

Biological Analysis Report

CEN-DIST-2018-02-13-01

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

Overflow Analyses Performed By:
Flowers Chemical Laboratories Inc. - Altamonte
Springs
481 Newburyport Avenue
Altamonte Springs, Florida 32701
DOH Accreditation E83018

Event Description: **McCoy X4 / Hope / Kasey X2 / Dot X2 / Tilden X4**
Request ID: **RQ-2018-02-12-56**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Jennifer Walters, Environmental Manager

Date Certified: 21-MAR-2018 11:30



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: Chlorophyll/Grain Size/BOD, Molecular 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 Dot @ Center

Collection Date/Time: 02/12/2018 09:37

Field ID: G2CE0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966546	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	43.1		MPN/100 mL		
1966556	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.0		ug/L	P340278	
		Phaeophytin-a	0.40	U	ug/L	P340278	
		Chlorophyll-a, Uncorrected	9.5		ug/L	P340278	
1966573	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Lake McCoy @ 220m SW of Center of Southern Lobe

Collection Date/Time: 02/12/2018 13:10

Field ID: G2CE0144

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966537	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	3.00		MPN/100 mL		
1966547	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.2		ug/L	P340266	
		Phaeophytin-a	0.89	I	ug/L	P340266	
		Chlorophyll-a, Uncorrected	5.9		ug/L	P340266	

Sample Location: Lake McCoy @ 245m NE of Center of Southern Lobe

Collection Date/Time: 02/12/2018 13:15

Field ID: G2CE0145

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966538	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	5.20		MPN/100 mL		
1966548	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.9		ug/L	P340266	
		Phaeophytin-a	0.66	I	ug/L	P340266	
		Chlorophyll-a, Uncorrected	7.5		ug/L	P340266	

Sample Location: Lake McCoy @ Center of North Lobe

Collection Date/Time: 02/12/2018 13:28

Field ID: G2CE0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966539	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2.00		MPN/100 mL		
1966549	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.7		ug/L	P340266	
		Phaeophytin-a	0.59	I	ug/L	P340266	
		Chlorophyll-a, Uncorrected	6.2		ug/L	P340266	

Sample Location: Lake Tilden @ 140m NW of Center

Collection Date/Time: 02/12/2018 11:28

Field ID: G1CE0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966540	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	6.30		MPN/100 mL		
1966550	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.8		ug/L	P340278	
		Phaeophytin-a	1.4		ug/L	P340278	
		Chlorophyll-a, Uncorrected	7.9		ug/L	P340278	

Sample Location: Lake Tilden @ 165m NE of Center

Collection Date/Time: 02/12/2018 11:35

Field ID: G1CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966541	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2.00		MPN/100 mL		
1966551	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.8		ug/L	P340278	
		Phaeophytin-a	1.5		ug/L	P340278	
		Chlorophyll-a, Uncorrected	8.0		ug/L	P340278	

Sample Location: Lake Tilden @ 150m SE of Center

Collection Date/Time: 02/12/2018 11:45

Field ID: G1CE0089

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966542	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2.00		MPN/100 mL		
1966552	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.6		ug/L	P340278	
		Phaeophytin-a	1.3		ug/L	P340278	
		Chlorophyll-a, Uncorrected	8.7		ug/L	P340278	

Sample Location: Lake Tilden @ 225m S of Center

Collection Date/Time: 02/12/2018 11:55

Field ID: G1CE0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966543	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	3.00		MPN/100 mL		
1966553	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.4		ug/L	P340278	
		Phaeophytin-a	1.2		ug/L	P340278	
		Chlorophyll-a, Uncorrected	5.3		ug/L	P340278	

Sample Location: Lake McCoy @ Center of Southern Lobe

Collection Date/Time: 02/12/2018 13:03

Field ID: G2CE0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966544	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	6.30		MPN/100 mL		
1966554	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.6		ug/L	P340278	
		Phaeophytin-a	0.81	I	ug/L	P340278	
		Chlorophyll-a, Uncorrected	7.4		ug/L	P340278	

Sample Location: Kasey Lake @ Center

Collection Date/Time: 02/12/2018 10:20

Field ID: G2CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966545	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	186		MPN/100 mL		
1966555	SM 10200 H (mod.)	Chlorophyll-a, Corrected	23	A	ug/L	P340278	
		Phaeophytin-a	3.3	A	ug/L	P340278	
		Chlorophyll-a, Uncorrected	26	A	ug/L	P340278	

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P340266

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: P340278

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: P340266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	101		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P340278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.9		P	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P340266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966255	Chlorophyll-a, Corrected	5.28	Sample	P	0 - 25
1966255	Chlorophyll-a, Uncorrected	5.43	Sample	P	0 - 25
1966255	Phaeophytin-a	7.44	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P340278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966555	Chlorophyll-a, Corrected	6.61	Sample	P	0 - 25
1966555	Chlorophyll-a, Uncorrected	6.58	Sample	P	0 - 25
1966555	Phaeophytin-a	6.91	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-a, Corrected	101			5.28	
	Chlorophyll-a, Corrected	98.9			6.61	
	Chlorophyll-a, Uncorrected				5.43	
	Chlorophyll-a, Uncorrected				6.58	
	Phaeophytin-a				7.44	
	Phaeophytin-a				6.91	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1966547, 1966548, 1966549, 1966550, 1966551, 1966552, 1966553, 1966554, 1966555, 1966556
SM 9223 Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by FlowersOverflow Laboratory for Central District	1966537, 1966538, 1966539, 1966540, 1966541, 1966542, 1966543, 1966544, 1966545, 1966546
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1966573

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/13/2018	02/13/2018 12:46	Cathy Sherrer	02/19/2018	Jennifer Mihalic	1966547, 1966548, 1966549, 1966550, 1966551, 1966552, 1966553, 1966554, 1966555, 1966556
SM 9223 Quanti-Tray	02/12/2018	02/12/2018 15:20		02/13/2018 10:28	Flowers - Altamonte Springs	1966537, 1966538, 1966539, 1966540, 1966541, 1966542, 1966543, 1966544, 1966545, 1966546
SOP-PCR-4.0	02/13/2018	02/13/2018 13:15	Mailin Lopez	03/07/2018	Puja Jasrotia	1966573