Chemical Analysis Report

NE-DIST-2020-03-04-02

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

Event Description: **SCI Wildwood Cr-2520, Moultrie-Bio**
Request ID: **RQ-2020-03-02-22**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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: 23-MAR-2020 10:55

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: Moultrie Creek @ CR 207 **Collection Date/Time: 03/03/2020 10:45**

Field ID: 27010188 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2162042	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P380055	
	EPA 300.0 Rev. 2.1	Chloride	55		mg Cl/L	P380389	
		Sulfate	28		mg SO4/L	P380392	
	SM 2120 B-2011	Color (true)	210		PCU	P380132	
	SM 2320 B-2011	Total Alkalinity	150		mg CaCO3/L	P380591	
	SM 2540 C-2011	TDS	344	A	mg/L	P380758	
	SM 2540 D-2011	TSS	2	UA	mg/L	P380548	
	SM 4500 F-C-2011	Fluoride	0.097	I	mg F/L	P380595	MS
2162043	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P380469	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P380183	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P380287	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P380363	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P380171	
2162044	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P380064	

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: P380055

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380389

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380392

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380469

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380183

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380287

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380363

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380064

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

Reference Method: SM 2120 B-2011
Batch ID: P380132

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P380591

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

Reference Method: SM 2540 C-2011
Batch ID: P380758

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P380548

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P380595

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380171

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: P380389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380392

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380469

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: P380183

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380287

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: P380363

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.9		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P380132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P380591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P380595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P380171

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161984	Chloride	96.5		P	90 - 110
2162070	Chloride	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161984	Sulfate	98.6		P	90 - 110
2162070	Sulfate	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161949	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162071	Kjeldahl Nitrogen	100	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162021	NO2NO3-N	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162014	Total-P	108	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162044	O-Phosphate-P	94.1	94.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P380595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162608	Fluoride	110	110	F/F	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2162014	Organic Carbon	97.8	98.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162141	Turbidity	0.939	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162070	Chloride	0.680	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162070	Sulfate	0.352	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161949	Ammonia-N	0.596	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162071	Kjeldahl Nitrogen	1.71	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162021	NO2NO3-N	0.391	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162014	Total-P	3.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162044	O-Phosphate-P	0.229	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P380132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162020	Color (true)	1.99	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P380591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162608	Total Alkalinity	0.283	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P380758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162042	TDS	6.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P380595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162608	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2162014	Organic Carbon	0.312	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: A97995
Included Lab Sample IDs: 2162042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A97998
Included Lab Sample IDs: 2162044

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.1	96.1	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A98019
Included Lab Sample IDs: 2162042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115

Reference Method: SM 5310 B-2011
Run ID: A98030
Included Lab Sample IDs: 2162043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.5	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A98061
Included Lab Sample IDs: 2162043

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A98065
Included Lab Sample IDs: 2162043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	99.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A98096
Included Lab Sample IDs: 2162042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	99.0	P/P	90 - 110
Sulfate	98.8	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A98131
Included Lab Sample IDs: 2162043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	99.9	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A98174
Included Lab Sample IDs: 2162042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A98174
Included Lab Sample IDs: 2162042

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A98211
Included Lab Sample IDs: 2162043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	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					0.939	
EPA 300.0 Rev. 2.1	Chloride	97.6	96.2	96.5		0.680	
	Sulfate	98.9	96.0	98.6		0.352	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	101	100			0.596
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	100	97.7			1.71
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.6	100			0.391
EPA 365.1 Rev. 2.0	Total-P	104	108	104			3.74
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.9	94.1	94.4			0.229
SM 2120 B-2011	Color (true)	101				1.99	
SM 2320 B-2011	Total Alkalinity	102				0.283	
SM 2540 C-2011	TDS					6.10	
SM 4500 F-C-2011	Fluoride	101	110	110			0.0
SM 5310 B-2011	Organic Carbon	101	97.8	98.1			0.312

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2162042
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2162042
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2162042
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2162043
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2162043
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2162043
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2162043
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2162044
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2162042
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2162042
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2162042
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2162042
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2162042
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2162043

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	03/04/2020			03/04/2020 16:33	Yen Ta	2162042
EPA 300.0 Rev. 2.1	03/04/2020			03/10/2020 17:13	Lipi Saha	2162042
EPA 350.1 Rev. 2.0	03/04/2020			03/09/2020 15:19	Ping Hua	2162043
EPA 351.2 Rev. 2.0	03/04/2020	03/06/2020 12:12	Sima Feizi	03/09/2020 13:21	Jhamieka S. Greenwood	2162043
EPA 353.2 Rev. 2.0	03/04/2020			03/09/2020 10:56	Beverly Y. Sanders	2162043
EPA 365.1 Rev. 2.0	03/04/2020	03/10/2020 13:53	Yen Ta	03/13/2020 14:02	Benjamin T. Nordmann	2162043
EPA 365.1 Rev. 2.0 dissolved	03/04/2020			03/04/2020 16:25	Carlos Miranda	2162044
SM 2120 B-2011	03/04/2020			03/04/2020 19:22		2162042
SM 2320 B-2011	03/04/2020			03/12/2020 10:32	Dale L. Simmons	2162042
SM 2540 C-2011	03/04/2020			03/09/2020 15:13	Yijie Li	2162042
SM 2540 D-2011	03/04/2020			03/09/2020 15:13	Yijie Li	2162042
SM 4500 F-C-2011	03/04/2020			03/12/2020 10:32	Dale L. Simmons	2162042
SM 5310 B-2011	03/04/2020			03/06/2020 00:17	Lauren Lees	2162043