Chemical Analysis Report

SW-DIST-2017-12-12-01

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

Event Description: **SMP - DO Monitoring Deployment**
Request ID: **RQ-2017-11-27-24**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Matthew Bearden

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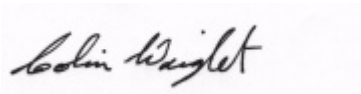
Certified by: Colin Wright, Program Administrator

Date Certified: 27-DEC-2017 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 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: Hills River @ Lowry Park **Collection Date/Time: 12/11/2017 11:35**

Field ID: G2SW0020 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1953006	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P336843	
	EPA 300.0 Rev. 2.1	Chloride	2.4E+03		mg Cl/L	P336971	
		Sulfate	490		mg SO4/L	P336973	
	SM 2120 B	Color (true)	21		PCU	P336834	
	SM 2320 B-97	Total Alkalinity	170		mg CaCO3/L	P337082	
	SM 2540 C-97	TDS	4.37E+03		mg/L	P337110	
	SM 2540 D-97	TSS	2	I	mg/L	P337206	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P337232	
1953007	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P337424	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P337272	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P337117	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P337058	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P336943	
1953008	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P336862	

Ref. Method and Comment:
SM 2540 D-97: 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: P336843

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336971

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336973

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337424

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337272

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337117

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337058

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336862

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

Reference Method: SM 2120 B
Batch ID: P336834

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P337082

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

Reference Method: SM 2540 C-97
Batch ID: P337110

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P337206

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P337232

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336943

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: P336971

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336973

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: P337424

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337272

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337058

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336862

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

Reference Method: SM 2320 B-97
Batch ID: P337082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P337232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P336943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1953111	Chloride	98.6		P	90 - 110
1953223	Chloride	95.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1953111	Sulfate	97.3		P	90 - 110
1953223	Sulfate	92.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337424

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1953024	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1953548	Kjeldahl Nitrogen	96.9	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1951782	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1953056	Total-P	94.5	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1953025	O-Phosphate-P	100	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P337232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1953313	Fluoride	97.9	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P336943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1952944	Organic Carbon	92.9	94.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1952956	Turbidity	0.978	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953223	Chloride	15.5	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953223	Sulfate	15.3	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953024	Ammonia-N	1.26	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953548	Kjeldahl Nitrogen	1.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1951782	NO2NO3-N	0.250	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953056	Total-P	2.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953025	O-Phosphate-P	1.09	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P336834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953111	Color (true)	1.09	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P337082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953313	Total Alkalinity	0.131	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P337110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1952982	TDS	2.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P337232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1953313	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P336943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1952944	Organic Carbon	1.55	Spike	P	0 - 20

Quality Assurance Report
Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A80851
Included Lab Sample IDs: 1953006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.1	95.8	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80852
Included Lab Sample IDs: 1953006

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80859
Included Lab Sample IDs: 1953008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80872
Included Lab Sample IDs: 1953006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	97.1	95.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A80887
Included Lab Sample IDs: 1953007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.9	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A80955
Included Lab Sample IDs: 1953006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80966
Included Lab Sample IDs: 1953007

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80967
Included Lab Sample IDs: 1953007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A81017
Included Lab Sample IDs: 1953006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A81068
Included Lab Sample IDs: 1953007

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81097
Included Lab Sample IDs: 1953007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	106	104	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					0.978	
EPA 300.0 Rev. 2.1	Chloride	100	95.1	98.6		15.5	
	Sulfate	97.8	92.0	97.3		15.3	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	100			1.26
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	96.9	94.8			1.79
EPA 353.2 Rev. 2.0	NO2NO3-N	108	104	104			0.250
EPA 365.1 Rev. 2.0	Total-P	101	94.5	96.6			2.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	100	102			1.09
SM 2120 B	Color (true)					1.09	
SM 2320 B-97	Total Alkalinity	102				0.131	
SM 2540 C-97	TDS					2.06	
SM 4500 F-C-97	Fluoride	97.9	97.9	98.6			0.473
SM 5310 B-00	Organic Carbon	94.6	92.9	94.4			1.55

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1953006
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1953006
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1953006
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1953007
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1953007
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1953007
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1953007
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1953008
SM 2120 B / E31780	True Color measured at 450 nm	1953006
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1953006
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1953006
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1953006
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1953006
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1953007

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	12/12/2017			12/12/2017 16:03	DeAsia Armster	1953006
EPA 300.0 Rev. 2.1	12/12/2017			12/13/2017	Julia Storbeck	1953006
EPA 350.1 Rev. 2.0	12/12/2017			12/21/2017	Sofia Elnemr	1953007
EPA 351.2 Rev. 2.0	12/12/2017	12/20/2017	Adrian Shelby	12/21/2017	Joseph Suarez	1953007
EPA 353.2 Rev. 2.0	12/12/2017			12/18/2017	Beverly Y. Sanders	1953007
EPA 365.1 Rev. 2.0	12/12/2017	12/15/2017	Sima Feizi	12/18/2017	Lipi Saha	1953007
EPA 365.1 Rev. 2.0 dissolved	12/12/2017			12/12/2017 15:16	Megan Treadwell	1953008
SM 2120 B	12/12/2017			12/12/2017 15:22	Tanya Welborn	1953006
SM 2320 B-97	12/12/2017			12/16/2017	Dale L. Simmons	1953006
SM 2540 C-97	12/12/2017			12/13/2017	Yijie Li	1953006
SM 2540 D-97	12/12/2017			12/13/2017	Yijie Li	1953006
SM 4500 F-C-97	12/12/2017			12/19/2017	Dale L. Simmons	1953006
SM 5310 B-00	12/12/2017			12/13/2017	Megan Treadwell	1953007