

Chemical Analysis Report

CEN-DIST-2021-07-01-03

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

Event Description: **Blanket Bay/Dead River**
Request ID: **RQ-2021-03-29-70**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 26-JUL-2021 12:28

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: Nutrients.

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: Bull Creek @ Upstream of 441 Bridge

Collection Date/Time: 06/30/2021 12:26

Field ID: G3CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2258548	EPA 180.1 Rev. 2.0	Turbidity	25	A	NTU	P400482	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P400720	
		Sulfate	15		mg SO4/L	P400722	
		Color (true)	600	J	PCU	P400485	
	SM 2320 B-2011	Total Alkalinity	1.6	I	mg CaCO3/L	P400924	
	SM 2540 C-2011	TDS	191		mg/L	P400831	
	SM 2540 D-2011	TSS	2	I	mg/L	P400834	
	SM 4500 F-C-2011	Fluoride	0.048	I	mg F/L	P400786	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.28		mg N/L	P401232	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.6		mg N/L	P400591	
2258549	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P400513	
	EPA 365.1 Rev. 2.0	Total-P	0.89		mg P/L	P400576	
	SM 5310 B-2011	Organic Carbon	51		mg C/L	P400823	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.58		mg P/L	P400465	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference and batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2120 B-2011: The result may be biased high because of matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400482

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400720

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400722

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401232

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400591

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400513

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400576

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400465

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B-2011
Batch ID: P400485

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P400924

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P400831

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P400834

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P400786

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P400823

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400720

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400722

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	110		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	100		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P400485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P400924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P400786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P400823

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258506	Chloride	97.6		P	90 - 110
2258641	Chloride	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258641	Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258555	Ammonia-N	95.4	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258470	Kjeldahl Nitrogen	107	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258500	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258498	Total-P	107	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258568	O-Phosphate-P	94.7	95.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P400786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258566	Fluoride	99.4	98.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P400823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2258555	Organic Carbon	101	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258548	Turbidity	0.396	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P400720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258506	Chloride	0.669	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258555	Ammonia-N	1.80	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P400591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258470	Kjeldahl Nitrogen	1.67	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258500	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258498	Total-P	3.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258568	O-Phosphate-P	0.946	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P400485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258469	Color (true)	0.873	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P400924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260529	Total Alkalinity	1.26	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P400831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258506	TDS	4.82	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P400834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258506	TSS	6.67	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P400786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258566	Fluoride	0.506	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P400823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2258555	Organic Carbon	0.558	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A106399

Included Lab Sample IDs: 2258550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106410

Included Lab Sample IDs: 2258548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A106412

Included Lab Sample IDs: 2258548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106426

Included Lab Sample IDs: 2258549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106471

Included Lab Sample IDs: 2258549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106481

Included Lab Sample IDs: 2258548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	99.8	P/P	90 - 110
Sulfate	98.6	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106502

Included Lab Sample IDs: 2258549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106546

Included Lab Sample IDs: 2258548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A106565

Included Lab Sample IDs: 2258549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106605

Included Lab Sample IDs: 2258548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106712

Included Lab Sample IDs: 2258549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.396	
EPA 300.0 Rev. 2.1	Chloride	96.6	97.6	96.7	0.669	
	Sulfate	96.6	95.9			
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	95.4	97.4		1.80
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	107	109		1.67
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	100	101		0.496
EPA 365.1 Rev. 2.0	Total-P	105	107	104		3.04
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	94.7	95.6		0.946
SM 2120 B-2011	Color (true)	99.9			0.873	
SM 2320 B-2011	Total Alkalinity	103			1.26	
SM 2540 C-2011	TDS				4.82	
SM 2540 D-2011	TSS				6.67	
SM 4500 F-C-2011	Fluoride	100	99.4	98.8		0.506
SM 5310 B-2011	Organic Carbon	99.4	101	102		0.558

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2258548
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2258548
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2258548
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2258549
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2258549
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2258549
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2258549
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2258550
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2258548
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2258548
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2258548
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2258548
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2258548
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2258549

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	07/01/2021			07/01/2021 16:21	Sarah A Nixon	2258548
EPA 300.0 Rev. 2.1	07/01/2021			07/08/2021 22:19	Lipi Saha	2258548
EPA 350.1 Rev. 2.0	07/01/2021			07/20/2021 12:07	Roberta Tatti	2258549
EPA 351.2 Rev. 2.0	07/01/2021	07/06/2021 14:25	Benjamin T. Nordmann	07/07/2021 18:48	Letuzia M De Oliveira	2258549
EPA 353.2 Rev. 2.0	07/01/2021			07/02/2021 09:44	Beverly Y. Sanders	2258549
EPA 365.1 Rev. 2.0	07/01/2021	07/06/2021 15:49	Madeline Gruver	07/07/2021 08:52	Shengyu Ding	2258549
EPA 365.1 Rev. 2.0 dissolved	07/01/2021			07/01/2021 15:14	Ping Hua	2258550
SM 2120 B-2011	07/01/2021			07/01/2021 17:04	Sarah A Nixon	2258548
SM 2320 B-2011	07/01/2021			07/13/2021 17:47	Dale L. Simmons	2258548
SM 2540 C-2011	07/01/2021			07/06/2021 14:08	Yijie Li	2258548
SM 2540 D-2011	07/01/2021			07/06/2021 14:08	Yijie Li	2258548
SM 4500 F-C-2011	07/01/2021			07/10/2021 07:43	Dale L. Simmons	2258548
SM 5310 B-2011	07/01/2021			07/10/2021 03:44	Madeline Gruver	2258549