Chemical Analysis Report

NW-DIST-2021-04-15-02

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

Event Description: **Eagle Creek Continuous Monitoring**
Request ID: **RQ-2021-02-01-64**
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, Environmental Consultant Date Certified: 05-MAY-2021 10:30

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: Eagle Creek Upstream of Hwy 20 **Collection Date/Time: 04/14/2021 11:00**

Field ID: G3NW0151 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240173	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P396645	
	EPA 300.0 Rev. 2.1	Bromide	0.014	I	mg Br/L	P397185	
	SM 2320 B-2011	Total Alkalinity	1.1	I	mg CaCO3/L	P396887	
	SM 2540 D-2011	TSS	2	I	mg/L	P397226	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P397116	
2240174	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P397362	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P397068	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P396900	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P396856	
	SM 5310 B-2011	Organic Carbon	5.1		mg C/L	P396955	
2240175	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P396625	

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: P396645

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397185

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397362

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397068

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396900

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396856

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396625

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

Reference Method: SM 2320 B-2011
Batch ID: P396887

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

Reference Method: SM 2540 D-2011
Batch ID: P397226

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P397116

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P396955

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: P397185

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397362

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397068

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396856

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: P396625

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: P396887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P397116

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P396955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240173	Bromide	102	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397362

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240151	Ammonia-N	96.8	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240168	Kjeldahl Nitrogen	98.4	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240174	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240036	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240154	O-Phosphate-P	98.2	98.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P397116

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240221	Fluoride	100	101	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P396955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240101	Organic Carbon	102		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240149	Turbidity	0.435	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240173	Bromide	2.48	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240151	Ammonia-N	0.673	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240168	Kjeldahl Nitrogen	0.00626	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P396900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240174	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240036	Total-P	0.699	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240154	O-Phosphate-P	0.203	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P396887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240221	Total Alkalinity	0.309	Sample	P	0 - 8.1

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P397116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240221	Fluoride	0.472	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P396955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240101	Organic Carbon	0.0909	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: A104762
Included Lab Sample IDs: 2240175

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A104768
Included Lab Sample IDs: 2240173

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A104851
Included Lab Sample IDs: 2240174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A104870
Included Lab Sample IDs: 2240173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A104883
Included Lab Sample IDs: 2240174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	97.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A104900
Included Lab Sample IDs: 2240173

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.4	97.5	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A104901
Included Lab Sample IDs: 2240174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A104962
Included Lab Sample IDs: 2240173

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A105021
Included Lab Sample IDs: 2240174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A105064
Included Lab Sample IDs: 2240174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	98.5	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					0.435	
EPA 300.0 Rev. 2.1	Bromide	100	102	99.1			2.48
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	96.8	97.6			0.673
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	98.4	98.4			0.0062
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	98.5	98.0			0.509
EPA 365.1 Rev. 2.0	Total-P	106	105	104			0.699
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	98.2	98.4			0.203
SM 2320 B-2011	Total Alkalinity	101				0.309	
SM 4500 F-C-2011	Fluoride	98.8	100	101			0.472
SM 5310 B-2011	Organic Carbon	97.6	102				0.0909

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2240173
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2240173
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2240174
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2240174
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2240174
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2240174
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2240175
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2240173
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2240173
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2240173
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2240174

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	04/15/2021			04/15/2021 16:12	Yen Ta	2240173
EPA 300.0 Rev. 2.1	04/15/2021			04/22/2021 13:13	Lipi Saha	2240173
EPA 350.1 Rev. 2.0	04/15/2021			04/28/2021 17:54	Ping Hua	2240174
EPA 351.2 Rev. 2.0	04/15/2021	04/23/2021 14:33	Benjamin T. Nordmann	04/27/2021 11:56	Virginia P. Brown	2240174
EPA 353.2 Rev. 2.0	04/15/2021			04/20/2021 11:31	Beverly Y. Sanders	2240174
EPA 365.1 Rev. 2.0	04/15/2021	04/20/2021 14:25	Yen Ta	04/21/2021 13:23	Shengyu Ding	2240174
EPA 365.1 Rev. 2.0 dissolved	04/15/2021			04/15/2021 14:14	Lipi Saha	2240175
SM 2320 B-2011	04/15/2021			04/20/2021 21:42	Dale L. Simmons	2240173
SM 2540 D-2011	04/15/2021			04/20/2021 15:21	Yijie Li	2240173
SM 4500 F-C-2011	04/15/2021			04/23/2021 23:10	Dale L. Simmons	2240173
SM 5310 B-2011	04/15/2021			04/22/2021 03:12	Lauren Lees	2240174