Biological Analysis Report

WQAP-2017-01-31-01

Florida Department of Environmental Protection
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

Overflow Analyses Performed By:
GreenWater Laboratories
205 Zeagler Drive
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DOH Accreditation Not NELAC Certified

Event Description: **Lake Istokpoga**
Request ID: **RQ-2017-01-02-02**
Customer: **WQAP**
Project ID: **SPPROJECTS**

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Date Certified: 08-NOV-2017 09:13

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 groups are included in this report: AlgalBio, Chlorophyll/Grain Size/BOD and Overflow.

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: Lake Istokpoga Algae NE **Collection Date/Time: 01/30/2017 11:50**

Field ID: G4SD0151 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868030	SOP-AB05	Dominant sample taxon**	No Result				

Ref. Method and Comment:
SOP-AB05: There was no clear dominant taxon in the sample.

Sample Location: Lake Istokpoga Algae NE **Collection Date/Time: 01/30/2017 11:50**

Field ID: G4SD0151 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868048	SM 10200 H (mod.)	Chlorophyll-a, Corrected	55	A	ug/L	P319246	
		Phaeophytin-a	13	A	ug/L	P319246	
		Chlorophyll/Phaeophytin Ratio	1.6	A		P319246	
		Chlorophyll-a, Uncorrected	65	A	ug/L	P319246	

Sample Location: Lake Istokpoga Algae NE **Collection Date/Time: 01/30/2017 11:50**

Field ID: G4SD0151 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868036	SOP-AB05_1	Phytoplankton-Quantitative-#Diatom Taxa**	16		#Taxa		

Sample Location: Lake Istokpoga Algae NW **Collection Date/Time: 01/30/2017 11:30**

Field ID: G4SD0152 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868031	SOP-AB05	Dominant sample taxon**	No Result				

Ref. Method and Comment:
SOP-AB05: There was no clear dominant taxon in the sample.

Sample Location: Lake Istokpoga Algae NW **Collection Date/Time: 01/30/2017 11:30**

Field ID: G4SD0152 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868049	SM 10200 H (mod.)	Chlorophyll-a, Corrected	54		ug/L	P319246	
		Phaeophytin-a	7.8		ug/L	P319246	
		Chlorophyll/Phaeophytin Ratio	1.6			P319246	
		Chlorophyll-a, Uncorrected	61		ug/L	P319246	

Sample Location: Lake Istokpoga Algae NW **Collection Date/Time: 01/30/2017 11:30**

Field ID: G4SD0152 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868037	SOP-AB05_1	Phytoplankton-Quantitative-#Diatom Taxa**	19		#Taxa		

Sample Location: Lake Istokpoga Algae S **Collection Date/Time: 01/30/2017 13:00**

Field ID: G4SD0153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Field ID: G4SD0153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868032	SOP-AB05	Dominant sample taxon**	No Result				

Ref. Method and Comment:
SOP-AB05: There was no clear dominant taxon in the sample.

Sample Location: Lake Istokpoga Algae S **Collection Date/Time: 01/30/2017 13:00**

Field ID: G4SD0153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868050	SM 10200 H (mod.)	Chlorophyll-a, Corrected	16		ug/L	P319249	
		Phaeophytin-a	2.7		ug/L	P319249	
		Chlorophyll/Phaeophytin Ratio	1.6			P319249	
		Chlorophyll-a, Uncorrected	18		ug/L	P319249	

Ref. Method and Comment:
SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Lake Istokpoga Algae S **Collection Date/Time: 01/30/2017 13:00**

Field ID: G4SD0153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868038	SOP-AB05_1	Phytoplankton-Quantitative-#Diatom Taxa**	20		#Taxa		

Sample Location: Lake Istokpoga Algae SE **Collection Date/Time: 01/30/2017 12:35**

Field ID: G4SD0154 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868033	SOP-AB05	Dominant sample taxon**	No Result				

Ref. Method and Comment:
SOP-AB05: There was no clear dominant taxon in the sample.

Sample Location: Lake Istokpoga Algae SE **Collection Date/Time: 01/30/2017 12:35**

Field ID: G4SD0154 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868051	SM 10200 H (mod.)	Chlorophyll-a, Corrected	66		ug/L	P319414	
		Phaeophytin-a	10	I	ug/L	P319414	
		Chlorophyll/Phaeophytin Ratio	1.6			P319414	
		Chlorophyll-a, Uncorrected	74		ug/L	P319414	

Sample Location: Lake Istokpoga Algae SE **Collection Date/Time: 01/30/2017 12:35**

Field ID: G4SD0154 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868039	SOP-AB05_1	Phytoplankton-Quantitative-#Diatom Taxa**	24		#Taxa		

Sample Location: Lake Istokpoga Algae W **Collection Date/Time: 01/30/2017 11:05**

Field ID: G4SD0155 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868034	SOP-AB05	Dominant sample taxon**	No Result				

Ref. Method and Comment:
SOP-AB05: There was no clear dominant taxon in the sample.

Sample Location: Lake Istokpoga Algae W **Collection Date/Time: 01/30/2017 11:05**

Field ID: G4SD0155 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868052	SM 10200 H (mod.)	Chlorophyll-a, Corrected	50		ug/L	P319414	
		Phaeophytin-a	7.6		ug/L	P319414	
		Chlorophyll/Phaeophytin Ratio	1.6			P319414	
		Chlorophyll-a, Uncorrected	57		ug/L	P319414	

Sample Location: Lake Istokpoga Algae W **Collection Date/Time: 01/30/2017 11:05**

Field ID: G4SD0155 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868040	SOP-AB05_1	Phytoplankton-Quantitative-#Diatom Taxa**	19		#Taxa		

Sample Location: Lake Istokpoga Algae CEN **Collection Date/Time: 01/30/2017 12:15**

Field ID: G4SD0156 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868035	SOP-AB05	Dominant sample taxon**	No Result				

Ref. Method and Comment:
SOP-AB05: There was no clear dominant taxon in the sample.

Sample Location: Lake Istokpoga Algae CEN **Collection Date/Time: 01/30/2017 12:15**

Field ID: G4SD0156 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868053	SM 10200 H (mod.)	Chlorophyll-a, Corrected	56		ug/L	P319414	
		Phaeophytin-a	11		ug/L	P319414	
		Chlorophyll/Phaeophytin Ratio	1.6			P319414	
		Chlorophyll-a, Uncorrected	65		ug/L	P319414	

Sample Location: Lake Istokpoga Algae CEN **Collection Date/Time: 01/30/2017 12:15**

Field ID: G4SD0156 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868041	SOP-AB05_1	Phytoplankton-Quantitative-#Diatom Taxa**	20		#Taxa		

Sample Location: Lake Istokpoga Algae NE **Collection Date/Time: 01/30/2017 11:50**

Field ID: G4SD0151 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941823	SOP-AB05	Phytoplankton-Quantitative-# Wet Taxa**	35		#Taxa		

Field ID: G4SD0151 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Ref. Method and Comment:
SOP-AB05: LIMS Diatom result under 1868036.

Sample Location: Lake Istokpoga Algae NW **Collection Date/Time: 01/30/2017 11:30**

Field ID: G4SD0152 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941824	SOP-AB05	Phytoplankton-Quantitative-# Wet Taxa**	40		#Taxa		

Ref. Method and Comment:
SOP-AB05: LIMS Diatom result under 1868037.

Sample Location: Lake Istokpoga Algae S **Collection Date/Time: 01/30/2017 13:00**

Field ID: G4SD0153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941825	SOP-AB05	Phytoplankton-Quantitative-# Wet Taxa**	39		#Taxa		

Ref. Method and Comment:
SOP-AB05: LIMS Diatom result under 1868038.

Sample Location: Lake Istokpoga Algae SE **Collection Date/Time: 01/30/2017 12:35**

Field ID: G4SD0154 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941826	SOP-AB05	Phytoplankton-Quantitative-# Wet Taxa**	30		#Taxa		

Ref. Method and Comment:
SOP-AB05: LIMS Diatom result under 1868039.

Sample Location: Lake Istokpoga Algae W **Collection Date/Time: 01/30/2017 11:05**

Field ID: G4SD0155 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941827	SOP-AB05	Phytoplankton-Quantitative-# Wet Taxa**	29		#Taxa		

Ref. Method and Comment:
SOP-AB05: LIMS Diatom result under 1868040.

Sample Location: Lake Istokpoga Algae CEN **Collection Date/Time: 01/30/2017 12:15**

Field ID: G4SD0156 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941828	SOP-AB05	Phytoplankton-Quantitative-# Wet Taxa**	35		#Taxa		

Ref. Method and Comment:
SOP-AB05: LIMS Diatom result under 1868041.

Quality Assurance Report
Method Blank Results

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P319246

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SM 10200 H (mod.)
Batch ID: P319249

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Reference Method: SM 10200 H (mod.)
Batch ID: P319414

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P319246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.5		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P319249

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	89.3		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P319414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	87.6		P	84 - 116

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P319246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868048	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1868048	Chlorophyll-a, Corrected	7.05	Sample	P	0 - 25

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P319246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868048	Chlorophyll-a, Uncorrected	6.49	Sample	P	0 - 25
1868048	Phaeophytin-a	2.90	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P319414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868240	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1868240	Chlorophyll-a, Corrected	3.08	Sample	P	0 - 25
1868240	Chlorophyll-a, Uncorrected	3.20	Sample	P	0 - 25
1868240	Phaeophytin-a	3.99	Sample	P	0 - 25

* 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
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	91.5			7.05	
	Chlorophyll-a, Corrected	89.3				
	Chlorophyll-a, Corrected	87.6			3.08	
	Chlorophyll-a, Uncorrected				6.49	
	Chlorophyll-a, Uncorrected				3.20	
	Phaeophytin-a				2.90	
	Phaeophytin-a				3.99	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1868048, 1868049, 1868050, 1868051, 1868052, 1868053
SOP-AB05 / E31780	Assessment of dominant algal taxa in bloom or mat sample	1868030, 1868031, 1868032, 1868033, 1868034, 1868035
SOP-AB05 / Not NELAC Certified	No. of wet taxa of quantitative phytoplankton sample by GreenWater Laboratories	1941823, 1941824, 1941825, 1941826, 1941827, 1941828
SOP-AB05_1 / E31780	No. of diatom taxa of quantitative phytoplankton sample.	1868036, 1868037, 1868038, 1868039, 1868040, 1868041

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	01/31/2017	01/31/2017 13:35	Morgan Lane	02/01/2017	Brian Cumbie	1868048, 1868049
	01/31/2017	01/31/2017 13:35	Morgan Lane	02/02/2017	Brian Cumbie	1868050
	01/31/2017	01/31/2017 13:35	Morgan Lane	02/07/2017	Brian Cumbie	1868051, 1868052, 1868053
SOP-AB05	01/31/2017			01/31/2017	Isaura Lorenzo-Perez	1868030, 1868031, 1868032
	01/31/2017			02/01/2017	Isaura Lorenzo-Perez	1868033, 1868034, 1868035
	01/31/2017	02/06/2017	Isaura Lorenzo-Perez	09/13/2017	GreenWater Labs	1941823, 1941824, 1941825, 1941826, 1941827, 1941828
SOP-AB05_1	01/31/2017	03/28/2017	Cathy Sherrer	04/24/2017	Isaura Lorenzo-Perez	1868036, 1868037, 1868038
	01/31/2017	03/28/2017	Cathy Sherrer	04/25/2017	Isaura Lorenzo-Perez	1868039, 1868040, 1868041