

Biological Analysis Report

SO-DIST-2016-02-26-01

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

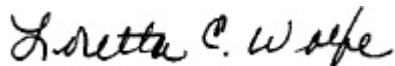
Event Description: **SMP: Highlands Lakes**
Request ID: **RQ-2016-02-22-34**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

For additional information please contact
Loretta Wolfe - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Daisys Matthews - Molecular Biology
Cheryl Swanson - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8177

Certified by: Loretta E. Wolfe, Program Administrator

Date Certified: 17-MAR-2016 10:01



NON-CONFORMANCE REPORT INCLUDED

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: Chlorophyll/Grain Size/BOD.

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 SIRENA WBID 1932C

Collection Date/Time: 02/25/2016 10:35

Field ID: LAKE SIRENA @ SOUTH SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774857	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.97	IJ	mg/L	P299548	LCS
1774867	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.4		ug/L	P300093	RPD
		Phaeophytin-a	0.45	U	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.7			P300093	
		Chlorophyll-a, Uncorrected	5.8		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Sample Location: LAKE SIRENA WBID 1932C

Collection Date/Time: 02/25/2016 10:00

Field ID: LAKE SIRENA @ EAST SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774858	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.56	IJ	mg/L	P299548	LCS
1774868	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.1		ug/L	P300093	RPD
		Phaeophytin-a	0.45	U	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.7			P300093	
		Chlorophyll-a, Uncorrected	6.4		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: See QA report for QC exceeding limits. Dilution H2O blk within lab historical limit of 0.50mg/L. Laboratory duplicate result is 0.56 IJ mg/L. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: LAKE SIRENA WBID 1932C

Collection Date/Time: 02/25/2016 10:25

Field ID: LAKE SIRENA @ MIDDLE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774859	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.90	IJ	mg/L	P299548	LCS
1774869	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.5		ug/L	P300093	RPD
		Phaeophytin-a	0.40	U	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.7			P300093	
		Chlorophyll-a, Uncorrected	6.9		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Sample Location: LAKE SIRENA WBID 1932C

Collection Date/Time: 02/25/2016 10:10

Field ID: LAKE SIRENA @ NORTH SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774860	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.89	IJ	mg/L	P299548	LCS
1774870	SM 10200 H (mod.)	Chlorophyll-a, Corrected	No Result	O	ug/L		
		Phaeophytin-a	No Result	O	ug/L		
		Chlorophyll/Phaeophytin Ratio	No Result	O			
		Chlorophyll-a, Uncorrected	No Result	O	ug/L		

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.
 SM 10200 H (mod.): See Non-Conformance Report #5741.

Sample Location: LAKE SIRENA WBID 1932C

Collection Date/Time: 02/25/2016 10:50

Field ID: LAKE SIRENA @ WEST SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774861	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.57	IJ	mg/L	P299548	LCS
1774871	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.7		ug/L	P300093	RPD
		Phaeophytin-a	0.42	I	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.7			P300093	
		Chlorophyll-a, Uncorrected	6.2		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Sample Location: PEARL LAKE WBID 1932D

Collection Date/Time: 02/25/2016 09:35

Field ID: PEARL LAKE @ NORTH SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774862	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.1	IJ	mg/L	P299548	LCS
1774872	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.1		ug/L	P300093	RPD
		Phaeophytin-a	0.45	U	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.7			P300093	
		Chlorophyll-a, Uncorrected	7.6		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Sample Location: PEARL LAKE WBID 1932D

Collection Date/Time: 02/25/2016 08:50

Field ID: PEARL LAKE @ EAST SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774863	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.87	IJ	mg/L	P299548	LCS
1774873	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.4		ug/L	P300093	RPD
		Phaeophytin-a	0.45	I	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.7			P300093	
		Chlorophyll-a, Uncorrected	8.0		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Sample Location: PEARL LAKE WBID 1932D

Collection Date/Time: 02/25/2016 09:10

Field ID: PEARL LAKE @ SOUTH SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774864	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.79	IJ	mg/L	P299548	LCS
1774874	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.5		ug/L	P300093	RPD
		Phaeophytin-a	0.50	U	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.7			P300093	
		Chlorophyll-a, Uncorrected	7.0		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Sample Location: PEARL LAKE WBID 1932D

Collection Date/Time: 02/25/2016 09:45

Field ID: PEARL LAKE @ WEST SIDE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774865	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.71	IJ	mg/L	P299548	LCS
1774875	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.2		ug/L	P300093	RPD
		Phaeophytin-a	0.63	I	ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.6			P300093	
		Chlorophyll-a, Uncorrected	7.9		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Sample Location: PEARL LAKE WBID 1932D

Collection Date/Time: 02/25/2016 09:20

Field ID: PEARL LAKE @ CENTER

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774866	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.75	IJ	mg/L	P299548	LCS
1774876	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.7		ug/L	P300093	RPD
		Phaeophytin-a	1.3		ug/L	P300093	
		Chlorophyll/Phaeophytin Ratio	1.6			P300093	
		Chlorophyll-a, Uncorrected	7.7		ug/L	P300093	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample. Dilution water blank is within laboratory historical limit of 0.50 mg/L.

Non-Conformance Report

NCR ID: 5741

Event(s)

SO-DIST-2016-02-26-01

Job(s)

TLH-2016-02-26-19

Sample(s)

1774870

Test(s)

CHLSUITE-W

NCR Type: ANALYSIS

NCR Category: Sample Aliquot

Observation: Glass grinding tube broke during extraction. Sample was lost.

Resolution: Ben Paswater was notified.

Sample will be reported as No Result with an O qualifier.

Authorised by/Date: Loretta E. Wolfe 3/14/2016

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry Tim Fitzpatrick (850) 245-8085
Biology Lori Wolfe (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P300093

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.69	U	ug/L
Chlorophyll-a, Uncorrected	0.50	U	ug/L
Phaeophytin-a	0.50	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5210 B
Batch ID: P299548

Component	Result	Code	Units
Biochemical Oxygen Demand-5 Day	0.32	I	mg/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P300093

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.4		P	84 - 116

Reference Method: SM 5210 B
Batch ID: P299548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Biochemical Oxygen Demand-5 Day	63.1		F	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P300093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774848	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1774848	Chlorophyll-a, Corrected	26.1	Sample	F	0 - 25
1774848	Chlorophyll-a, Uncorrected	23.9	Sample	P	0 - 25
1774848	Phaeophytin-a	19.5	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	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	91.4			26.1	
	Chlorophyll-a, Uncorrected				23.9	
	Phaeophytin-a				19.5	
SM 5210 B	Biochemical Oxygen Demand-5 Day	63.1				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1774867, 1774868, 1774869, 1774870, 1774871, 1774872, 1774873, 1774874, 1774875, 1774876
SM 5210 B / E31780	BOD, NOT nitrogen-inhibited	1774857, 1774858, 1774859, 1774860, 1774861, 1774862, 1774863, 1774864, 1774865, 1774866

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/26/2016	02/26/2016 15:45	Ryan Coker	03/09/2016	Amelia G. Rankin	1774867, 1774868, 1774869, 1774870, 1774871, 1774872, 1774873, 1774874, 1774875, 1774876
SM 5210 B	02/26/2016			02/26/2016 16:05	Amelia G. Rankin	1774857, 1774858, 1774859, 1774860, 1774861, 1774862, 1774863, 1774864, 1774865, 1774866