

Biological Analysis Report

SO-DIST-2019-03-15-02

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

Event Description: **CALOOSA LT**
Request ID: **RQ-2019-03-11-06**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
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FLDEP South District Office
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Fort Myers, FL 33901-3381
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Certified by: Jacqueline Savage, Environmental Administrator

Date Certified: 12-APR-2019 16:59

A handwritten signature in black ink that reads "Jackie Savage". The signature is written in a cursive, flowing style.

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 and Microbiology.

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: PUNTA BLANCA

Collection Date/Time: 03/14/2019 10:00

Field ID: G3SD0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070692	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.8	IJ	mg/L	P360884	LCS
2070704	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.3	IQ	ug/L	P361682	
		Phaeophytin-a	0.75	UQ	ug/L	P361682	
		Chlorophyll-a, Uncorrected	1.6	Q	ug/L	P361682	
2070708	SM 9222 D	Fecal Coliforms-Membrane Filter	2	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

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.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: USGS SHELL POINT

Collection Date/Time: 03/14/2019 10:25

Field ID: G3SD0109

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070693	SM 5210 B	Biochemical Oxygen Demand-5 Day	2.4	J	mg/L	P360884	LCS
2070705	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	IQ	ug/L	P361682	
		Phaeophytin-a	0.77	IQ	ug/L	P361682	
		Chlorophyll-a, Uncorrected	1.8	Q	ug/L	P361682	
2070709	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

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.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: MARKER 76

Collection Date/Time: 03/14/2019 10:45

Field ID: G3SD0110

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070694	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.8	IJ	mg/L	P360884	LCS
2070706	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.6	Q	ug/L	P361682	
		Phaeophytin-a	0.75	UQ	ug/L	P361682	
		Chlorophyll-a, Uncorrected	4.1	Q	ug/L	P361682	
2070710	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

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.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: MARKER 52

Collection Date/Time: 03/14/2019 11:15

Field ID: G3SD0111

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070695	SM 5210 B	Biochemical Oxygen Demand-5 Day	4.4	J	mg/L	P360884	LCS
2070707	SM 10200 H (mod.)	Chlorophyll-a, Corrected	19	Q	ug/L	P361682	
		Phaeophytin-a	5.1	Q	ug/L	P361682	
		Chlorophyll-a, Uncorrected	23	Q	ug/L	P361682	

Field ID: G3SD0111

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070711	SM 9222 D	Fecal Coliforms-Membrane Filter	8	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

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.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: MARKER 38**Collection Date/Time: 03/14/2019 11:40****Field ID: G3SD0112**

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070696	SM 5210 B	Biochemical Oxygen Demand-5 Day	4.7	J	mg/L	P360884	LCS
2070712	SM 9222 D	Fecal Coliforms-Membrane Filter	8	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: MARKER 28**Collection Date/Time: 03/14/2019 11:50****Field ID: G3SD0113**

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070697	SM 5210 B	Biochemical Oxygen Demand-5 Day	3.6	J	mg/L	P360884	LCS
2070713	SM 9222 D	Fecal Coliforms-Membrane Filter	7	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: MARKER 22**Collection Date/Time: 03/14/2019 12:05****Field ID: G3SD0114**

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070698	SM 5210 B	Biochemical Oxygen Demand-5 Day	3.3	J	mg/L	P360884	LCS
2070714	SM 9222 D	Fecal Coliforms-Membrane Filter	10	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: OLD SWING BRIDGE**Collection Date/Time: 03/14/2019 12:20****Field ID: G3SD0115**

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070699	SM 5210 B	Biochemical Oxygen Demand-5 Day	3.4	J	mg/L	P360884	LCS
2070715	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: ORANGE RIVER**Collection Date/Time: 03/14/2019 12:35****Field ID: G3SD0116**

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070700	SM 5210 B	Biochemical Oxygen Demand-5 Day	3.8	J	mg/L	P360884	LCS

Field ID: G3SD0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070716	SM 9222 D	Fecal Coliforms-Membrane Filter	18	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: POWER PLANT

Collection Date/Time: 03/14/2019 13:00

Field ID: G3SD0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070701	SM 5210 B	Biochemical Oxygen Demand-5 Day	4.7	J	mg/L	P360884	LCS
2070717	SM 9222 D	Fecal Coliforms-Membrane Filter	76	Q	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: CHANNEL OFF OXBOW

Collection Date/Time: 03/14/2019 13:15

Field ID: G3SD0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070702	SM 5210 B	Biochemical Oxygen Demand-5 Day	4.2	J	mg/L	P360884	LCS
2070718	SM 9222 D	Fecal Coliforms-Membrane Filter	11	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: CHANNEL OFF POINT

Collection Date/Time: 03/14/2019 13:25

Field ID: G3SD0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2070703	SM 5210 B	Biochemical Oxygen Demand-5 Day	5.2	J	mg/L	P360884	LCS
2070719	SM 9222 D	Fecal Coliforms-Membrane Filter	15	BQ	cfu/100 mL	P360750	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Quality Assurance Report

Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P361682

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.62	U	ug/L
Chlorophyll-a, Uncorrected	0.45	U	ug/L
Phaeophytin-a	0.68	U	ug/L

Reference Method: SM 5210 B

Batch ID: P360884

Component	Result	Code	Units
Biochemical Oxygen Demand-5 Day	0.20	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 9222 D
Batch ID: P360750

Component	Result	Code	Units
Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P361682

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

Reference Method: SM 5210 B
Batch ID: P360884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Biochemical Oxygen Demand-5 Day	147		F	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P361682

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071712	Chlorophyll-a, Corrected	9.93	Sample	P	0 - 25
2071712	Chlorophyll-a, Uncorrected	6.87	Sample	P	0 - 25

Reference Method: SM 5210 B
Batch ID: P360884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2070453	Biochemical Oxygen Demand-5 Day	5.27	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-a, Corrected	98.9			9.93	
	Chlorophyll-a, Uncorrected				6.87	
SM 5210 B	Biochemical Oxygen Demand-5 Day	147			5.27	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2070704, 2070705, 2070706, 2070707
SM 5210 B / E31780	BOD, NOT nitrogen-inhibited	2070692, 2070693, 2070694, 2070695, 2070696, 2070697, 2070698, 2070699, 2070700, 2070701, 2070702, 2070703
SM 9222 D / E31780	Fecal coliforms by membrane filter method - non-chlorinated water systems	2070708, 2070709, 2070710, 2070711, 2070712, 2070713, 2070714, 2070715, 2070716, 2070717, 2070718, 2070719

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	03/15/2019	03/16/2019 14:15	Edwin Gonzalez-Soto	04/05/2019 08:06	Jennifer Mihalic	2070704, 2070705, 2070706, 2070707
SM 5210 B	03/15/2019			03/15/2019 13:40	Edwin Gonzalez-Soto	2070692, 2070693, 2070694, 2070695, 2070696, 2070697, 2070698, 2070699, 2070700, 2070701, 2070702, 2070703
SM 9222 D	03/15/2019	03/15/2019 16:35	Jennifer Mihalic	03/16/2019 17:30	Carina A. Tull	2070708
	03/15/2019	03/15/2019 17:05	Jennifer Mihalic	03/16/2019 17:30	Carina A. Tull	2070709, 2070710, 2070711, 2070712, 2070713, 2070714, 2070715
	03/15/2019	03/15/2019 17:30	Jennifer Mihalic	03/16/2019 17:30	Carina A. Tull	2070716, 2070717, 2070718, 2070719