08	Lipi Saha	2106228
EPA 365.1 Rev. 2.0 dissolved	07/25/2019			07/25/2019 17:27	Jhamieka S. Greenwood	2106229
SM 2120 B	07/25/2019			07/26/2019 17:16	Madeline Funaro	2106227
SM 2320 B-97	07/25/2019			08/02/2019 01:04	Dale L. Simmons	2106227
SM 2540 C-97	07/25/2019			07/26/2019 16:00	Blanca Fach	2106227
SM 2540 D-97	07/25/2019			07/26/2019 16:00	Blanca Fach	2106227
SM 4500 F-C-97	07/25/2019			08/02/2019 01:04	Dale L. Simmons	2106227
SM 5310 B-00	07/25/2019			07/29/2019 17:54	Madeline Funaro	2106228