

Biological Analysis Report

SE-DIST-2023-07-18-02

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

Event Description: **Lake Clarke**
Request ID: **RQ-2023-07-17-22**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Jordan Skaggs

For additional information please contact
Cheryl Swanson - Administrator
Sarah Menz, Ph.D. - Bench Biology & Aquatic
Toxicity
Puja Jasrotia, Ph.D. - Molecular Biology & Taxonomy
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Administrator

Date Certified: 22-AUG-2023 09:49



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: Lake Clarke outflow East of Pine Tree Ln

Collection Date/Time: 07/17/2023 09:55

Field ID: G3SE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424599	SM 10150 B	Chlorophyll-a, Corrected	20	A	ug/L	P432871	
		Phaeophytin-a	6.6	A	ug/L	P432871	
		Chlorophyll-a, Uncorrected	24	A	ug/L	P432871	
2424607	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	95.9	Q	MPN/100 mL	P432830	
2424614	SM 9222 D	Fecal Coliforms-Membrane Filter	140	BQ	cfu/100 mL	P432853	

Ref. Method and Comment:

SM 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range. 50 mL dilution had confluent growth.

Sample Location: Lake Clarke Center

Collection Date/Time: 07/17/2023 09:40

Field ID: G3SE0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424606	SM 10150 B	Chlorophyll-a, Corrected	44		ug/L	P432935	
		Phaeophytin-a	4.4		ug/L	P432935	
		Chlorophyll-a, Uncorrected	48		ug/L	P432935	
2424621	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	27.5	Q	MPN/100 mL	P432830	
2424622	SM 9222 D	Fecal Coliforms-Membrane Filter	73	BQ	cfu/100 mL	P432853	

Ref. Method and Comment:

SM 10150 B: 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 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range. 50 mL and 50 mL LD dilution had confluent growth.

Sample Location: Lake Clarke inflow 5 S Congress Ave above Cayman Dr

Collection Date/Time: 07/17/2023 10:20

Field ID: G3SE0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424600	SM 10150 B	Chlorophyll-a, Corrected	26		ug/L	P432935	
		Phaeophytin-a	11		ug/L	P432935	
		Chlorophyll-a, Uncorrected	34		ug/L	P432935	
2424608	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	488.4	Q	MPN/100 mL	P432830	
2424615	SM 9222 D	Fecal Coliforms-Membrane Filter	300	BQ	cfu/100 mL	P432853	

Ref. Method and Comment:

SM 10150 B: 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 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range. 10 mL and 50 mL dilution had confluent growth.

Sample Location: Lake Clarke inflow 4 S Congress Ave below Lark Rd

Collection Date/Time: 07/17/2023 10:30

Field ID: G3SE0075

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424601	SM 10150 B	Chlorophyll-a, Corrected	4.2	I	ug/L	P432935	
		Phaeophytin-a	1.8	U	ug/L	P432935	

Field ID: G3SE0075

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424601	SM 10150 B	Chlorophyll-a, Uncorrected	5.1		ug/L	P432935	
2424609	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	920.8	Q	MPN/100 mL	P432830	
2424616	SM 9222 D	Fecal Coliforms-Membrane Filter	600	Z	cfu/100 mL	P432853	

Ref. Method and Comment:

SM 10150 B: 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 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range. 1 mL and 50 mL dilution had confluent growth

**Sample Location: Lake Clarke inflow 3 S Congress Ave below
Laura Ln**

Collection Date/Time: 07/17/2023 10:45

Field ID: G3SE0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424602	SM 10150 B	Chlorophyll-a, Corrected	6.6		ug/L	P432935	
		Phaeophytin-a	1.8	I	ug/L	P432935	
		Chlorophyll-a, Uncorrected	7.9		ug/L	P432935	
2424610	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	727.0	Q	MPN/100 mL	P432830	
2424617	SM 9222 D	Fecal Coliforms-Membrane Filter	1700	BQ	cfu/100 mL	P432853	

Ref. Method and Comment:

SM 10150 B: 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 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range. 10 mL and 50 mL dilution had confluent growth.

**Sample Location: Lake Clarke inflow 2 S Congress Ave above
Cherokee Rd**

Collection Date/Time: 07/17/2023 11:00

Field ID: G3SE0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424603	SM 10150 B	Chlorophyll-a, Corrected	18		ug/L	P432935	
		Phaeophytin-a	4.2	I	ug/L	P432935	
		Chlorophyll-a, Uncorrected	21		ug/L	P432935	
2424611	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1986.3	Q	MPN/100 mL	P432830	
2424618	SM 9222 D	Fecal Coliforms-Membrane Filter	1600	BQ	cfu/100 mL	P432853	

Ref. Method and Comment:

SM 10150 B: 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 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.

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

**Sample Location: Lake Clarke inflow 1 S Congress Ave above
Collin Dr**

Collection Date/Time: 07/17/2023 11:20

Field ID: G3SE0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424604	SM 10150 B	Chlorophyll-a, Corrected	8.1		ug/L	P432935	
		Phaeophytin-a	3.5	I	ug/L	P432935	
		Chlorophyll-a, Uncorrected	10		ug/L	P432935	
2424612	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1553.1	Q	MPN/100 mL	P432830	

Field ID: G3SE0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424619	SM 9222 D	Fecal Coliforms-Membrane Filter	No Result	Z	cfu/100 mL	P432853	

Ref. Method and Comment:
SM 10150 B: 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 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.
SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range. 1, 10, and 50 mL dilutions all had confluent growth.

Sample Location: C 51 East near BelvedereCollection Date/Time: 07/17/2023 11:40

Field ID: G3SE0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424605	SM 10150 B	Chlorophyll-a, Corrected	18		ug/L	P432935	
		Phaeophytin-a	5.6		ug/L	P432935	
		Chlorophyll-a, Uncorrected	22		ug/L	P432935	
2424613	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	866.4	Q	MPN/100 mL	P432830	
2424620	SM 9222 D	Fecal Coliforms-Membrane Filter	No Result	Z	cfu/100 mL	P432853	

Ref. Method and Comment:
SM 10150 B: 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 9223 B Quanti-Tray: Precision data is unavailable for E. coli due to the small amount of analyte in the QC sample for the batch.
SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range. 1, 10, and 50 mL dilutions all had confluent growth.

Quality Assurance Report
Method Blank Results

Reference Method: SM 10150 B
Batch ID: P432871

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SM 10150 B
Batch ID: P432935

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SM 9222 D
Batch ID: P432853

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

Reference Method: SM 9223 B Quanti-Tray
Batch ID: P432830

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10150 B
Batch ID: P432871

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

Reference Method: SM 10150 B
Batch ID: P432935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.5		P	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10150 B
Batch ID: P432871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424599	Chlorophyll-a, Corrected	0.179	Sample	P	0 - 25
2424599	Chlorophyll-a, Uncorrected	0.405	Sample	P	0 - 25
2424599	Phaeophytin-a	3.44	Sample	P	0 - 25

Reference Method: SM 10150 B
Batch ID: P432935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424805	Chlorophyll-a, Corrected	1.83	Sample	P	0 - 25
2424805	Chlorophyll-a, Uncorrected	0.102	Sample	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10150 B	Chlorophyll-a, Corrected	91.5			0.179	
	Chlorophyll-a, Corrected	95.5			1.83	
	Chlorophyll-a, Uncorrected				0.405	
	Chlorophyll-a, Uncorrected				0.102	
	Phaeophytin-a				3.44	

Reference Method Descriptions

Method	Description	Associated Samples
SM 10150 B	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2424599, 2424600, 2424601, 2424602, 2424603, 2424604, 2424605, 2424606
SM 9222 D	Fecal coliforms by membrane filter method - non-chlorinated water systems	2424614, 2424615, 2424616, 2424617, 2424618, 2424619, 2424620, 2424622

Reference Method Descriptions

Method	Description	Associated Samples
SM 9223 B Quanti-Tray	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2424607, 2424608, 2424609, 2424610, 2424611, 2424612, 2424613, 2424621

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10150 B	07/18/2023	07/18/2023 13:18	Keanu Thijm	07/21/2023 09:20	Megan Higbee	2424599
	07/18/2023	07/18/2023 13:18	Keanu Thijm	07/24/2023 10:55	Tynan A Branch	2424600, 2424601, 2424602, 2424603, 2424604, 2424605, 2424606
SM 9222 D	07/18/2023	07/18/2023 14:45	Julia Herten	07/19/2023 14:17	Julia Herten	2424614
	07/18/2023	07/18/2023 15:17	Julia Herten	07/19/2023 14:51	Julia Herten	2424615, 2424616, 2424617, 2424618, 2424619
SM 9223 B Quanti-Tray	07/18/2023	07/18/2023 15:49	Julia Herten	07/19/2023 14:51	Julia Herten	2424620, 2424622
	07/18/2023	07/18/2023 16:05	Julia Herten	07/19/2023 10:28	Julia Herten	2424607, 2424608, 2424609, 2424610, 2424611, 2424612, 2424613, 2424621