Chemical Analysis Report

SO-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: **2020 SMP : Canals**
Request ID: **RQ-2020-06-29-18**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Certified by: Colin Wright, Program Administrator

Date Certified: 16-JUL-2020 10:08

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: C-139Annex@DeerFenceRd **Collection Date/Time: 06/25/2020 13:10**

Field ID: G1SD0076 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2178882	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P383751	
	EPA 300.0 Rev. 2.1	Chloride	45		mg Cl/L	P384002	
		Sulfate	17		mg SO4/L	P384004	
	SM 2120 B-2011	Color (true)	190		PCU	P383759	
	SM 2320 B-2011	Total Alkalinity	193		mg CaCO3/L	P383848	
	SM 2540 C-2011	TDS	352	A	mg/L	P384361	
	SM 2540 D-2011	TSS	4	I A	mg/L	P384352	
	SM 4500 F-C-2011	Fluoride	0.23		mg F/L	P383854	
2178883	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P383772	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P383881	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P383912	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P383813	
	SM 5310 B-2011	Organic Carbon	26		mg C/L	P383902	
2178884	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P383777	

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: P384002

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384004

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383772

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383881

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383912

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383813

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383777

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

Reference Method: SM 2120 B-2011
Batch ID: P383759

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

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 C-2011
Batch ID: P384361

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384352

Component	Result	Code	Units
TSS	2	U	mg/L

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: P384002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384004

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383772

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383912

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383813

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: P383777

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

Reference Method: SM 2120 B-2011
Batch ID: P383759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

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

Quality Assurance Report
Laboratory Control Sample Accuracy

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: P384002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178770	Chloride	95.8		P	90 - 110
2178922	Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178770	Sulfate	94.8		P	90 - 110
2178922	Sulfate	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178943	Ammonia-N	98.8	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178772	Kjeldahl Nitrogen	104	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178772	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178749	Total-P	103	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2178681	O-Phosphate-P	98.3	98.9	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: P384002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178922	Chloride	1.23	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178922	Sulfate	1.21	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P383772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178943	Ammonia-N	0.485	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178772	Kjeldahl Nitrogen	1.65	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P383912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178772	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178749	Total-P	3.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178681	O-Phosphate-P	0.609	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B-2011
Batch ID: P383759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178790	Color (true)	0.228	Sample	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

Reference Method: SM 2540 C-2011
Batch ID: P384361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2178882	TDS	1.99	Sample	P	0 - 10

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: 2178882

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

Reference Method: SM 2120 B-2011
Run ID: A99555
Included Lab Sample IDs: 2178882

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A99557
Included Lab Sample IDs: 2178883

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A99558
Included Lab Sample IDs: 2178884

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A99590
Included Lab Sample IDs: 2178883

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

Reference Method: SM 2320 B-2011
Run ID: A99591
Included Lab Sample IDs: 2178882

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

Reference Method: SM 4500 F-C-2011
Run ID: A99591
Included Lab Sample IDs: 2178882

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	91.9	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A99616
Included Lab Sample IDs: 2178883

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A99621
Included Lab Sample IDs: 2178883

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: A99625
Included Lab Sample IDs: 2178883

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.9	96.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A99659
Included Lab Sample IDs: 2178882

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	99.8	P/P	90 - 110
Sulfate	98.2	99.2	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	Chloride	98.6	97.7	95.8		1.23	
	Sulfate	97.8	95.5	94.8		1.21	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.8	98.3			0.485
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.9	104	101			1.65
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	100			0.499
EPA 365.1 Rev. 2.0	Total-P	103	103	99.1			3.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	98.3	98.9			0.609
SM 2120 B-2011	Color (true)	98.4				0.228	
SM 2320 B-2011	Total Alkalinity	99.6				2.42	
SM 2540 C-2011	TDS					1.99	
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	2178882
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2178882
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2178882
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2178883
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2178883
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2178883
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2178883
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2178884
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2178882
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2178882
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2178882
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2178882
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2178882
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2178883

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	2178882
EPA 300.0 Rev. 2.1	06/26/2020			07/02/2020 01:49	Elliott Rodriguez	2178882
EPA 350.1 Rev. 2.0	06/26/2020			06/28/2020 13:13	Ping Hua	2178883
EPA 351.2 Rev. 2.0	06/26/2020	06/30/2020 14:30	Jhamieka S. Greenwood	07/01/2020 11:20	Jhamieka S. Greenwood	2178883
EPA 353.2 Rev. 2.0	06/26/2020			07/01/2020 08:37	Beverly Y. Sanders	2178883
EPA 365.1 Rev. 2.0	06/26/2020	06/29/2020 13:17	Yen Ta	06/30/2020 09:49	Benjamin T. Nordmann	2178883
EPA 365.1 Rev. 2.0 dissolved	06/26/2020			06/26/2020 17:02	Jhamieka S. Greenwood	2178884
SM 2120 B-2011	06/26/2020			06/26/2020 17:57	Benjamin T. Nordmann	2178882
SM 2320 B-2011	06/26/2020			06/29/2020 19:15	Dale L. Simmons	2178882
SM 2540 C-2011	06/26/2020			07/01/2020 13:59	Yijie Li	2178882
SM 2540 D-2011	06/26/2020			07/01/2020 13:59	Yijie Li	2178882
SM 4500 F-C-2011	06/26/2020			06/29/2020 19:15	Dale L. Simmons	2178882
SM 5310 B-2011	06/26/2020			06/30/2020 20:47	David Boose	2178883