Chemical Analysis Report

NW-DIST-2020-02-25-01

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

Event Description: **Whiteoak Continuous Monitoring**
Request ID: **RQ-2020-02-24-16**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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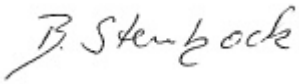
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 16-MAR-2020 13:12



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: White Oak Bayou at end of Aegean Drive **Collection Date/Time: 02/24/2020 08:36**

Field ID: G4NW0387 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2160548	EPA 180.1 Rev. 2.0	Turbidity	1.8	A	NTU	P379641	
	EPA 300.0 Rev. 2.1	Bromide	0.61		mg Br/L	P380275	
	SM 2320 B-2011	Total Alkalinity	7.6		mg CaCO3/L	P380267	
	SM 2540 D-2011	TSS	2	I	mg/L	P379975	
	SM 4500 F-C-2011	Fluoride	0.045	I	mg F/L	P380272	
2160549	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P379913	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P379760	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380100	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P380041	
	SM 5310 B-2011	Organic Carbon	7.2		mg C/L	P379712	
2160550	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P379689	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P379641

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380275

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379913

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379760

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380100

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380041

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379689

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

Reference Method: SM 2320 B-2011
Batch ID: P380267

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

Reference Method: SM 2540 D-2011
Batch ID: P379975

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P380272

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P379712

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: P380275

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379913

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379760

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380041

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P380267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P380272

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P379712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162533	Bromide	93.6	94.4	P/P	90 - 110
2162535	Bromide	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160489	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160489	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160431	NO2NO3-N	95.7	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160430	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160490	O-Phosphate-P	92.6	94.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P380272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161920	Fluoride	104	102	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P379712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160431	Organic Carbon	98.1		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P379641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160548	Turbidity	5.65	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162533	Bromide	0.653	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160489	Ammonia-N	0.924	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160489	Kjeldahl Nitrogen	2.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160431	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160430	Total-P	0.614	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160490	O-Phosphate-P	1.23	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P380267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161920	Total Alkalinity	1.15	Sample	P	0 - 2.8

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P380272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161920	Fluoride	0.921	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P379712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160431	Organic Carbon	0.557	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A97813
Included Lab Sample IDs: 2160548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A97828
Included Lab Sample IDs: 2160550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	92.6	91.5	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A97841
Included Lab Sample IDs: 2160549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.5	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A97877
Included Lab Sample IDs: 2160549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	95.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A97928
Included Lab Sample IDs: 2160549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	91.6	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98012
Included Lab Sample IDs: 2160549

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A98056
Included Lab Sample IDs: 2160548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	103	104	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A98059
Included Lab Sample IDs: 2160548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.8	98.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A98059
Included Lab Sample IDs: 2160548

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98071
Included Lab Sample IDs: 2160549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						5.65	
EPA 300.0 Rev. 2.1	Bromide	99.1	93.6	94.4	94.2			0.653
EPA 350.1 Rev. 2.0	Ammonia-N	103	100	101				0.924
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	106	101				2.69
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	95.7	95.2				0.504
EPA 365.1 Rev. 2.0	Total-P	103	105	106				0.614
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	92.6	94.3				1.23
SM 2320 B-2011	Total Alkalinity	101					1.15	
SM 4500 F-C-2011	Fluoride	102	104	102				0.921
SM 5310 B-2011	Organic Carbon	99.8	98.1					0.557

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2160548
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2160548
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2160549
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2160549
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2160549
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2160549
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2160550
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2160548
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2160548
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2160548
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2160549

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	02/25/2020			02/25/2020 16:14	Blanca Fach	2160548
EPA 300.0 Rev. 2.1	02/25/2020			03/06/2020 22:26	Lipi Saha	2160548
EPA 350.1 Rev. 2.0	02/25/2020			03/02/2020 14:13	Ping Hua	2160549
EPA 351.2 Rev. 2.0	02/25/2020	02/27/2020 12:00	Sima Feizi	02/28/2020 10:20	Jhamieka S. Greenwood	2160549
EPA 353.2 Rev. 2.0	02/25/2020			03/05/2020 10:24	Beverly Y. Sanders	2160549
EPA 365.1 Rev. 2.0	02/25/2020	03/04/2020 13:06	Yen Ta	03/09/2020 12:28	Benjamin T. Nordmann	2160549
EPA 365.1 Rev. 2.0 dissolved	02/25/2020			02/25/2020 17:57	Carlos Miranda	2160550
SM 2320 B-2011	02/25/2020			03/07/2020 06:59	Samantha Davila	2160548
SM 2540 D-2011	02/25/2020			02/26/2020 14:06	Yijie Li	2160548
SM 4500 F-C-2011	02/25/2020			03/07/2020 06:59	Samantha Davila	2160548
SM 5310 B-2011	02/25/2020			02/26/2020 23:54	Lauren Lees	2160549