

Chemical Analysis Report

NW-DIST-2023-05-04-01

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

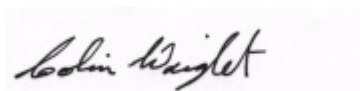
Event Description: **Laurel Hill East**
Request ID: **RQ-2023-05-01-48**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
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Certified by: Colin Wright, Program Administrator

Date Certified: 22-MAY-2023 08:39

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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: EAST BRANCH PINE LOG CREEK ABOVE
BEAR BAY FLATS ROAD**

Collection Date/Time: 05/03/2023 12:00

Field ID: G4NW0208

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2405646	DEP SOP: NU-094-1	Color (true)	110		PCU	P429422	
	EPA 180.1 Rev. 2.0	Turbidity	1.9	A	NTU	P429436	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P429662	
		Sulfate	0.69		mg SO4/L	P429664	
	SM 2320 B-2011	Total Alkalinity	6.4		mg CaCO3/L	P429832	
	SM 2540 C-2015	TDS	44		mg/L	P429834	
	SM 2540 D-2015	TSS	2	I	mg/L	P429764	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P429697	
2405647	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P429609	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P429573	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P429812	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P429536	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P429705	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P429422

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429436

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429662

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429664

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429609

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429573

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429812

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429536

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

Reference Method: SM 2320 B-2011
Batch ID: P429832

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P429834

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P429764

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P429697

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P429705

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P429422

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429662

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429573

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429812

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429536

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

Reference Method: SM 2320 B-2011
Batch ID: P429832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P429834

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	96.5		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P429764

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	95.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P429697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.5		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P429705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405693	Chloride	91.5		P	90 - 110
2406008	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405693	Sulfate	94.1		P	90 - 110
2406008	Sulfate	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405647	Ammonia-N	97.8	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405920	Kjeldahl Nitrogen	96.3	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405057	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405694	Total-P	101	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P429697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405628	Fluoride	102	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P429705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405454	Organic Carbon	97.0	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P429422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405633	Color (true)	0.462	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405646	Turbidity	10.8	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405693	Chloride	0.314	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405693	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405647	Ammonia-N	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405920	Kjeldahl Nitrogen	1.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405057	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405694	Total-P	0.609	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P429832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2406052	Total Alkalinity	0.346	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P429834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2404876	TDS	2.69	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P429697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405628	Fluoride	0.480	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P429705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405454	Organic Carbon	1.44	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A118955
Included Lab Sample IDs: 2405646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A118961
Included Lab Sample IDs: 2405646

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A119045
Included Lab Sample IDs: 2405647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A119048
Included Lab Sample IDs: 2405647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A119070
Included Lab Sample IDs: 2405646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.9	97.6	P/P	90 - 110
Sulfate	98.6	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A119075
Included Lab Sample IDs: 2405647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	95.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A119080
Included Lab Sample IDs: 2405646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A119082
Included Lab Sample IDs: 2405647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	98.2	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119129

Included Lab Sample IDs: 2405647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A119143

Included Lab Sample IDs: 2405646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	99.4	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
DEP SOP: NU-094-1	Color (true)	98.4			0.462	
EPA 180.1 Rev. 2.0	Turbidity	99.4			10.8	
EPA 300.0 Rev. 2.1	Chloride	98.7	91.5	98.0	0.314	
	Sulfate	97.3	94.1	95.3	1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	97.8	99.4		1.19
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.4	96.3	97.7		1.19
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103	103		0.0
EPA 365.1 Rev. 2.0	Total-P	101	101	102		0.609
SM 2320 B-2011	Total Alkalinity	98.6			0.346	
SM 2540 C-2015	TDS	96.5			2.69	
SM 2540 D-2015	TSS	95.3				
SM 4500-F- C-2011	Fluoride	99.5	102	101		0.480
SM 5310 B-2011	Organic Carbon	100	97.0	98.8		1.44

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2405646
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2405646
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2405646
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2405646
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2405647
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2405647
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2405647
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2405647
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2405646
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2405646
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2405646
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2405646
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2405647

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	05/04/2023			05/04/2023 14:12	Chandler E Cox	2405646
EPA 180.1 Rev. 2.0	05/04/2023			05/04/2023 13:34	Khloe J Berg	2405646
EPA 300.0 Rev. 2.1	05/04/2023			05/09/2023 22:51	James L Waggerby	2405646
EPA 350.1 Rev. 2.0	05/04/2023			05/09/2023 10:31	Khloe J Berg	2405647
EPA 351.2 Rev. 2.0	05/04/2023	05/09/2023 12:02	Dana G. Hughes	05/10/2023 14:20	Samantha L Bates	2405647
EPA 353.2 Rev. 2.0	05/04/2023			05/12/2023 09:49	Beverly Y. Sanders	2405647
EPA 365.1 Rev. 2.0	05/04/2023	05/08/2023 13:00	Alexis Price	05/09/2023 14:25	Simonne.V. Calhoun	2405647
SM 2320 B-2011	05/04/2023			05/11/2023 16:33	Dale L. Simmons	2405646
SM 2540 C-2015	05/04/2023			05/05/2023 16:02	Yijie Li	2405646
SM 2540 D-2015	05/04/2023			05/05/2023 16:02	Yijie Li	2405646
SM 4500-F- C-2011	05/04/2023			05/10/2023 03:24	Dale L. Simmons	2405646
SM 5310 B-2011	05/04/2023			05/10/2023 03:02	Elise M. Gillis	2405647