Chemical Analysis Report

NW-DIST-2020-06-26-01

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-2020-06-22-59**
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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 16-JUL-2020 13:52

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: 06/25/2020 13:30**

Field ID: G4NW0387 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178874	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P383751	
	EPA 300.0 Rev. 2.1	Bromide	10		mg Br/L	P384097	
	SM 2320 B-2011	Total Alkalinity	43		mg CaCO3/L	P383848	
	SM 2540 D-2011	TSS	3	I	mg/L	P384358	
	SM 4500 F-C-2011	Fluoride	0.24		mg F/L	P383854	
2178875	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P383769	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P383987	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P383840	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P383862	
	SM 5310 B-2011	Organic Carbon	9.1		mg C/L	P383902	
2178876	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P383776	

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: P383751

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384097

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383769

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383987

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383840

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383862

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383776

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

Reference Method: SM 2320 B-2011
Batch ID: P383848

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

Reference Method: SM 2540 D-2011
Batch ID: P384358

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P383854

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P383902

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: P384097

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383769

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383987

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383840

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383862

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383776

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.4		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P383848

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P383854

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P383902

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384097

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178358	Bromide	98.8		P	90 - 110
2179038	Bromide	97.7	95.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178875	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178846	Kjeldahl Nitrogen	110	109	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383840

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178840	NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178845	Total-P	96.1	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178673	O-Phosphate-P	97.2	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P383854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178942	Fluoride	97.9	96.2	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P383902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178646	Organic Carbon	108	110	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178659	Turbidity	0.416	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179038	Bromide	1.98	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178875	Ammonia-N	2.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178846	Kjeldahl Nitrogen	0.978	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178840	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178845	Total-P	0.851	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178673	O-Phosphate-P	1.33	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P383848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178942	Total Alkalinity	2.42	Sample	P	0 - 8.1

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P383854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178942	Fluoride	1.39	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P383902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178646	Organic Carbon	1.64	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: A99552
Included Lab Sample IDs: 2178874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99556
Included Lab Sample IDs: 2178875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99558
Included Lab Sample IDs: 2178876

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A99585
Included Lab Sample IDs: 2178875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A99591
Included Lab Sample IDs: 2178874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A99591
Included Lab Sample IDs: 2178874

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

Reference Method: SM 5310 B-2011
Run ID: A99616
Included Lab Sample IDs: 2178875

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99675
Included Lab Sample IDs: 2178875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A99685
Included Lab Sample IDs: 2178875

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.5	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A99696
Included Lab Sample IDs: 2178874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	98.6	96.8	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						0.416	
EPA 300.0 Rev. 2.1	Bromide	99.6	97.7	95.3	98.8			1.98
EPA 350.1 Rev. 2.0	Ammonia-N	101	100	103				2.38
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	110	109				0.978
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.0	99.5				0.504
EPA 365.1 Rev. 2.0	Total-P	106	96.1	95.2				0.851
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	97.2	98.5				1.33
SM 2320 B-2011	Total Alkalinity	99.6					2.42	
SM 4500 F-C-2011	Fluoride	96.8	97.9	96.2				1.39
SM 5310 B-2011	Organic Carbon	102	108	110				1.64

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2178874
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2178874
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2178875
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2178875
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2178875
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2178875
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2178876
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2178874
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2178874
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2178874
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2178875

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	06/26/2020			06/26/2020 16:13	Yen Ta	2178874
EPA 300.0 Rev. 2.1	06/26/2020			07/02/2020 05:37	Jhamieka S. Greenwood	2178874
EPA 350.1 Rev. 2.0	06/26/2020			06/27/2020 17:06	Ping Hua	2178875
EPA 351.2 Rev. 2.0	06/26/2020	07/02/2020 09:40	Sima Feizi	07/06/2020 09:24	Jhamieka S. Greenwood	2178875
EPA 353.2 Rev. 2.0	06/26/2020			06/30/2020 08:29	Beverly Y. Sanders	2178875
EPA 365.1 Rev. 2.0	06/26/2020	06/30/2020 11:51	Yen Ta	07/02/2020 09:48	Lipi Saha	2178875
EPA 365.1 Rev. 2.0 dissolved	06/26/2020			06/26/2020 16:53	Jhamieka S. Greenwood	2178876
SM 2320 B-2011	06/26/2020			06/29/2020 21:38	Dale L. Simmons	2178874
SM 2540 D-2011	06/26/2020			07/01/2020 13:59	Yijie Li	2178874
SM 4500 F-C-2011	06/26/2020			06/29/2020 21:38	Dale L. Simmons	2178874
SM 5310 B-2011	06/26/2020			06/30/2020 20:35	David Boose	2178875