

Chemical Analysis Report

TLH-ROC-2022-10-05-03

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Run 7**
Request ID: **RQ-2022-09-26-12**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 21-OCT-2022 09:37



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: N Bay @ Gainer Bayou

Collection Date/Time: 10/05/2022 11:40

Field ID: G3TLHR0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2360573	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P420583	
	SM 2320 B-2011	Total Alkalinity	93		mg CaCO3/L	P420817	
	SM 2540 D-2015	TSS	5	I	mg/L	P421141	
	SM 4500-F- C-2011	Fluoride	0.90		mg F/L	P420820	
2360575	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P420797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P420693	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420628	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P420609	
	SM 5310 B-2011	Organic Carbon	5.0		mg C/L	P420781	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: N Bay @ Hodges Bayou

Collection Date/Time: 10/05/2022 11:55

Field ID: G3TLHR0035

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2360574	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P420583	
	SM 2320 B-2011	Total Alkalinity	94		mg CaCO3/L	P420817	
	SM 2540 D-2015	TSS	3	IA	mg/L	P421141	
	SM 4500-F- C-2011	Fluoride	0.93		mg F/L	P420820	
2360576	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P420797	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	I	mg N/L	P420693	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420628	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P420609	
	SM 5310 B-2011	Organic Carbon	4.9		mg C/L	P420781	

Ref. Method and Comment:

SM 2540 D-2015: 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: P420583

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420797

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420693

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420628

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420609

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

Reference Method: SM 2320 B-2011
Batch ID: P420817

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

Reference Method: SM 2540 D-2015
Batch ID: P421141

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P420820

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P420781

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420583

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420693

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420628

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: P420609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P420817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 2540 D-2015
Batch ID: P421141

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	97.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P420820

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420781

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360567	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360576	Kjeldahl Nitrogen	92.6	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360575	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360479	Total-P	98.9	98.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P420820

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360714	Fluoride	96.1	97.7	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360715	Organic Carbon	90.4	93.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360681	Turbidity	13.1	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360567	Ammonia-N	2.71	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360576	Kjeldahl Nitrogen	4.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360575	NO2NO3-N	0.966	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360479	Total-P	0.543	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P420817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360714	Total Alkalinity	1.24	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P420820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360714	Fluoride	0.992	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P420781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360715	Organic Carbon	2.26	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A115159

Included Lab Sample IDs: 2360573, 2360574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115181

Included Lab Sample IDs: 2360575, 2360576

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115209

Included Lab Sample IDs: 2360575, 2360576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A115247

Included Lab Sample IDs: 2360575, 2360576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115253

Included Lab Sample IDs: 2360575, 2360576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115262

Included Lab Sample IDs: 2360575, 2360576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.8	102	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115264

Included Lab Sample IDs: 2360573, 2360574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A115264

Included Lab Sample IDs: 2360573, 2360574

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

Quality Assurance Report

Calibration Verification

* 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	100				13.1	
EPA 350.1 Rev. 2.0	Ammonia-N	95.6	105	102			2.71
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.5	92.6	97.4			4.39
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	104	103			0.966
EPA 365.1 Rev. 2.0	Total-P	107	98.9	98.4			0.543
SM 2320 B-2011	Total Alkalinity	100				1.24	
SM 2540 D-2015	TSS	97.3					
SM 4500-F- C-2011	Fluoride	102	96.1	97.7			0.992
SM 5310 B-2011	Organic Carbon	99.0	90.4	93.8			2.26

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2360573, 2360574
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2360575, 2360576
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2360575, 2360576
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2360575, 2360576
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2360575, 2360576
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2360573, 2360574
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2360573, 2360574
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2360573, 2360574
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2360575, 2360576

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	10/05/2022			10/06/2022 13:58	Chandler E Cox	2360573
	10/05/2022			10/06/2022 14:03	Chandler E Cox	2360574
EPA 350.1 Rev. 2.0	10/05/2022			10/12/2022 12:39	Ping Hua	2360575
	10/05/2022			10/12/2022 12:41	Ping Hua	2360576
EPA 351.2 Rev. 2.0	10/05/2022	10/12/2022 08:04	Alexandra J Mattheus	10/12/2022 14:25	Alexandra J Mattheus	2360575
	10/05/2022	10/12/2022 08:04	Alexandra J Mattheus	10/12/2022 14:27	Alexandra J Mattheus	2360576
EPA 353.2 Rev. 2.0	10/05/2022			10/07/2022 10:23	Beverly Y. Sanders	2360575
	10/05/2022			10/07/2022 10:31	Beverly Y. Sanders	2360576
EPA 365.1 Rev. 2.0	10/05/2022	10/07/2022 02:30	Adam P Silver	10/10/2022 13:15	Simonne.V. Calhoun	2360575
	10/05/2022	10/07/2022 02:30	Adam P Silver	10/10/2022 13:16	Simonne.V. Calhoun	2360576
SM 2320 B-2011	10/05/2022			10/13/2022 01:35	Adam P Silver	2360573
	10/05/2022			10/13/2022 01:47	Adam P Silver	2360574
SM 2540 D-2015	10/05/2022			10/07/2022 16:28	Yijie Li	2360573, 2360574
SM 4500-F- C-2011	10/05/2022			10/12/2022 23:06	Adam P Silver	2360573
	10/05/2022			10/12/2022 23:12	Adam P Silver	2360574
SM 5310 B-2011	10/05/2022			10/12/2022 01:32	Khloe J Berg	2360575
	10/05/2022			10/12/2022 01:45	Khloe J Berg	2360576